

27. Homsy, "How to Save a Farm".
28. Linda Ashman and others, *Seeds of Change: Strategies for Food Security for the Inner City* (Los Angeles: Southern California Interfaith Hunger Coalition, 1993).
29. Heimlich, *Land Use Transition in Urbanizing Areas*.

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What is urban agriculture?

Who are the urban farmers?

In Nairobi, a young mother finds a place on the roadside near her home where garbage has been dumped and burned over the years. Recognizing the better quality of the soil, she establishes a bean and maize mixed-crop garden. From her harvests she feeds her family, sets aside dried beans for the dry season and sells roasted ears of maize for cash at the roadside garden site.

In metropolitan Jakarta, a transnational agribusiness firm establishes a vast, shed-grown mushroom farm and an adjacent cannery for world markets. The spent mushroom soil is sold to small-scale vegetable farmers, who use it to improve the soil in their gardens.

Both the young mother and the transnational firm are urban farmers. However, each has special support requirements and makes different contributions to the economic, social and environmental makeup of the city.

In most developing countries, the majority of urban farmers come from low-income groups. Frequently, they farm on land they do not own. However, in some countries (including Argentina and the United States), middle-income farmers, practising primarily “backyard” cultivation, are in the majority. The motives of middle- and upper-income home farmers are often nutritional (cleaner and healthier home-grown food for the family) and cultural rather than economic. In all groups, the presence of cultivators often acts as a catalyst for others to do the same.

In most countries, urban agriculture is dominated by small producers achieving food security and earning income for their families. However, the smaller number of large producers—domestic private and public corporations and multinational agribusinesses—produce a significant share of the total value of urban agriculture, particularly in capital-intensive farming systems such as aquacul-

ture and poultry. Larger enterprises and more wealthy entrepreneurs are more likely to have access to such requirements as inputs, land, water, credit, technology, extension support, training, markets and market information.

The difference between the farming practices of low-income and high-income farmers is usually not just one of size, but also of farming systems and products. While monocropping is common among wealthier farmers, lower-income farmers tend to choose multicrop farming systems that require low capital and minimize risk (for example, combining vegetable and rabbit production). The higher the farmer's income, the more specialized and high-value may be the crop or the market to which the farmer caters (for example, mushrooms, shrimp or flowers for export). Table 3.1 shows the kind of urban agriculture practised in selected cities around the world.

This chapter discusses the role of the various participants in urban agriculture, including low-income farmers (both those who grow for their own consumption and those who grow for the market), middle- and high-income farmers (who also may grow either for their own consumption or for sale to the market), agribusinesses, farmers cooperatives and special groups of farmers such as women, migrants and refugees.

Low-income farmers

The majority of urban farmers in most of the countries examined for this study belong to low-income groups and practise farming on a part-time basis. Often, one working adult in the family (usually a woman) is the principal farmer and others support the production, processing or marketing functions. For many urban families, however, agriculture is not just a side activity; it is the basic source of income throughout the year, and day labour in other industries provides supplementary (cash) income on an intermittent basis.

Low-income urban residents engage in agriculture primarily to increase their food security and their income levels (case 3.1). By growing their own food, they also improve their nutritional intake, since the food they grow is more nutritious than the food they can afford to buy. Less recognized, but also important, is the benefit of fungible income that farming provides by freeing up cash for essential

