

# Food Production, Urban Areas and Policy Responses

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**Summary.** — A growing literature under the heading of urban agriculture extols the virtues for urban food security and poverty reduction of farming in urban areas of developing countries. This paper critically examines this literature, with particular reference to the spread of food production in and around sub-Saharan African cities and towns. The paper sets out a disaggregated view of food production in urban areas, emphasizing the analytical and policy importance of rural-urban interactions in resource and output markets as well as in income transfers. The scope and limits of useful policy intervention in this area are considered. The paper concludes that food production in urban and peri-urban areas certainly has a role to play in the food security of a proportion of urban dwellers, but its contribution to the welfare of the poor in developing countries should not be exaggerated, nor therefore should its claims for scarce development resources. © 1998 Elsevier Science Ltd. All rights reserved

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## 1. FARMING IN AND AROUND CITIES AND TOWNS

During the past decade or so a developing country research and policy area called “urban agriculture” has been steadily moving up the development agenda. The expression urban agriculture, often abbreviated to UA, seems on first encounter to be just a convenient shorthand for describing food production activities taking place within and on the periphery of cities and towns. Closer examination of the literature on this topic however, reveals that some of its high-profile advocates have more than mere brevity of expression in mind. Rather, the term urban agriculture is utilized by them as an intellectual enclosure from behind which food production in cities can be detached as an idea from food production carried out elsewhere.

There are in fact two rather distinct strands in the urban agriculture literature with some degree of overlap at the margins between them. One strand is high on advocacy, and has become associated in recent times with ideas of food self-sufficiency in cities at both household and city-wide levels, of poverty reduction addressed solely within urban boundaries, and of futuristic waste recycling systems that can maximize city food output in an ecologically friendly and sustainable way.<sup>1</sup> The second strand is concerned more with the empirical investigation of the incidence of urban food production, especially in African cities, with an emphasis on the descriptive verification of its significance for household welfare among those participating in this activity.<sup>2</sup> Both

strands exhibit a tendency to downplay or to neglect the significance of rural-urban interactions in determining the access to food and welfare of the urban poor, and this is a key theme here.

This paper has several purposes. The first is to review the theme of food production in and around urban areas, with special reference to the evidence emerging from case studies of African cities. The second is to consider critically the more partisan approaches to this theme, and to bring back into policy discussion interactions between rural and urban sectors that are essential for understanding poverty and food security in towns and cities. The third is to examine claims to policy priority of farming in and around cities and towns, and the limits to appropriate intervention in this area.

The authors are mindful that the development community loves to embrace a new idea. Urban agriculture could become one of those fashionable concerns that from time to time cause significant shifts of scarce government, donor or non government organization (NGO) resources away from other

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strategies and activities aimed at poverty reduction in developing countries. If this premise is correct, then it is timely to ponder the underlying efficiency, equity, resource use and opportunity cost considerations associated with either ignoring or supporting food production in and around cities, and to distinguish genuine priorities for public attention from aspects that are capable of looking after themselves.

The paper proceeds as follows. Section 2 considers matters of definition and scope of food production in urban and peri-urban areas. Section 3 examines patterns of engagement in food production in and around towns, as revealed by empirical research, and also considers the economic forces at macro and household levels that help to explain such patterns. Section 4 examines the functioning of markets and other interactions between rural and urban areas that locate urban food security in a larger context than the focus on the mere fact of food production in towns that is prevalent especially in the first strand of the urban agriculture literature. Section 5 is concerned with the scope and limits of policy intervention in promoting or enhancing the prospects of food production in urban settings.

## 2. DEFINITION AND SCOPE

The domain of interest in this paper is the production of food in urban and peri-urban areas of towns and cities in developing countries, with particular reference to the experience of sub-Saharan African countries. Food in this context is taken to mean grains, vegetables, fruit, meat, milk and fish.

Food production in and around urban areas is not new (Mougeot, 1994a, 1994b, pp. 1–3). In past historical eras, cities and city states included gardens for crop production in the urban landscape, and they often contained large populations of animals. Important reasons for these activities were city defence, as well as avoidance of seasonal food shortages and coping with unpredictable events such as drought or civil strife in the surrounding countryside. These earlier traditions of food production in urban and peri-urban environments emphasize the importance for contemporary policy discussion of not mistaking increased awareness of the phenomenon for significant changes in the nature, incidence or importance of the activities themselves. It is also relevant to note that in previous eras, markets were poorly developed, transport was by contemporary standards limited and slow, and cities could be relatively isolated one from another for long periods of time.

Farming in urban and peri-urban areas in contemporary African cities takes a variety of forms reflecting land access, water availability, and the

potential for bringing other resources into the production process. Land access is evidently critical, even when relatively little land is directly utilized, for example in the husbandry of stall-fed cattle. Public land and unbuilt private lands are used for crop and livestock production in and around many towns and cities (Lee-Smith *et al.*, 1987; Potts, 1989; Freeman, 1991). Public lands include roadsides, river banks, open spaces, land acquired for roads, powerlines and other infrastructural projects. Public land is often used for farming purposes illegally and with no formal or informal tenure arrangements.<sup>3</sup> Private lands other than home gardens comprise plots purchased but not yet utilized for building or housing development. Access to private land tends to occur under a wide range of usually rather informal and insecure tenure arrangements between users and landowners (Maxwell, 1995).

