Urban Agriculture in Kenya

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Résumé
Fondé sur les conclusions d'une enquête récente entreprise par l'Institut Mazingira de Nairobi, cet article analyse le caractère de l'agriculture urbaine dans les villes du Kenya. L'accent est mis sur le ravitaillement en nourriture en tant qu'élément de l'économie informelle urbaine. L'agriculture, basée sur les cultures et le bétail est une activité commune fréquemment rencontrée dans les centres urbains en Afrique. Bien que considérée de peu d'importance par les urbanistes et les intellectuels, l'agriculture urbaine est un élément clé de l'économie des ménages pauvres. Une telle agriculture lutte pour obtenir la terre, la main d'oeuvre et les ressources et renferme un aspect vital de l'économie et du paysage urbains de la ville africaine. Selon cet article, la théorie urbaine africaine doit incorporer cet élément de la réalité urbaine d'une importance capitale.

Introduction
Cultivation and livestock keeping are widely practised in the towns of Africa. Spatially juxtaposed with other urban activities, and competing for land, labour, and resources, urban agriculture makes a vital contribution to the household economy of the urban poor. But despite the fact that urban agriculture is nearly ubiquitous, it has remained almost “invisible.” Until recently, it has been generally ignored by academics and planners. This reflects the fact that subsistence production, undertaken in the domestic economy, has not been considered to be of great significance.

This article is an analysis of the characteristics of urban agriculture in Kenya set within a wider conceptual and socio-economic context and is based on a recent survey by the Mazingira Institute (Lee-Smith et al. 1987). The survey encompassed both food and fuel, the two major components of...
the domestic economy in Africa. This article, however, only focuses on the food component of the survey, comprising crops and livestock. It underlines the significance of incorporating this consequential aspect of urban reality into urban theory, and it also raises questions of policy for sustainable urban development.

**Conceptual Issues**

A study of urban agriculture raises many concerns regarding theory and policy. The conceptual context of urban agriculture resides in the understanding of the informal sector, and it also has a significant bearing on the question of the role of women in Third World cities.

Urban farming is virtually excluded from the definition of the informal sector in the literature on African cities. This is true even though it shares a number of the characteristics with other elements of the informal economy, including ease of entry, reliance on indigenous resources, small scale, labour intensive and adapted technology, lack of formal training, and unregulated markets (ILO 1972).

More importantly, scholars of the “dependency” school criticize the “dualist” model of separate informal and formal sectors of the urban economy, which implicitly or explicitly advocates the informal sector as a solution to the problem of urban unemployment. A number of critics are of the opinion that the informal sector cannot improve the living standards of its operators because linkages between the formal and informal sectors are characterized by a dependent and subsidizing relationship (Gerry 1979). One basis of the debate between such “dualist” and “dependency” conceptualizations has revolved around whether the informal sector or petty commodity enterprises have a capacity for growth, and thus make an economic contribution, or whether they are basically parasitic and transitory (Moser 1978, 1984).

Urban farming is seldom considered worth examining within the context of the above debate, because it is assumed to be a subsistence activity. As discussed in the following case study, such an assumption is valid: seventy-seven percent of urban farmers in Kenya produce entirely for their own consumption. The important question is whether such subsistence activities, carried out mainly by women, should be dismissed as irrelevant and economically unimportant.

In many rural areas in Africa, the woman’s mothering role in providing food for her family is of crucial importance. Her role in food production provides labour and is also critical to nutrition. It has been demonstrated that cash cropping does not support subsistence but competes with it for land, labour, and resources (Bassett 1988). The relative and absolute losses in
women's production and incomes, as a consequence of expansion of cash
crop farming, bear on the food crisis in many African countries. Current poli-
cies and recommendations for the African food crisis are likely to fail
because women's work and the production of subsistence are largely ignored,
and the situation therefore remains misunderstood. Evidence indicates that
capitalist penetration has simultaneously depended on women's food-pro-
viding role and undermined it (Trenchard 1987). The situation in urban areas
with respect to urban farming is to be understood as part of this wider crisis.