Table 3.1 Presence of urban farmers in selected cities

Country	Prevalence of farming
AFRICA	
Burkina Faso	Thirty-six percent of families in Ouagadougou are engaged in horticultural cultivation or livestock.
Cameroon	In Yaounde, 35% of urban residents farm.
Congo	Eighty percent of families in Libreville are engaged in horticulture.
Kenya	Sixty-seven percent of urban families farm (80% of which are low-income) on urban and peri-urban sites; 29% of these families farm in the urban areas where they live. Twenty percent of urban dwellers in Nairobi grow food in the urban area.
Mozambique	Thirty-seven percent of urban households surveyed in Maputo produced food. Twenty-nine percent raised livestock.
Tanzania	Sixty-eight percent of families in six Tanzanian cities are engaged in farming; 39% raise animals.
Uganda	Thirty-three percent of all households within a five-kilometre radius of the center of Kampala were engaged in some form of agricultural activity in 1989.
Zambia	A survey of 250 low-income households in Lusaka showed that 45% grow horticultural crops or raise livestock in the backyard, front yard or in gardens on the periphery of the city.
ASIA	
Fiji	In Suva, 40% of families are engaged in horticulture.
Nepal	In Kathmandu, 37% of households raise horticultural crops and 11% raise animals.
Papua New Guinea	In the Port Moresby metropolitan area, about 80% of all households take part in some food production.
EUROPE	
Russia	In Moscow, 65% of families were engaged in agriculture in 1991, compared with only 20% in 1970.
NORTH AMERICA	
United States	Twenty-five percent of urban families work in food gardens or horticulture.

Source: Compiled by The Urban Agriculture Network from various sources.

expenditures other than food. In many Third World cities, food purchases can represent over 60% of total family expenditures (see table 7.3). For the very poor mother, cash and food may be almost equivalent; as much of the first is spent on the second.

Consumption-oriented farmers, producing for family and neighbours, represent a significant population in most low-income cities. A 1986 survey in Kenya found that of the urban families engaged in agriculture,

as many as 40% were dependent on self-produced food for nutritional survival.¹ The impact of this activity can be significant. In the Philippines, the district of Negros promoted home, school and community gardens with support from the International Institute of Rural Reconstruction. Low-income community residents produced vegetables, fruits, herbs and other products for both consumption and sale; within two years, childhood malnutrition was cut from 40% to 25%.²

Case 3.1 Small-scale horticulturists in a squatter settlement in Lusaka

Residents of a squatter settlement near the sewage lagoons in Lusaka, Zambia, farm the area to produce food for consumption. The production is small-scale and informal, using low-quality inputs collected from the market or neighbouring areas and undertaken on public land. Although it is legal to use public land for cultivation in Zambia, using sewage for irrigation is not sanctioned. In this case, the effluent from lagoons has been biologically treated in a passive lagoon.

The farmers produce vegetables such as squash and beans for family consumption. One farmer has expanded his farming activity to produce cash crops such as sugar cane for toddy and bananas, from which he earns a good income. He has shaped fields by hand and uses crop rotation. The farmer composts neighbourhood waste for his fields and uses effluent from the sewage lagoon for irrigation.

Contact: Harrington Jere, Human Settlements of Zambia, Lusaka, Zambia (see appendix F for complete address).



Photo 3.1 Urban gardener and his family cultivate for their own consumption and the market in Lusaka

Some urban farming systems that require low levels of capital, inputs and skills are easy-entry/easy-exit economic activities, which makes them very attractive to individuals with few resources at hand. In Haiti, very low-income farmers produce crops on rooftops using green manure made entirely from collected organic waste. The crops are for home consumption and sale within the community.³ On the garbage dumps east of Calcutta, hundreds of small cooperatives, comprising low-income urban residents, pay rent to the city and produce one-fifth of the city's fresh vegetables.⁴

Monetary investment by the low-income farmer is often quite small, with many inputs obtained by barter. Still, access to resources (seed, land, water), technology and support (credit, marketing) is highly constrained for these farmers. In the face of poor-quality inputs and crop loss to insects, disease and theft, the failure rate is frequently high, and the return to labour, efficiency of production and per-hectare yields tend to be low.

For many, urban agriculture is a relatively long-term economic activity.⁵ The average low-income farmer is a member of a poor but stable urban community.⁶ The poor who have lived in the city for a number of years have better access to resources and greater familiarity with the market and the urban economy. Recent migrants into the city from rural areas, including refugees, can rarely put together the necessary access to land, water and other inputs. They also face problems in effectively adapting rural technologies and farming systems to the urban environment; much relearning is necessary.