The variety of foods produced in urban environments is considerable, and there are discernable patterns linking types of output with location, land access, and purpose of production between own consumption and market sale. In areas where space is heavily constrained, including densely populated shanty towns and squatter settlements, production is typically for own use and may involve a variety of animals kept in the home or backyard (pigs, rabbits, hens etc.) as well as small vegetable plots. Similar outputs are observed on a larger scale in homes possessing more substantial adjacent land areas. Food staples such as maize, rice or cassava are more likely to be located in open spaces, and are therefore associated with unbuilt public or private lands within towns, and on the fringes of towns and cities. Production for sale in urban and peri-urban areas typically comprises perishable commodities such as vegetables, milk, eggs and poultry for which proximity to consumers provides a cost advantage.

The more advocatory strand of the urban agriculture literature tends to define its focus in undifferentiated terms that encompass all farming in and around towns. For example, Mougeot (1994a, 1994b, p. 1) defines urban agriculture as encompassing “the production of food and nonfood plant and tree crops and animal husbandry (livestock, fowl, fish, and so forth), both within (intra-) and fringing (peri-) built-up urban areas.” A similar definition is deployed by Smit *et al.* (1996, p. 1) for whom urban agriculture is defined as “an industry that produces, processes and markets food and fuel....on land and water dispersed throughout the urban and peri-urban area....”. Further, Tinker (1994, p. x) puts forward the view that urban agriculture “refers not merely to the growing of food crops and fruit trees but that it also encompasses the raising of animals, poultry, fish, bees, rabbits, snakes, guinea pigs, or other stock considered edible locally.”

A contention of this paper is that these simultaneously exclusive and encompassing meanings attached to the term urban agriculture hamper the proper analysis of the causes and consequences for poverty and food security of food production in urban and peri-urban areas, as well as for understanding the resource relationships that underpin such activities. In particular, they result in the neglect of rural-urban interactions in determining levels of activity and household welfare in both rural and urban locations. Likewise, the merging of urban and peri-urban may appear to be a useful device for putting boundaries around an area of enquiry, but to achieve an understanding of enterprise systems it may prove essential to separate them, as occurs, for example, when stall-fed urban cattle require access to peri-urban cut-grass supplies for their viability. Similarly, while all plant and animal outputs might in a literal sense count as urban agricultural production, in practice the planner or policy maker will need to distinguish non-food from food, gardening from production for sale, and minor from major contributors to the incomes and nutritional status of urban citizens.

The latter difficulty is overcome in practice by those who have undertaken detailed empirical work on food production in cities, by recognizing policy-relevant distinctions around the nature and purpose of different types of production.

A first distinction is between food production and non-food production. Food production plays direct roles in the food access and nutritional status of urban households, and these are elaborated further in due course. Non-food production encompasses a wide variety of plant and animal products that can contribute either directly or indirectly to the material situation and food security of households. For example, a poor family may produce ornamental shrubs for urban gardens, deriving an income from their sale in middle class housing areas and thus improving its exchange entitlement to food.<sup>4</sup> An implication of adopting an all-encompassing definition of urban agriculture is that all such "produce of the land" is counted in the definition.

A second distinction is between purely commercial food production and other degrees of commitment to the market varying from routine sales of output surplus to household requirements, to occasional sales, and to no sales at all. Commercial food production in urban locations can raise regulatory issues related to quality control, public hygiene, waste disposal, water and power supplies, and public nuisance of a different scale to subsistence food production in and around towns (Mosha, 1991). Of particular economic relevance are circumstances where commercial operators obtain hidden subsidies on their production costs, for example, when land is free or when water or power supplies are being

drawn from the public supply at domestic tariffs, or are by-passing tariffs altogether.<sup>5</sup>

A third series of distinctions relate to the nature of land access involved in different types of agricultural production, a pattern that often overlaps differences in the purpose of production between own consumption and market sale (Rakodi, 1985; Mlozi, 1991; Mbiba, 1994, 1995a). The following subcategories are relevant:

- (a) home plots or gardens adjacent to dwelling places, these typically being utilized for family consumption rather than for sale;
- (b) cultivated or grazed areas that are apart from the household on public land, the output from which may be for sale or own consumption, or some combination of both, but which represent a potential policy and planning issue from the viewpoint of access rights, legality and tenure, sanitation and health;
- (c) cultivated or grazed areas apart from the household on private land, again which vary with respect to purpose of production, and which may raise policy and planning issues concerning rental agreements, security of tenure and compensation for eviction;
- (d) peri-urban cultivation or grazing distinguished from urban, since there does exist a transitional zone round many cities, with important interchanges and market interdependencies between the peri-urban zone and both the urban economy and the rural economy.