The conflation of the meanings of the production for subsistence with the
reproduction of the work force, and their identification with women's work,
has obscured the economic significance of these activities. Women's work
links reproductive and productive activities in an inextricable way (Rakodi
1988). Women's and men's work in urban and rural areas is first directed to
self-sustainment. Subsistence farming needs to be better understood within
the context of the global environmental crisis and the sustainable develop-
ment debate (Lee-Smith and Hinchey Trujillo 1992). It is evident that urban
farming is of widespread economic importance to the survival of many Afri-
cans. Within such a context, the Kenyan study in this paper will examine the
attributes and significance of the urban farming sector and the related policy
implications.

Recent Literature

Until recently, research on urban agriculture and reference to it in the litera-
ture on African urbanisation and development have been very sparse; farm-
ing activities were considered unworthy of serious study. They were
assumed by researchers to be economically unimportant and detrimental to
urban and economic growth to such an extent that they were usually consid-
ered illegal and scarcely deserving mention, even in studies of the informal
sector. More recent interest in the issue of urban agriculture has been
"spurred by the UN declaration of International Women's Year and the
attention this focused on the activities of women, especially as regards food
production, in the Third World" (Freeman 1991, 19).

The literature on urban agriculture may be grouped in three categories:
that which examines urban farming policy; references to urban farming in
work on urbanization; and empirical studies specifically on urban farming.

In the early and mid 1980s, a number of studies were published, exploring
the activity of urban agriculture and, in particular, the role it could play in
the urban economy. The writing was largely focused on Asia (Yeung 1986)
and Latin America (Gutman 1986) and was predominantly based on sec-
dary data. Along with a number of other authors (Sachs 1983; Wade n.d.),
such work has been influential in promoting an interest in further research.
Much of this writing is concerned with the promotion of self-reliance in terms of economics and ecology.

Writing focused on African urbanization which makes reference to urban farming is sparse and includes O'Connor (1983), Hake (1977), Schlyter and Schlyter (1979), Rakodi and Schlyter (1981), Stren and Letemendia (1986), and Lee-Smith and Stren (1991). Nevertheless, many other studies on African urbanization also mention urban farming, only to dismiss it as insignificant. The same applies to the more specific studies on the urban informal sector. D. B. Freeman quotes the path-breaking ILO study of the informal sector in Kenya (ILO 1972) as specifically excluding urban agriculture through the definition of the informal sector as "non-farm activity" (Freeman 1991, 2), and indicates that many researchers dismiss urban farming as "an unimportant pastime indulged in purely by city housewives, one that might be regarded more properly as a form of recreation or disguised unemployment" (Freeman 1991, 18).

Related studies on the economic role of women, which emphasize their significance in rural agriculture, do not give great attention to urban agricultural production (Overholt et al. 1985). Even a major study on how the urban population in Africa is fed (Guyer 1987), while drawing out the important role of women traders, does not examine urban food production as such.

Empirical work, based upon interviews with urban farmers, has been limited until the late 1980s, and seems to derive mainly from African sources (Sanyal 1984; Rakodi 1985, 1988; Lee-Smith et al. 1987; Freeman 1991; and Slicher 1991). C. Rakodi's work on Zambia attempts to quantify trends in urban cultivation, employing empirical data from a number of sources. Freeman's book documents urban farmers in Kenya's capital city, Nairobi, based upon 1987 data.

The present study is grounded upon data from what is probably the first national survey of urban agricultural production in an African country conducted in Kenya in 1985 by the Mazingira Institute (Lee-Smith et al. 1987). It demonstrates how an understanding of urban agriculture can contribute to improved development planning, and includes specific measures for local authorities in Kenya which are of relevance in other sub-Saharan African countries.

The empirical information comprises interviews with a stratified random sample of 1576 households in six towns in Kenya (Map 1). This permits estimates to be made of the total national quantities of urban crops and livestock as well as allowing generalizations about the patterns of urban crop and livestock production and consumption. The towns chosen (Nairobi, Mombasa, Kisumu, Kakamega, Isiolo, and Kitui) are representative of Kenya's urban areas and of the major agro-climatic zones of the country.
MAP