Urban agriculture is an effective family security tool for those seeking to build a future in the city. When the poor cannot purchase food in the market because of a lack of cash or disruption of supply, cultivating food may be the only means of survival. Individuals often first take up urban farming during worsening economic times, war or other catastrophes that disrupt food supply channels. A typical first venture may be to plant cassava roots on a roadside with a prayer for rain, or spinach next to a leak in a sewage pipe. Commonly, beginning farmers scavenge seeds from market wastes and cultivate on an irregular basis.

Over time, farming may evolve into a stable source of family income. With appropriate assistance and support, a farmer who is producing for home consumption can increase returns sufficiently to make sustained farming profitable and more productive. A farmer then may begin bartering for other family needs and selling parts of the larger crops. In many countries, there is a direct connection between low-

income entrepreneurs and retail markets such as street food, roadside stands and municipal markets.

Cooperation and organization have a vital role in low-income farmers' ability to expand their activities (case 3.2). In some places (for example, Senegal), the men tend to the crops and the women do the processing and marketing. Members of one tribe in Dakar work together to farm the tribal land to produce vegetables, rice, fish and livestock for the city market. In Lima, a community kitchen run by poor women supplements the rice, beans and cooking oil it receives as welfare by growing vegetables in community gardens and raising rabbits and poultry in backyards to provide a healthier diet for its members.

Case 3.2 Backyard gardeners in Maipú using biointensive methods



Photo 3.2 Husband and wife backyard gardeners in Maipú, near Santiago

Farmers in a low-income settlement in Maipú, Chile, grow a mix of vegetables, herbs and fruits and raise microlivestock on small household plots ranging from 10 to 40 square metres. Farming began about ten years ago through the initiative of SODEM, a Maipú-based community development organization, with training provided by the Centre for Education and Technology (CET), a national technical NGO advancing alternative agriculture. Several international agencies, including CODEL, GTZ and Lutheran World Relief, formerly provided support.

The farmers collect garbage from neighbouring residences and compost it for farming input. For most families, farming is a second economic activity; they produce primarily for consumption by family and friends. A few pro-

duce for sale in the market. Some women farmers grow culinary herbs at home and sell them in the local market.

The original purpose of the project was to improve the food security and nutritional status of the settlement residents. But farmers gradually expanded their activities. The farmers have planted street trees to improve the neighbourhood environment and for collective marketing of fruit. The farmers are now well established; they have even created a city park that has farming as well as recreational space.

This model of cooperation among NGOs to promote urban farming is eminently replicable in other countries and cities.

Contacts: Camila Montecino and Rita Moya, Centre for Education and Technology (CET), Colina, Chile (see appendix F for complete address).

In addition to the better-organized groups of poor urban farmers, thousands of small, productive farmers in every town and city generate some income from farming. These farmers are not reported in most economic and nutritional statistics, as their activity tends not to be noticed. The line between cultivation for consumption and for profit is often blurred among low-income farmers, who move easily from cultivation for their nutritional survival into selling surpluses and growing market crops.

Middle- and high-income farmers

Middle- and high-income farmers, like low-income farmers, either may cultivate for their own families and communities or may be entrepreneurial farmers seeking a profit. They, too, run viable farms in cities around the world. However, despite their many commonalities with low-income farmers, there are some distinct differences.

Middle- and high-income *consumption-oriented farmers* have a different set of priorities and farm differently from lower-income farmers. They frequently farm to substitute healthier, home-grown food for store-bought products and for personal satisfaction from the act of cultivating. Growing food for consumption improves the quality and nutritional value of the foodstuffs consumed by the family, as well as frees up income for other consumption needs. It provides significant quality-of-life benefits, including improved nutrition, security against dependence on a single-wage income and a stock of out-of-season canned and preserved foods.