These are just some of the ways that the all-embracing conception of urban agriculture can be unpackaged in order to identify more precisely the features which are of most interest with respect to the livelihoods and food security of urban citizens. Note that the urban agriculture literature tends to utilize the term "farming" synonymously with agriculture, but usage in this respect does vary, and sometimes farming is intended to convey food production as opposed to more generalized husbandry of plants and animals, or in order to convey market orientation, as distinct from pure subsistence or backyard "food gardening."

### 3. PATTERNS OF PARTICIPATION IN URBAN AND PERI-URBAN FOOD PRODUCTION IN AFRICAN CITIES

A number of research studies undertaken in sub-Saharan African cities from the mid-1970s to the early 1990s have substantially increased our knowledge of the factors and forces causing city dwellers to take up agriculture as part of their livelihood strategies, in countries where this has not previously been a notable feature of the food economy.<sup>6</sup> Studies of farming in urban areas have been undertaken for

Nairobi (Lee-Smith *et al.*, 1987; Freeman, 1991, 1993; Memon and Lee-Smith, 1993); Kampala (Maxwell and Zziwa, 1993; Maxwell, 1995); Dar es Salaam (Mattee *et al.*, 1989; Briggs, 1991; Mosha, 1991; Mlozi *et al.*, 1992; Mlozi, 1996); Harare (Drakakis-Smith and Kivell, 1990; Drakakis-Smith, 1992; Mbiba, 1994, 1995a, 1995b; Drakakis-Smith *et al.*, 1995); Gweru, Zimbabwe (Rakodi, 1995); Lusaka (Sanyal, 1985, 1987; Rakodi, 1985, 1988a, 1988b); Lilongwe (Potts, 1989); Addis Ababa (Egziabher, 1994); and several West African cities (Tricaud, 1987; Gbadegesin, 1991; Gefu, 1992). In addition, two collections contain case-study material by some of the same and some different authors (Baker and Pedersen, 1992; Egziabher *et al.*, 1994).<sup>7</sup>

In reviewing this literature it is useful in the first instance to distinguish continental and country-wide trends from family and individual level survival strategies. It is the interaction between these that results in changing patterns of economic activity in and around cities and towns. Important trends in African countries have been rapid urbanization causing encroachment of cities on the surrounding countryside; rising rates of urban unemployment due to the disintegration of the formal sector in countries experiencing economic decline; and falling real wages of public sector employees in countries undergoing structural adjustment (Jamal and Weeks, 1993; Rakodi, 1995; Bryceson, 1996).

Worldwide, urbanization has been proceeding such that more than 50% of all human populations live in cities as of the late 1990s.<sup>8</sup> Africa has been no exception to this general trend and it is estimated that while the total population in sub-Saharan Africa grew at 3% per year in the decade to 1995, urban populations grew at the much faster rate of 5% per year, and by the year 2000 over 40% of the sub-Saharan African population will live in towns and cities (Hussain and Lunven, 1988; Massignon, 1993; World Bank, 1996). Rapid urbanization means that city boundaries as defined by administrative jurisdictions may be overtaken by new expansion almost as soon as they have been redrawn to account for previous spread (Hill, 1986). Locations that are rural at one moment become peri-urban the next, and urban soon after. For this reason, the fringes of most African cities are unstable with respect to settlement patterns, population density and land use.

Many sub-Saharan African countries experienced deteriorating economic conditions from the mid-1970s onward, due to a combination of internal and external factors including the oil price crises of the 1970s, deteriorating external terms of trade, spiralling debt, high inflation, and, in some cases, civil strife. One outcome of adverse economic trends was a decline in real urban wages due to a contraction of the urban formal economy, growing

urban unemployment, wage freezes, and rising prices of food and other necessities (Briggs, 1991; Maxwell, 1995, pp. 1670–1671). This urban income squeeze meant that the gap between average urban and rural real incomes narrowed, and may have all but disappeared in many countries (Jamal and Weeks, 1988, 1993). It also meant that increasing numbers of urban citizens were unable to meet basic needs of food and shelter from wage income, and required recourse to new livelihood sources, including farming, for survival.

The emerging impact of structural adjustment program reinforces this explanation of the livelihood patterns that have arisen in African cities (Scott, 1993; Cornia and Helleiner, 1994; Kayizzi-Mugerwa and Levin, 1994; Rakodi, 1995). Two key trends have been declining exchange rates and falling real wages of government employees. The former trend causes rising domestic prices of imported food and therefore improves the incentive to substitute local production for imported supplies. The latter trend means that the real incomes of civil servants have become insufficient for family survival so that supplementary income generation or food production for direct consumption become necessary additional activities in which to engage.

Structural adjustment and market liberalization have also substantially changed resource and output markets in many African countries. They have done this by disbanding previous state monopolies, dismantling prohibitions on trade and transport, privatizing plant and equipment previously owned and operated by government agencies, and undermining the ability of civil servants to enforce regulations and by-laws due to retrenchment programmes (Kombe, 1994). The land market in and around towns is often less well regulated than formerly, city health and sanitation by-laws may be applied unevenly if at all, and there is likely to be a focus on the few urgent priority problems requiring attention rather than infringements that cause minor or negligible social nuisance.