SUDAN

ETHIOPIA

UGANDA

KENYA

SOMALI REPUBLIC

TANZANIA

INDIAN OCEAN

Kakamega
Kisumu
Kisumu

Nairobi

Kitul

Mombasa

Population

0 100 200 km
The Political Economy of Urban Farming in Kenya

Today, Kenya is one of the world's more rapidly urbanizing nations. The urban growth momentum has been sustained by a high rate of national population growth, inadequate access to farm land, and large scale rural to urban migration. According to the 1989 census (provisional data), the current urban population comprises 14.8 percent of the total, compared to 7.8 percent in 1962 and 4.5 percent in 1948. The urban population is projected to grow to 8.6 million by the year 2000 (24.7 percent of the total population). While the large primate cities of Nairobi and Mombasa continue to dominate the urban system, the medium and smaller size cities, such as Nakuru, Kisumu, and Kakamega, have more recently also become destinations for an increasing number of migrants from the rural periphery.

It could be argued that the root cause of the current reticence in accepting the presence of agriculture as a legitimate urban activity in Kenya is historical. In many respects, the development of the Kenyan urban system, as well as the planning ideologies which have shaped its evolution, can be attributed to influences emanating from abroad. Initially, prior to the mid- nineteenth century, these forces originated from the Indian Ocean seaboard and witnessed the development of the Afro-Arab city states along the east African coast line. However, since then, western influences have predominated.

From a global perspective, archaeological evidence indicates that agriculture and livestock keeping were developed in cities and not in rural settlements. The early cities of hunters required food storage and this led to the selective domestication of animals and to the regeneration of seed stock (Jacobs 1970, 47). Urban agriculture was an important phenomenon in many preindustrial cities, and a close relationship prevailed between a city and its hinterland (Sjoberg 1960). Today, in Western countries, urbanism excludes agriculture, except as a recreational activity or in times of crisis. Specific cultural connotations have become attached to the notions of the "city" and the "countryside" (Holton 1986). While the roots of such cultural values may extend back as far as the Graeco-Roman period, their predominance has been reinforced by the recent history of urbanism associated with the industrial revolution.

Cities have played an important role in the development of modern capitalism and are closely associated with an urban industrial way of life. The Western industrial city is a product of capital accumulation, derived initially from the surplus of primary sector activities in the rural countryside, and later from urban-based secondary and tertiary activities (Castells 1977). Agriculture became displaced and divorced from the growing urban nexus because it proved uncompetitive in relation to the demand for land from housing and industry. Ideological biases against urban agriculture were also
apparent in models of urban land use, based on assumptions derived from economic theory (Carter 1983).

British economic institutions were transplanted from Europe to the Third World within the framework of the Empire. Capitalist penetration reshaped the production process, organization of space, and gender roles. With the advent of European colonization of Kenya from the late-nineteenth century, the Highlands were developed as the basis of an export-based farming economy. The European settler agricultural enclave was surrounded by traditional African homelands, a source of cheap labour.

Within the context of such a space economy, the genesis of many of today's main urban centres in Kenya can be attributed primarily to administrative considerations and/or associated with the beginning of the railways. Several of these urban centres were gazetted as Townships under the Townships Ordinance of 1903, as centres of colonial authority and rule and as "islands of health" and security, over which strict sanitary control could be maintained under the Township Rules provided in the Ordinance. Based on these origins, the growth of the urban system during the course of the twentieth century was primarily driven by exogenous forces, within the framework of an international mercantile economy, and a dependent colonial relationship (Memon 1974, 1975).

The boundaries of these urban areas were carefully defined by the early administrators in order to avoid existing areas of subsistence farming and settlement. In the upper middle-income suburbs of cities such as Nairobi and Nakuru, residential areas were laid out on the basis of the garden city model, with large quarter-acre allotments and tree lined avenues (White 1948). Frequently, these salubrious neighbourhoods were protected from competing urban uses by buffer zones of public open space. In this new urban setting, the presence, on a permanent basis, of the indigenous African population, let alone their traditional means of livelihood, was proscribed and carefully policed.

Nevertheless, urban farming in the "upcountry towns" was begun as early as 1899 by the immigrant Indian railway workers who sold their surplus to Europeans. Some of their African employees started their own cultivation and also became hawkers (Mitullah 1991). But it was only during the past forty years that the African population was permitted to reside permanently in urban areas in Kenya. Since then, the growth of the urban population has consistently far surpassed forecasts. This has been paralleled by an expansion of urban informal and farming activities and an increasing ruralization of the cities; the boundaries between the city and the countryside have become clouded.