Sometimes, however, the reasons for farming are economic. For many, urban agriculture offers a low-investment opportunity to be in business for themselves. For others, urban agriculture provided the equivalent of unemployment insurance during the recession of the 1980s, which has persisted in numerous countries. Falling real wages mean that middle-class expectations for living and consumption standards are no longer matched by incomes. In Argentina, for instance, pensioners unable to survive on their pensions alone farm in their yards to make ends meet.

So-called structural adjustment programmes in the 1970s and 1980s led to declines in the real incomes of urban populations, especially in Africa, motivating a significant percentage of the population to grow food for home consumption.⁷ A survey in Tanzania found that

70% of the resident faculty at one agricultural campus were entrepreneurial urban farmers who found the income an essential supplement to their shrinking salaries.⁸

Farming is usually a part-time activity for one or more family members, with some input from the rest of the family. A typical example of a home farmer is a middle-class mother producing vegetables and fruits in her kitchen garden with planting and harvesting help from the family or day labour.

Growing food at home is a low-risk way to supplement the family income because many middle-class families have some farmable land or surfaces available at home, making food production a convenient secondary activity. For these farmers, the issue of tenure is usually not as critical as it is for lower-income farmers since they generally farm in their own yard or on other land they hold. They also have access to better seeds, feeds and other inputs than do lower-income farmers, and their livestock and vegetable beds tend to be more robust.

Middle- and high-income *entrepreneurs*, in contrast to gardeners for family consumption, tend to concentrate on high-value crops rather than easy-to-grow crops; they frequently concentrate on a few or even a single crop, such as cattle, ornamental plants or spinach. Farming still tends to be family-based, although larger enterprises may have several workers.

One middle-income Zambian family involved in entrepreneurial urban agriculture finds farming much more lucrative than the husband's accounting job. Their farm income is more than double his salary. He handles purchasing and marketing, and his wife does the field work. Another Zambian family produces a second income through ornamental horticulture (case 3.3).

These entrepreneurs are more likely than low-income entrepreneurs to have legal right to farm the land and to have access to good inputs, technical advice and credit. When asked what his number one problem was, an extension worker in Mexico answered, "College professors producing market crops in their backyard. They ask too many questions."

Case 3.3 Growing ornamental crops at home in Lusaka

A middle-income family in Lusaka, Zambia, produces a second income by growing potted house plants in their front and back yards. The family produces its own pots, makes soil from neighbourhood waste and markets the plants directly to homeowners. The father is the principal farmer. The mother holds a government job and



Photo 3.3 Middle-income ornamental horticulturists at work in their front yard in Lusaka

is the expert horticulturist and market specialist; she works on the business in her spare time. The children help as well.

This successful ornamental horticulture enterprise is supported by a farmers association, which provides both technical advice and some credit. There is a large market for house plants in most cities worldwide, and several low- to middle-income farmers are supplying each local market.

Contact: Lyson Phiri, Africare, Lusaka, Zambia (see appendix F for complete address).

The main difference between middle- and high-income entrepreneurial farmers is in the scale or capital requirements of their ventures. Rich investors, particularly if they have an agricultural background or are landowners, are attracted to farming systems that require high investments and produce high returns, such as large-scale poultry and dairy products, or that cater to specialty markets, such as shrimp and orchids for export.

Like the middle-income entrepreneur, the big investor is likely to concentrate on a single, high-value crop and to either own the land or lease it from the government, institutions or other landowners, including speculators. Examples of investments are land improvements to create ponds, irrigation, greenhouses, mushroom sheds and storage facilities.

Many high-income urban farmers integrate their operations into processing and marketing, including for export. They often expand to higher-return specialty markets. In Tanzania, a retired high government official imports hybrid milk cows and raises them in his exclusive residential neighbourhood. In Colombia, a former high-level official in the agriculture ministry exports culinary herbs to the United States.

These enterprises are often peri-urban. As land prices rise, these farmers sell their facilities and move their operations to the new urban periphery. Increasing urbanization is often accompanied by a shift to a more profitable and complex farming system or to more intensive crops. It is not unusual for a successful higher-income farmer to become an agribusiness entrepreneur. In Thailand, a farmer who had



Photo 3.4 Kitchen garden for a restaurant in greater Bogotá

inherited fruit orchards from his father sold them for a considerable sum and purchased land at the Bangkok metropolitan periphery to build artificial ponds for fish rearing.