Household and individual strategies for survival in urban and peri-urban locations are set within the context of these larger trends. The literature cited at the beginning of this section yields a number of considerations at the household level that help to explain patterns of involvement in food production in and around African cities. In summary, engagement in food production may occur:

- (a) as a means of survival for the very poor, this social group being most likely to farm on unused public or private lands and therefore most prone to punitive action by city authorities or private landowners (Sanyal, 1985; Freeman, 1991; Sawio, 1994);
- (b) as a personal strategy of women, enabling them to secure a proportion of family food security in

- the face of insufficient, uncertain or unstable cash allocations by male wage-earning household heads (Maxwell, 1995);
- (c) as a contribution to food security more generally, enabling families to withstand declining real wages, unemployment of family members, and variations in cash income from diverse other sources (Freeman, 1991; Drakakis-Smith, 1992);
  - (d) as a substitute for cash purchases of food, especially for higher value items such as eggs, meat, milk, fruit and vegetables, so that cash can be used for other purposes (Sanyal, 1986; Jamal and Weeks, 1988);
  - (e) as a means of supplementing the cash earnings of the family and achieving other objectives such as children's schooling (Freeman, 1991);
  - (f) as a commercial rather than subsistence activity, undertaken to take advantage of growing markets for high value and import-substituting food and livestock products within cities and towns (Lee-Smith and Memon, 1994).

While lists of this kind can be useful for clarifying processes of economic change, it is erroneous to think about them as mutually exclusive livelihood strategies. Rather they describe a series of overlapping circumstances, such that any individual or family undertaking food production in and around cities and towns is likely to correspond to more than one type of reasoning for doing so, and often several such factors may be simultaneously applicable. Increasing degrees of diversification characterize both rural and urban livelihoods in contemporary sub-Saharan African countries (Bigsten and Kayizzi-Mugerwa, 1992; Heyer, 1996), and the engagement of urban dwellers in food production is one manifestation of this livelihood adaptability. The fungibility of money as compared to physical goods and services, as in points (d) and (e) above, is frequently cited as an important factor determining patterns of livelihood activity (Greenhow, 1994). Farming activity that begins as a survival strategy may evolve into commercial orientation, as has been suggested for the peri-urban zones of Dar es Salaam (Briggs, 1991).

The studies of farming in African cities have found that most food production is for household consumption rather than for sale, and that most is undertaken by women rather than men (Sanyal, 1987; Rakodi, 1988b; Freeman, 1991; Lee-Smith and Lamba, 1991; Lee-Smith and Memon, 1994; Maxwell, 1995). Involvement of the families of civil servants due to redundancy or declining real salaries has been noted particularly for Dar es Salaam and Kampala, but is also observed in other capital cities (Mlozi, 1991; Maxwell, 1995). Engagement in urban farming by women in order to enhance their ability to feed their families independently of the unreli-

bility of their menfolk has been noted in Kampala, Nairobi and Lusaka (Rakodi, 1991; Freeman, 1993; Maxwell and Zziwa, 1993; Maxwell, 1995).<sup>9</sup>

A number of studies concur in the finding that, contrary to intuition, established urban dwellers are more likely to be involved in agricultural activities than new arrivals from the countryside (Sanyal, 1986, 1987; Freeman, 1991; Sawio, 1994). It is therefore not the possession of recent experience in agriculture that is a determining factor in taking up farming in and around towns, it is the ability to command land access, and the latter is greater for those that have lived in urban communities for some time.

#### 4. MARKETS AND INTERDEPENDENCE OF RURAL AND URBAN SECTORS

A substantial literature testifies to the contemporary significance of rural-urban links in sub-Saharan African countries (Heyer, 1996; Bryceson, 1996). Many different aspects of these links have been highlighted; for example, the maintenance of familial networks across both locations (Berry, 1989, 1993); the prevalence of split families in which different members take up occupations in different locations (Livingstone, 1991; Jamal and Weeks, 1993; Heyer, 1996); the prevalence of circular migration (Bigsten, 1996); and the tendency for even long-established urban households to keep a foothold in village society (Rempel and Lobdell, 1989; Potts and Mutambirwa, 1990).

These links mean that the livelihoods of the urban poor are interdependent with the livelihoods of the rural poor, and flows of food and cash occur between family members resident in both locations (Rondinelli, 1987; Evans and Ngau, 1991; Atkinson, 1992, p. 34). In addition, the urban distribution of rural food supplies is itself a significant source of income in the urban informal sector, including the activity of markets, street stalls and street vending of prepared foods (Hettige, 1990; Livingstone, 1991). Moreover, it is usually urban jobs that are created in the production of agricultural implements, machinery and variable inputs (fertilizer, pesticides, and so on).