Urban farming is undertaken by two main groups, traditional farmers
who have been engulfed by urban development, and recent migrants. During
the last two to three decades, relatively large areas of peri-urban land have
been annexed from contiguous rural local authorities and incorporated
within urban municipalities. To a large extent, this has been necessitated by
land use changes in the urban fringe, as well as by local political pressures.
While the rigid definition of urban boundaries during the colonial period
enabled local government councils to exercise control over the ownership
and use of land within the designated municipalities, such restrictive poli-
cies could not contain the overspill of urban growth into the peri-urban
areas. To the contrary, these areas sustained the latter by encouraging the
location of unauthorized, lower grade housing in such areas, and subse-
quently these have been incorporated into existing municipalities.

Consequently, the larger urban centres include territory characterized by
a mixture of predominantly low-income residential and agricultural land
uses. Traditional landowners in these locales may grow crops and keep ani-
mals for personal consumption, as well as for sale. But, increasingly many of
these land owners have found it more profitable to build cheap rental hous-
ing on their previous farm land (Memon 1982). This group of urban farmers is
small, but in many cases is comprised of quite prosperous and politically
influential persons.

The second major group of urban farmers comprises urban migrants and
their families. Although these urban farmers come from all income groups,
the poor predominate. The majority of urban households in Kenya are unable
to feed themselves adequately from their earnings, and those who can, culti-
vate land in backyard spaces near their dwelling, on roadside verges, or on
other publicly owned vacant land.

Subsistence farming is an economic imperative for them. Hence, satisfac-
tion of the basic needs is the primary motivating factor governing the
behaviour of these individuals, rather than profit making and capital accu-
mulation. The number of urban dwellers is large and will grow even larger
with projected population growth. These farmers are not represented by any
organization, either in any town, or at the national level, even though they
constitute a substantial group amongst the urban population (approximately
twenty-nine percent). Whereas, hawkers and vendors, who are represented
by a relatively powerful Nairobi-based association which has recently
become national in scope, comprise only six percent of the population in all
towns and only five percent in Nairobi.

Urban Crop Farming
Almost two thirds of urban households (sixty-four percent) who participated
in the Mazingira survey grow part of their food, in the urban areas where
they live, and/or in rural areas (Table 1). This underlines the significance of
Table 1
Access to urban and rural land for crop production, selected towns (as % of total households)

<table>
<thead>
<tr>
<th>Isiolo</th>
<th>Kakamega</th>
<th>Kisumu</th>
<th>Kitui</th>
<th>Mombasa</th>
<th>Nairobi</th>
<th>All Towns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households with access to land</td>
<td>68</td>
<td>71</td>
<td>78</td>
<td>81</td>
<td>64</td>
<td>71</td>
</tr>
<tr>
<td>Households with no access to land</td>
<td>32</td>
<td>29</td>
<td>22</td>
<td>19</td>
<td>36</td>
<td>29</td>
</tr>
<tr>
<td>Households growing food</td>
<td>60</td>
<td>66</td>
<td>70</td>
<td>79</td>
<td>55</td>
<td>65</td>
</tr>
<tr>
<td>Households with access to urban land</td>
<td>55</td>
<td>51</td>
<td>35</td>
<td>59</td>
<td>29</td>
<td>22</td>
</tr>
<tr>
<td>Households growing food in urban areas</td>
<td>50</td>
<td>51</td>
<td>30</td>
<td>57</td>
<td>26</td>
<td>20</td>
</tr>
<tr>
<td>Total number of urban households</td>
<td>113</td>
<td>109</td>
<td>132</td>
<td>112</td>
<td>332</td>
<td>778</td>
</tr>
</tbody>
</table>

NOTE: Percentages of urban households in each category are shown with respect to total urban sample, and do not total 100 because they overlap.