Thus middle- and high-income entrepreneurial farming may be viewed by the public and by the state not as agriculture but as agribusiness. This perception has implications for the degree of official support the activity commands. Urban agribusiness is supported and promoted in most countries as a productive industry with good access to credit, technology and other requirements; other, more informal urban agriculture fails to receive the same status.

Domestic and international agribusinesses

Large national and international corporations play a major role in urban agriculture, sometimes dominating a farming system. Large operators can have two different roles: they can produce crops themselves, employing large numbers of workers; or they can contract through numerous small and medium "outgrowers", handling the processing and marketing functions themselves. In Abidjan, an integrated chicken-raising firm produces poultry feed and owns and operates retail outlets throughout Côte d'Ivoire. For larger (including multinational) firms, the advantage of proximity and concentration of farmers in urban and peri-urban areas may make them more convenient outgrowers for crops that require fast delivery to the market. In Bangkok, a single large firm

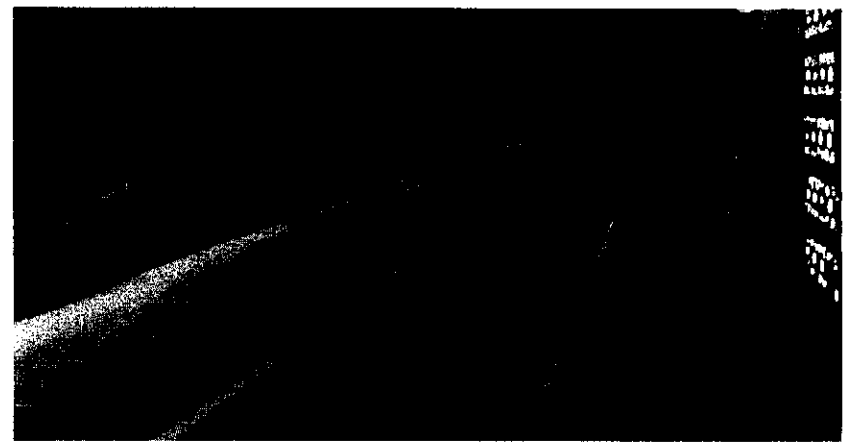


Photo 3.5 Medium-size poultry business in Lusaka

has contracts with 10,000 small outgrowers of chickens. It runs the hatcheries and processes the meat it buys from the small growers.

In many urban areas, aquaculture, especially growing shrimp, is dominated by large firms. For example, an international agribusiness giant produces mushrooms in Jakarta. Although in some places legislation bars small-scale farmers from holding pigs, a number of municipal corporations raise pigs on garbage.

Some agribusinesses support small-scale producers (case 3.4). Others compete with their smaller counterparts. This competition can be uneven when agribusiness has preferred access to land, water, waste or other inputs. Cooperatives, farmers associations, non-governmental organizations (NGOs) and other groups can help to level the playing field by providing assistance to small farmers.

Case 3.4 Vegetable and fruit production by Del Monte in Manila

Del Monte, an international agribusiness, was growing fruits and vegetables on a plantation in Manila, Philippines, for export in canned form. During the 1980s, the Urban Food Foundation, an NGO based in Manila, helped Del Monte to move from a plantation-based system to an outgrower-based system, with Del Monte contracting out production to about 500 small- and medium-scale farmers in metropolitan Manila. Del Monte performs the marketing, technical assistance, extension and quality control functions.

The farmers are part of a farmers association whose professional executive manager previously worked for Del Monte. The quality of life of farmers is much improved over that of plantation workers.

Contact: Roberto S. Guevara, Urban Food Foundation, Quezon City, Philippines (see appendix F for complete address).