Urban, peri-urban and rural food production interact through both resource and output markets (Stren, 1986). In classic accounts of the economics of location (Chisolm, 1962; Found, 1971; Grigg, 1995, Chapter 10; O'Kelly and Bryan, 1996), these markets are mediated especially by transport costs and the value of land as a resource. The farm-gate price of food commodities is predicted to decrease as distance from an urban center increases, reflecting the deduction of transport costs from the urban market price. At the same time land values, or the cost of leasing land for farming, increases toward

urban centers reflecting the successively higher "economic rent" generated by higher output prices nearer cities and the competition between uses for land as a resource.<sup>10</sup> These price relationships mean that high value, high transport cost, commodities tend to be produced close to urban centers, and low value, low transport cost, commodities tend to be produced further away. In particular, the expectation is that perishable high value commodities that make intensive use of land, such as vegetables, eggs, poultry and milk will be produced in peri-urban locations close to towns and cities.

Classic location theory recognizes that the predicted spatial distribution of farm outputs might be modified by numerous factors not captured in the simple model. In particular, variations in soil fertility, availability of water, patterns of rainfall, nearness to ports and transport corridors, and similar factors that alter relative costs and returns may mean that the pure effects of distance from an urban center are outweighed by other considerations. Nevertheless, the simple model has quite reasonable explanatory power with respect to the types of farming activity that are commonly observed on the fringes of towns and cities in developing countries.

Real markets often work differently from the competitive land, input and output markets of location theory-type models. The new institutional economics with its emphasis on transaction costs, imperfect information, segmented markets, and moral hazard problems, is helpful for explaining many of the features observed in the spread of farming in contemporary African cities and towns (Bardhan, 1989; North, 1990; Harriss *et al.*, 1995). The crucial feature of competitive market models is that exchanges are replicable across geographical space, and over time, under terms and conditions that are widely understood wherever and whenever they occur. Thus the leasehold of a plot of land for farming would tend always to occur under a limited number of well-understood contractual alternatives, protected by law, and applied uniformly in different places and times. By contrast, poorly functioning markets, and non-market transactions, are distinguished by the non-replicable nature of transactions, and the prevalence of unique and special conditions applying to individual exchanges.

The land market in many African cities and towns is segmented and reflects widely varying terms of access. The break-down of zoning regulations and non-compliance or abandonment of by-laws prohibiting cultivation and grazing in city areas means that there is greater access to land for food production, but under conditions that are erratic, risky and non-reproducible between one event and the next. Several categories of user achieve access to public land such as roadside verges and open spaces either at zero cost, or at costs that are accidental in amount such as

payments to city officials or police officers to turn a blind eye to the use to which the land is being put. The grazing of cattle on open spaces in middle income residential areas of Dar es Salaam, for example, corresponds to this type of access.

What is true for the land market is also more generally applicable to resource and output markets for food commodities in African cities. This is the result of numerous factors already mentioned including economic stagnation or decline, shrinkage of the public sector, dismantling of parastatal enterprises, partial or complete privatization of public sector enterprises, decline in foreign investment in domestic manufacturing, and explicit or implicit abandonment of regulations on land use, food movements, food quality and so on. The impact of these factors is to create market niches for food production for sale that take advantage of localized cost and price profiles that bear little relation to what might pertain under more competitive conditions.

The milk market in some Tanzanian towns illustrates these considerations (Kurwijila and Henriksen, 1995; Nyamrunda and Sumberg, 1997; Sumberg, 1997a, 1997b). The failure of large-scale parastatal production units and the dismantling of a previously highly regulated state milk marketing system has provided scope for the substantial expansion of unregulated fresh milk supplies to urban consumers. A segmented market persists. A first type of fresh milk market found in the capital, Dar es Salaam, as well as in regional centers, is based on proximity between suppliers and customers, localized trust in transactions, ownership of small herds predominantly by civil servants, urban-based animals fed through zero grazing or free grazing regimes (or a mixture of both), and use of commercial animal feeds.

The success of this market is based especially on the absence of public health regulations with which it might be costly to comply, the absence or neglect of zoning regulations prohibiting stall-fed cattle in residential areas, negligible land costs either through stall-feeding or grazing on public land, and direct delivery between dairy and customer, without the costs of bulking up, pasteurization, quality control and so on. This market also depends on the availability of fresh fodder and hay obtained from the peri-urban areas on the edge of towns.

In Dar es Salaam a second type of fresh milk market is characterized by a small number of commercial dairy enterprises that provide fresh milk to institutions or sell it through kiosks. These enterprises are located in the peri-urban zone and rely on grazed pasture and commercial feed supplements. Some of these commercial producers also purchase and re-sell milk from producers in other areas of Tanzania. Only some of the milk entering this second market is pasteurized, and at present

there is no functional system for monitoring the origin or quality of milk sold in Dar es Salaam.

In regional centers like Mwanza and Shinyanga towns, a third type of fresh milk market obtains its supplies from the rural economy, with milk being purchased at low prices from farmers and cattle herders owning unimproved cattle fed through extensive grazing. This market has a reputation for poor quality and lack of trust between buyers and sellers. Watering down is frequently cited as a major problem, addressed with only partial success by government control points for milk entering towns along particular routes. The existence and substantial size of this market is based on low prices to consumers, regulatory failures on quality, low transport costs (bicycle trading), and low purchase prices from producers for whom cattle ownership serves multiple objectives amongst which milk sales is only one amongst several considerations.