Table 2
Households keeping livestock
(as % of total households)

<table>
<thead>
<tr>
<th>Isiolo</th>
<th>Kakamega</th>
<th>Kisumu</th>
<th>Kitui</th>
<th>Mombasa</th>
<th>Nairobi</th>
<th>All Towns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households keeping livestock</td>
<td>52</td>
<td>49</td>
<td>55</td>
<td>59</td>
<td>47</td>
<td>51</td>
</tr>
<tr>
<td>Households not keeping livestock</td>
<td>48</td>
<td>51</td>
<td>45</td>
<td>41</td>
<td>53</td>
<td>49</td>
</tr>
<tr>
<td>Total number of urban households</td>
<td>113</td>
<td>109</td>
<td>132</td>
<td>112</td>
<td>332</td>
<td>778</td>
</tr>
<tr>
<td>Households keeping urban livestock</td>
<td>36</td>
<td>28</td>
<td>30</td>
<td>32</td>
<td>22</td>
<td>7</td>
</tr>
<tr>
<td>Households not keeping urban livestock</td>
<td>64</td>
<td>72</td>
<td>70</td>
<td>68</td>
<td>78</td>
<td>93</td>
</tr>
<tr>
<td>Total number of urban households</td>
<td>113</td>
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<td>332</td>
<td>778</td>
</tr>
</tbody>
</table>
rural-urban links at a household level for food production for a majority of urban Kenyans. Furthermore, a substantial minority (twenty-nine percent) grow these crops within the urban area where they live. The proportion practising urban farming is much higher in the smaller towns, such as Kitui (fifty-seven percent), compared to the larger cities of Nairobi (twenty percent), Mombasa (twenty-six percent), and Kisumu (thirty percent).

However, twenty-nine percent of all urban households interviewed had no access to land, either rural or urban, where they could grow crops. An even higher proportion (sixty-nine percent) had no access to urban land for growing crops. Smaller town residents generally had better access to urban land, while those with the least access to urban land were the very low income earners, particularly residents of the capital city of Nairobi.

Seventeen percent of all urban households surveyed formerly farmed but ceased farming for a variety of reasons such as change of residence, pressure by the landlord or the municipality, crop destruction by animals, crop theft, or termination of temporary land use arrangement. From casual observation, it is clear that commercial pressures from both formal and informal businesses and other urban land uses have eroded the supply of urban farm land in Nairobi and other cities.

While urban farming is practised by all income groups, the incidence is highest amongst lower income people. In contrast to the former, who tend to farm on private land, mostly their backyards, the very low income groups tend to use public land.

These findings are comparable to those from the 1970s and 1980s from low income residential areas in Zambia, mainly in the capital city of Lusaka. There, the proportion of households growing crops on their plots, or unused land elsewhere, varied from twenty-five percent to fifty-six percent. The proportions in some areas were even higher at seventy-three to eighty percent, depending on local circumstances, such as encouragement by the authorities or the availability of mine company land (Rakodi 1988).

The majority of urban farmers in Kenya are women (fifty-six percent), with the proportion of women being higher in the larger towns (sixty-two percent in Nairobi). Only in Kitui, fewer women than men were found among urban farm workers (forty-seven percent). Women form an even higher proportion of the household heads engaged in urban farming (sixty-four percent), while men were the large majority among hired urban farm workers (eighty-two percent). Women also comprised the majority (fifty-six percent) among unpaid household labour, other than the household heads.

Overall, an estimated 25.2 million kilograms of crops, worth about KSh. 60.9 million (about US $4 million in 1985) were produced in urban areas in Kenya in one season. This represents a considerable contribution to national
economic production, especially if it is assumed that most urban areas have two crops per annum. Only a small proportion of this production was sold, most being consumed as subsistence by the households. Only twenty-three percent of urban farmers sold a proportion of what they produced. This is broadly consistent with Freeman’s data on Nairobi urban farmers’ intentions of selling crops. Freeman also found that twenty-six percent of his sample had other informal sector work, and concluded that a number of urban farmers, especially women, used the produce to supply their own small businesses selling cooked or uncooked food. A recent study of Nairobi hawkers, sixty-eight percent of whom were women, found that thirteen percent of them grew their own food, although most were commuters from outside the city [Mitullah 1991].

Inputs and Commodity Exchange

Clearly, the level of investment in urban farming is very low, and the level of agricultural inputs correspondingly so. Only eleven percent of urban farmers indicated that they used fertilizers, for example, although many more said they use organic inputs. This is because they can obtain access to them at low or no cost.

For example, thirty percent of urban farmers used manure. It was employed more in Kisumu (forty-four percent), Isiolo (forty-three percent), and Kitui (thirty-three percent), all pastoral areas. About half of the urban farmers used manure from their own animals, but more than half obtained it through informal gift or barter from friends or relatives. Only two percent bought it formally. Chicken droppings were used by sixteen percent of urban crop farmers, about three-quarters (seventy-six percent) getting it from their own chickens. However, in Nairobi, unlike other towns, over half the farmers acquired it through informal barter. Similarly with compost, used by a quarter of the urban farmer sample, almost all (ninety-six percent) said they produce it themselves, except in Nairobi, where it is even found in the market, and Mombasa, where it is exchanged by barter. Mulch was employed by nineteen percent, almost all of whom (ninety percent) have their own source, except in Nairobi, where it is exchanged.

The pattern that emerges is of a relatively very simple self-sufficient peasant economy, based on petty commodity exchange existing in the larger urban centres. The study indicates that agricultural productivity is higher in the capital city (9 000 kilogram/hectare) compared to the norm for all towns (3 200 kilogram/hectare), which is higher than rural peasant productivity. These findings are indicative of the high intensity of landuse. They are consistent with Nairobi urban farmers’ higher use of inputs on smaller plots than is the case in the other towns. The trend is consistent for Mombasa, the
second largest town, but not for Kisumu, the third largest, which has a large
land area enclosing many under-utilized shambas (farm plots) in outlying
areas.

Higher usage of water by urban farmers also shows the advantage of urban
over rural farming, and perhaps explains why the former may be more pro-
ductive. Forty-five percent of Kenyan urban farmers water their crops, and
seventy-one percent of these used piped water supplies to do so, although
half of them carry the water in buckets from the source to the crops; the rest
employ hose pipes or dig furrows. Again, the highest use of water is in
Nairobi (sixty-six percent), with eighty-seven percent of these using piped
town water. The second highest use of water is in Isiolo, which is in a
drought zone; almost the only agriculture here is concentrated around the
seasonal river which flows through the town, and this activity is supported
by the urban local authority, which assists in the digging of furrows.

The pattern of self-sufficient urban peasants in the smaller towns and
more exchange in the capital is repeated in the case of seed and seedling
sources. The trend is again not consistent with the size of the town, although
generally the larger the town, the greater the exchange. It is also worth not-
ing that Nairobi farmers buy much more of their seed from formal sources
such as shops and markets than is the case in other towns.

Sale of seedlings is a common informal sector business in Nairobi,
although the majority of plants and seedlings on sale seem to be trees and
decorative shrubs. These are popular products among middle and high
income Nairobi households, and the trade appears to be well supplied by gar-
deners who take cuttings and thin out natural growth from the well esta-
blished gardens where they work.

Urban Livestock

Just over half the urban households in the six towns surveyed keep livestock
in the urban areas and/or back in the rural areas (Table 2). This underlines the
significance of urban-rural household links. However, in contrast to urban
farming, only seventeen percent of the respondents keep livestock in the
urban areas. The figures range from a high of thirty-six percent in Isiolo, a
small town in a region of pastoralists, to a low of only seven percent in
Nairobi. An estimated 1.4 million head of livestock, worth approximately
KSh. 259 million (about US $17 million), were kept in all towns in Kenya at
the time of the survey. More were disposed of in various ways during the
year. In fact, these livestock represent only forty-seven percent of the total
number of animals which were kept or disposed of in various ways. They are
kept for investment, livestock products, or stock maintenance and reproduc-
tion. A further sixteen percent were eaten during the year and eight percent
were sold. Surprisingly, an even higher percentage, twenty percent, died. The remaining nine percent were either given away or stolen.

The value of the animals eaten for subsistence in urban Kenya is calculated as KSh. 23 million (about US $1.5 million) in 1985. The loss in value attributable to livestock deaths in the same year was KSh. 36 million (about US $2.4 million). Large numbers of small animals, mainly chickens and rabbits, die. Nevertheless, analysis of the data by type of livestock indicates that fully seventeen percent of cattle, twenty-one percent of goats and twenty-six percent of sheep die. This represents a massive loss of investment in cash and labour for the households concerned and for the domestic sector of the economy generally.