Even though it refers to production for sale rather than home consumption, the milk case study is illustrative of many of the points that this paper would wish to emphasize concerning food production in and around urban areas: the interactions between urban, peri-urban and rural areas; the market failures in resources (land market) and outputs (milk quality) that result in niche submarkets developing that can take advantage of highly specific local circumstances. These circumstances do not provide a *prima facie* case for further promotion of the production of milk in inner city locations; in the event of shifts in resource and output prices, the comparative advantage of production could switch decisively to peri-urban or rural locations.

It is not only with respect to these interactions in resource and output markets that it is problematic to isolate city farming from the rural economy. Much is made in the more partisan strand of the urban agriculture literature of the contribution that food production in cities can make to the nutritional status of urban inhabitants, particularly the urban poor (e.g., Smit *et al.*, 1996). A rise in urban food production by itself however, is no guarantee that the nutritional needs of those most vulnerable to food insecurity are better met, as anyone familiar with the entitlements approach to food security is aware (Sen, 1981; Dreze and Sen, 1989). Extreme urban poverty is often associated with environments (inner city areas, shanty towns) where the prospects of significant contributions from own production of food are small or negligible. In addition, a methodological problem arises in the intra-urban context when the contribution to household food security of urban farming is estimated from a sample of families engaged in food production, then applied to the urban population as a whole.<sup>11</sup>

Studies that demonstrate the significance of urban food production for city populations as a whole are

fairly rare. In a sample survey of 239 households undertaken in Kampala in 1990, it was found that farming including own-consumption corresponded to 8% of average household income (Bigsten and Kayizzi-Mugerwa, 1992, p. 1428). Its significance for the poorest one fifth of households was ambiguous due to its net contribution, on average, appearing to be negative in this group (caused by some poor households sustaining income losses in this activity). Even in households for which farming was stated to be the predominant occupation of the household head, the contribution of farming to total household income was 19% (p. 1429), and indeed farming turned out to account for a higher proportion of income for a residual category of the sample categorized as having no clearly stated occupation.

Finally, food production in urban and peri-urban areas is prone to certain disadvantages that are less prevalent in rural areas, and that therefore require taking into consideration in evaluating costs and benefits in the two locations. The discussion hitherto has neglected the negative externalities of farming in densely settled locations. Urban farming may make calls on already overstretched city public services, e.g., diversion of water supplies meant for domestic uses, resulting in unfavorable overall effects on the welfare of urban citizens. The rearing of animals in urban environments incurs social costs including noise, smell, waste disposal, and the potential for harboring or spreading disease vectors of both animals and humans (Mosha, 1991). Theft of crops just before they reach maturity is a significant occurrence necessitating adequate security arrangements as the harvest season approaches (Freeman, 1991, Chapter 11). Round-the-clock guarding of crops has been observed by researchers. Vandalism of crops, fixtures and equipment is reported. Crops grown close to main roads are likely to absorb pollutants, and may end up carrying levels of toxic compounds detrimental to human health.

These and similar problems have real resource implications that cannot be ignored in any balanced assessment of the strategic role of food production in and around towns.

## 5. THE SCOPE AND LIMITS OF POLICY INTERVENTION

The policy proposals that emerge from studies of urban agriculture fall into two main categories: those located within the framework of municipal planning, and those more closely related to what would conventionally be regarded as sectoral agricultural policy. The municipal planning category focuses especially on issues of land access; while the agricultural policy category focuses on the inputs and outputs of urban agriculture as farming systems,

emphasizing access to farm inputs and services that could potentially raise productivity and output.

In terms of the two strands of literature that predominate in the urban agriculture field, municipal planning issues tend to preoccupy those who have done detailed fieldwork on households engaged in urban or peri-urban farming. The existence, prevalence and growth, if it occurs, of food production in urban environments is seen as being predominantly about the use of space in densely settled locations (Bhadra and Brandao, 1993). With the exception of small numbers of animals kept in buildings and backyard plots, land is the fundamental resource required for farming, and issues of zoning, access and tenure are seen as critical to the contributions it may be able to make to household food security and to the livelihood composition of the urban poor (Rakodi, 1985; Sanyal, 1987; Chimbowu and Gumbo, 1993; Maxwell, 1994, pp. 56–65; Rakodi, 1995).

Several actions are identified in the literature that could potentially be taken by municipal authorities to provide a more secure basis for the poor to engage in food production activities, and to provide scope and flexibility for such considerations as different gender patterns of demand for land access for cultivation (Wade, 1986, 1987; Maxwell, 1995). Some examples are:

- (a) the revocation of by-laws regarding land use that have become impossible to enforce, but that result in uneven attempts at enforcement which almost always assail the poor rather than the better off;<sup>12</sup>
- (b) the concomitant cessation of sporadic bouts of crop destruction and land eviction by city officials, again often biased toward evicting the poor rather than middle-class families engaged in food production activities;
- (c) the replacement of previous by-laws by uncomplicated broad-scale zoning, so that parts of cities and towns where urban administrations really would prefer, for example, to exclude cattle from roaming the roundabouts are demarcated in an unambiguous and understandable way;
- (d) the identification of public land within city boundaries that could be converted to leasehold plots for cultivation, together with criteria for access to that land, and regulations permitting security of tenure for an agreed period;<sup>13</sup>
- (e) the setting aside of land for plots as cities expand, again within an agreed set of rules for access and security of tenure;
- (f) the creation of a legal framework, even if not always enforceable, protecting the rights of tenants on private land within city boundaries, and providing an accessible recourse for redress in the event of forced eviction without compensation;

(g) the encouragement of NGO activities in this area of urban welfare, and the facilitation of coordinating capabilities between NGOs.

The position taken here with respect to these regulatory and land tenure aspects of urban food production is that it is necessary to be cautious about the capabilities and constraints faced by municipal and government authorities, and not to advocate measures that are unenforceable, unsustainable or susceptible to capture by stronger social groups at the expense of the weak. In this light, the permissive components of the foregoing list of policy suggestions, items (a) to (c), and (g) are to be favored above the prescriptive components, items (d) to (f).

The second category of policies invoked for urban agriculture are those that advocate stimulating and supporting it as a productive activity contributing to food security and poverty reduction in cities (Lee-Smith and Stren, 1991; Mougeot, 1994b; Smit *et al.*, 1996, Chapter 10). Many of the proposals in this category ring with ghostly echos of discredited sectoral agricultural policies of the past.<sup>14</sup> Thus credit, research, extension, new seeds, yield improvement and marketing are identified as aspects of urban farming systems that merit public support, subsidies, NGO involvement, or donor funds.

There are many reasons for treating policy proposals of this kind with caution. In the first place, even in its heyday interventionist agricultural policy was mainly directed at farm outputs with massive potential effects on the welfare of human populations (staple grains), or with disproportionate effects on the performance of the macro economy (major export crops). In most cases, discretionary food commodities such as eggs, poultry, vegetables and fruits escaped the attention of governments then, and do not necessitate their attention now, irrespective of their geographical location of production.

Second, with few exceptions, the task facing most sub-Saharan African governments remains one of continuing to dismantle or remodel the remnants of previous defective systems of farm support, rather than reinventing such systems under a new guise such as urban agriculture. Price, marketing, input and credit delivery policies proved to be particularly problematic in the past, but they have not simply disappeared; in most cases a rather slow transitional process continues to take place in which previous comprehensive systems of control are gradually ceded to the private sector and to less regulated markets. For other agricultural policies that are not quite so discredited, such as research and extension, these are already overextended attempting to maintain some forward momentum in the rural economy, without additional demands being made on them to service urban agriculture.

Third, within the sphere of agricultural policy, service delivery, e.g., of advice, marketing services,



specialist inputs and so on is particularly prone to being hijacked by the well-informed and the better-off rather than the very poor. Given that the poor involved in urban agriculture are likely to be difficult to identify in an administratively cost-effective way, the prospect of targeting them so that they would benefit from these types of policy intervention is really rather remote.

The upshot of these considerations is that scarcely any well-considered case can be made for putting government or donor funds into service support for urban agriculture, along lines implemented previously for agriculture more generally. This does not rule out, of course, the involvement of NGOs or community groups in self-help activities such as micro-credit schemes, in conditions where a constituency identifies itself that can take advantage of such initiatives (Lee-Smith and Stren, 1991). But the best that governments or municipal authorities can do is take a permissive and enabling role toward such projects, not to invoke new demands on scarce public resources nor new pressures on scarce administrative capacity.

It is evident from the foregoing discussion that the authors do not consider that a valid case has been made in the urban agriculture literature for policy support for this activity. Not all activities that are discovered to contribute to the livelihoods of poor citizens in developing countries must, therefore, become the focus of government, donor, or NGO action. In the case of food production in urban and peri-urban areas, interest in this has arisen in the context of rapidly changing conditions with respect to rural-urban income differentials, rates of urbanization, macroeconomic and nonfarm economic performance, and state capacity to undertake, regulate or monitor activities and services in urban areas. The future of agriculture in urban areas, the niches it occupies, and the roles it plays in food security at the household level or as a supply source at the market level, are attributes that will evolve in new directions in the future as they have done in the past. It does not need policy with a capital "P" for these roles to develop as they will.

## 6. CONCLUSIONS

This paper takes as its starting point the growing interest of scholars and some international development agencies in farming activities that take place in and around urban areas in developing countries.

The paper expresses some doubts about the validity of identifying farming in cities as a special activity in some way different from crop and livestock production taking place elsewhere in the national economy. One major strand of thinking about urban agriculture has come to convey this

sense of exclusiveness, also in the process blurring useful distinctions concerning patterns of land use between urban, peri-urban and rural locations. In a sense the term urban agriculture both claims too much and offers too little in the policy context of urban poverty and family food security. It claims too much by equating all food production in towns with improved food security for poor people, and it offers too little by failing to consider the role of rural-urban interactions in explaining the survival capabilities of the urban poor.