As the above figures indicate, livestock, like crops, were mainly kept for subsistence purposes. However, livestock products, particularly eggs and meat, were produced for both subsistence and sale. Although it was hard to obtain precise figures of domestic consumption, it seems that only around half the milk and about a quarter of the eggs were consumed.

Poultry were the most common livestock in all towns, though goats, sheep, and cattle were fairly numerous in the smaller towns. A few pigs were raised, especially in Kakamega and Nairobi, and a very small number of donkeys were used for draught purposes in Isiolo and Mombasa. Very few urban households kept fish or bees. Even Nairobi had an estimated 23 000 cattle in the town, although most belonged to dairy farmers at the upper end of the income scale. The poorer Nairobi households keep chickens and rabbits in poultry sheds and hutches because of lack of space. Livestock keepers in the other towns usually let their animals roam freely, particularly during the rainy season, eating grass or whatever they can find.

Cattle, sheep, and goats are, in fact, used as a form of capital investment by many Kenyan rural households. Traditionally, they represent wealth and status, and in the present economy, they are sold at times of financial need, for example to pay for school fees or for other capital expenditures. Livestock are kept for these reasons in urban Kenya, but also, and primarily by the poor, as a source of protein. Few urban poor Kenyans can afford to buy meat.

The numbers of animals dying may be attributed to disease and the lack of urban veterinary services; less than a quarter of the urban farmers dip, spray, or vaccinate their livestock. Another cause of animal mortality is starvation. If the livestock are kept because of lack of money for food, little is likely to be invested in animal feed. About two thirds of the animals are free range, and about a quarter of the households buy animal feed in the wet season and almost a third in the dry season. Despite this, many animals may be underfed. Chickens and goats can survive if enough household or neighbourhood refuse is present, but cattle and rabbits require more care and attention.
The reasons why such large numbers of livestock are dying in Kenyan towns needs further investigation.

Nutrition

Food is the most fundamental of all basic human needs. While past studies have demonstrated that, in general, Kenyans receive adequate nutrients from the food which they consume, the aggregate data on per capita food availability at the national level tend to conceal the fact that a significant proportion of Kenyan households do not have access to adequate food (Collier and Lal 1980). The urban poor are the most affected. They are the most disadvantaged of all the groups with serious nutritional deficiencies. Yet, their particular needs have received only marginal recognition in formulation of nutrition policies. For example, while pastoralists may benefit from improved animal husbandry techniques, no comparable specific programme is targeted to improve the nutrition of the urban poor in Kenya. They do not form an effective political constituency, and even famine relief efforts ignore them.

Amongst the urban poor, pre-school children, pregnant and lactating women are particularly vulnerable. Six percent of the children under five years of age in the sample were undernourished, two percent being severely malnourished. As many as four percent of the children were sick in the two weeks before the survey, and fifteen percent of all households indicated that their food supply was inadequate. Forty percent of the urban farmers said they would starve if they were stopped from farming. Table 1 shows that a significant proportion of urban households have no access to land for growing food. This underlines the importance of urban farming in the household economy of the poor in terms of meeting their nutritional requirements.

The high proportion of subsistence food production, both crops and livestock for protein, is consistent with the proportions of urban families with incomes below the level at which they are able to buy food to meet their domestic needs. Subsistence production is a commonplace, but poorly documented, strategy adopted by the urban poor to feed themselves. Similarly, it is difficult for the urban poor to spend money on fuel with which to cook the food, and they therefore look for the subsistence alternative, or cook and eat less often.

Moreover, a very high proportion of urban households, a hundred percent in the smaller towns, consume indigenous vegetables, which tend to be grown wild and not cultivated. A large number of varieties were identified in each town and a rich variety of cooking combinations are used in different parts of the country. They are mainly found in the rainy season on road and rail reserves, river banks, and similar sites.

Although many people in small towns gather their own vegetables, most
of what is consumed in the larger towns is bought in markets from traders who collect from the wild. There is even a trade in local varieties among different parts of the country. A very small proportion of the urban population (nine percent) grow their own indigenous vegetables, indicating that they are beginning to be domesticated of late. These vegetables play a very important role in urban nutrition. Some are very high in protein and are generally resistant to disease.

Policy Implications
At present, despite the increasing ruralization of Kenyan towns and cities, many Kenyans and their leaders continue to associate cities and modernity. Urban inhabitants are expected to enjoy higher living standards and better amenities than rural folk, dependent on subsistence agriculture. Such values have been reinforced by recent public sector urban development and planning policies. These have sought, in the face of considerable adversity and lack of success, to maintain artificially high urban standards inherited from measures designed to protect public health.

Likewise, macro-economic strategies to promote the expansion of the formal sector have only been marginally successful. In response to increasing urban unemployment and poverty, many informal sector activities, hitherto unauthorized, have been accorded partial recognition and even some degree of assistance. However, this is usually limited to artisanal activities, mostly conducted by men, and still excludes the hawking trade, mostly carried out by women (Mitullah 1991).

With a few exceptions, such as dairying and conventional commercial farming, urban farming activities continue to be harassed or ignored, particularly in the larger urban areas. According to the current Local Government Act, urban farming can either be permitted or restricted by local authority by-laws. The Nairobi by-laws only prohibit cultivation on public streets maintainable by the City. Regardless, city folklore maintains that cultivation of public land is illegal and both the Mazingira and Freeman studies found physical and monetary harassment occurring as a result. Large livestock may be kept in Nairobi only with written permission, but small livestock can be kept unless someone complains of a nuisance.

A few of the smaller councils have been innovative and proactive. For example, in Isiolo, a town where most residents are traditionally pastoralists and lack farming skills, active public sector support is provided for urban farming, including irrigation. As well, Kitui has crop extension services in town. In contrast, the municipalities of Kakamega, Mombasa, and Nairobi have a laissez-faire attitude, while Kisumu authorities actively prevent urban farming, except on private land.

Although high and middle income residents usually benefit from low
density planning, which enables them to practise backyard farming legally, most low and very low income urban neighbourhoods are zoned for high density housing, thus precluding urban farming. Worse still, those who live in unplanned and unserviced areas, and those who live one family to a room in these or legal tenement buildings, are too overcrowded to be able to grow food easily or legally.

The existing urban planning practice of high density development for low income areas, dictated by economics of sewer sanitation, needs to be re-examined. New sanitation technologies, based on low water use, could be used to develop urban layouts incorporating farming and livestock. These could be combined with supportive local authority action, including crop extension, veterinary, and other support services.

The city of Kitale has experimented with “allotments” for urban food growing. Such policies, common in some Western cities, have relevance to Africa to encourage urban agriculture and increase food supply. Under-utilized urban land, road, rail, river, and power line reserves provide ideal sites for short or medium term “allotment” of land to the urban poor. Women, particularly poor household heads, should have priority access. A recent Kisumu municipal council initiative, which successively targeted this group with nutrition, income generation, health, and family planning services in the 1980s, could also include urban farming.

Crop and livestock extension services need to be made more available in urban areas. At present, their targets are rural, and urban users tend to be the better-off peri-urban farmers and not the urban poor. Specifically, they need to be directed to urban poor women. Extension services could specifically focus on urban water harvesting and re-use, as well as aiding the fledgling trade in organic inputs and indigenous vegetables.

Conclusion

Subsistence production and petty commodity exchange have been conceptually neglected and are ignored in economic and spatial planning to the point of being outlawed. And yet, this study demonstrates that the economic value of urban subsistence production nationally is both significant and crucial to the survival of the poor. The study also illustrates how petty commodity exchange operates in an urban setting.

Urban farming is one of the ways in which the domestic economy functions for survival in modern Africa. The domestic economy of the urban poor is an intricate mix of productive and reproductive activities. No urban programmes, policy, or planning can work without an understanding of the complex character of this economy.

Urban farming is a reality that has not been incorporated in theories of Third World urbanization. This type of economic activity has been ignored
in analyses of the informal sector because it is thought to deal "only" with basic survival and is carried out within the domestic economy, mainly by women. Urban farmers are mainly but not exclusively women, producing for their own families' consumption. But this is no reason to discount the conceptual significance of these activities or the value of the primary economic production involved.

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