Empirical work undertaken in African cities over the past 15 years has generated a considerable body of knowledge concerning the patterns of engagement in food production arising from the livelihood strategies of households and individuals. An almost universal finding of sample surveys of urban food producers is that food production is an important part of their survival strategy; however, such surveys self-evidently do not describe the survival strategies of those urban dwellers who are not engaged in food production, and a common mistake is to infer livelihood attributes of the latter from evidence about the former. Plenty of evidence points to the high participation of retrenched civil servants in the more commercially oriented branches of urban and peri-urban food production in African towns and cities.

This paper rejects the notion that sectoral policy interventions have a place in promoting farming in towns, when it is only recently that such policies have, mostly with good reason, fallen out of favor as the means for achieving output and income goals in the countryside. In the long run, comparative advantage in production that requires land as its fundamental resource must lie outside urban areas for the simple reason that land is cheaper outside cities than within them. The occurrence of short-term exceptions to this rule, and of niches for very small-scale or specialist gardening activities even in the most densely populated urban zones, does not change this basic principle.

The only firm policy conclusion that emerges from the arguments and evidence reviewed here is that government and municipal authorities should in many instances abandon the charade of attempting to prohibit food production activities in towns. In the absence of rapid growth of the formal economy, the welfare of the urban poor is best served by permitting them the widest possible range of opportunities to piece together their livelihoods, as many studies of the urban informal sector have demonstrated (e.g., Livingstone, 1991). Meanwhile, well-intentioned advocacy of devices such as special land allocations or improved security of tenure to protect those of the urban poor who engage in food production should be treated with caution. Such devices once put in place are notoriously prone to capture by the not-so-poor, thus resulting in the

intended beneficiaries being placed in an even worse position of access than before their implementation.

Food production in urban and peri-urban areas certainly has a role to play in contributing to the welfare of some proportion of citizens living in cities and towns in developing countries. The mere fact of urban food production however, should not be confused with the access and entitlement to food of the urban poor. Patterns of farming observed in

contemporary African cities and towns reflect pressures and responses arising, *inter alia*, from structural adjustment, including transitional states of resource and output markets that may not persist in the future. The significance of food production in and around towns for the overall quality of life in developing countries should not be exaggerated, and nor, too, should its claims for scarce development resources.

## NOTES

1. Farming in cities has become closely linked with ideas of green cities and sustainable cities. See, for example, Gordon (1990); Smit and Nasr (1992); Haughton and Hunter (1994, pp. 120–121); and Smit *et al.* (1996).

2. The key researchers in this strand are listed below at the beginning of the section entitled Patterns of Participation in Urban and Peri-Urban Food Production in African Cities.

3. Occupation of public land for urban agriculture is not always illegal; for example in Zimbabwe municipal authorities designate certain public areas as available for lease for this purpose (e.g., Rakodi, 1995).

4. We are grateful to one of the anonymous referees for drawing our attention to this point.

5. As occurs, for example, when unauthorized pipes are privately attached to public water mains or unmetered electricity is drawn from a nearby supply point. Although such occurrences are well known and probably fairly widespread, they are more or less ignored in the literature reviewed for this paper.

6. This is the more empirical strand of the urban agriculture literature referred to at the beginning of the paper.

7. The collection by Egziabher *et al.* (1994) was one of the outputs of an influential research program funded by the Canadian International Development Research Centre (IDRC) in the late 1980s and early 1990s under the overall title *Cities Feeding People*. This program is described in Tinker (1994). There is also a Latin America and Asia literature in this area. See, for example, Gutman (1987); Bohrt (1993); Yeung (1986, 1987, 1988). See Rogerson

(1993) for a useful summary of comparative international lessons drawn from the urban agriculture literature.

8. The exact year when more than 50% of the world population came to live in cities is not known with any high degree of precision, but demographic data suggests that this occurred in 1996 or 1997.

9. This is best captured by the following description: "urban farming in Kampala is largely a long term adaptive strategy of women to protect the food security of the persons to whom they are responsible" (Maxwell, 1995, p. 1677). In some instances, women do well enough from cultivation to set themselves up in non-farm commercial activities (Freeman, 1993).

10. This is one of the well-known predictions of the von Thünen model of land use around cities. See Hall (1966) and O'Kelly and Bryan (1996).

11. A similar problem of drawing false inferences about the entire urban population from samples drawn from subpopulations with particular characteristics often occurs in urban nutrition studies (Atkinson, 1992, p. 26).

12. For documentary evidence of by-laws, their uneven enforcement, and harassment of urban cultivators, see for example Rakodi (1985); Sanyal (1986); Freeman (1991); Maxwell and Zziwa (1993); Mbiba (1994, 1995b); and Drakakis-Smith *et al.* (1995). In recent times, Dar es Salaam seems to have been more permissive than other cities in this respect (Kironde, 1992, p. 1283).

13. As is sometimes already done, although not necessarily to the benefit of the urban poor. See note 3 above.

14. For a review of conventional agricultural policies, and the debates about their efficacy, see Ellis (1992).

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