Farmers cooperatives

Cooperatives of farmers are usually formed to increase the sustainability of the farming activity by reducing input costs or increasing profits, thus reducing risk. By joining into cooperatives, small operators gain economies of scale in areas such as technical and enterprise support, supply of inputs and marketing. Cooperatives ease the access of small farmers to formal markets where these are not easy to enter.

In urban areas, cooperatives tend to comprise lower-income farmers, although wealthier farmers also form their own specialized associations. Community gardening everywhere, from Leipzig to Lima, is typically operated through community gardening associations or cooperatives. In Germany, community gardens are rooted in the labour union movement of the 19th century. In Peru, they emerged from the alternative economics movement of the 1970s.

In Jerusalem, outside Bogotá, a cooperative of 100 poor women grows hydroponic vegetables on contract with supermarkets at premium prices. In Zaire, the cooperatives of urban farmers were partly instrumental in reducing the problems caused by recent breakdowns in food supply from rural and international sources.

Farmers often start with common interests (for example, a common activity in a common location, similar background or solidarity), then join together to achieve certain benefits, resolve certain problems and protect certain interests. Over time, they may formalize their association and work with outside experts to achieve these goals. Many cooperatives are formed with impetus from an outside catalyst such as a development agency or an NGO. Yet there is no clear line distinguishing farmers cooperatives, farmers associations and NGOs. All of these groups can be classified both as producers and as actors that influence and organize urban agriculture, as the example of fisheries cooperatives in India illustrates (case 3.5).

Case 3.5 Sewage-fed fisheries cooperatives in Calcutta

Calcutta, in West Bengal, India, has the largest water area devoted to aquaculture using urban wastes in the world. About 175 fisheries based on sewage, ranging from four to 80 or more hectares in size, produce fish (tilapia, carp, rohu, catla, mrigal) for the local market. The fish farms are in the wetlands area in East Calcutta.

About 150 landlords have long-term leases from the municipality and the port authority for these properties. The farming is done by some 4,000 families, most of whom migrated from the Sunderbans region in East Bengal (now Bangladesh)



Photo 3.6 Lagoon in Calcutta farmed through a fishermen cooperative using treated sewage

in the 1950s. The fishermen, who rent the ponds from the landlords, are organized into several cooperatives.

There is a tradition of strong fishermen cooperatives in the state of Bengal. The cooperatives are organized for production at the local level. At the district level, central societies or associations handle purchasing and supply of inputs. The West Bengal State Fishermen's Co-operative Federation, Ltd., a state-level organization, helps in the management of cooperative societies and arranges supply of inputs and finance.

Farming of fish on sewage-fed ponds began in this area during the Second World War, gradually expanded to the current level and may now be shrinking somewhat, in size if not production. Some form of resource recovery from the sewage has been continuous since the middle of the 19th century. The discharge from the fishponds—treated wastewater—is used to irrigate non-monsoon (dry season) rice paddy and vegetables.

The farms produce about four to nine tons per hectare annually (according to 1984 data) and satisfy up to 20% of the city's fish demand. The city sewage that feeds the ponds is appropriately treated through methods developed by the fishermen over the years. The fish have been found for more than 20 years to be safer for consumption than river-produced fish.

The area provides multiple benefits: fish supplies to the city; biological treatment of city sewage by private profit-making and tax-paying organizations; recovery of nutrients that would otherwise pollute; and preservation of the wetlands. The fisheries area itself provides open space in a crowded city. The ponds and dikes are used for boating and picnicking, particularly on weekends. The cooperatives play a vital role in the effectiveness of this well-integrated system because coor-

dination and control, which are essential to the system's long-term maintenance, would not be achievable by individual fish farmers.

The sewage fisheries are facing a threat from urban development. Further, the productive capacity of the ponds is endangered by siltation and dike erosion. In recent years, the farmers in the region have united to form a Waste Recycling Region Development Committee to work for preservation of the farming, fishing and recreation activities. The committee has gained the support of national and international environmental groups in a battle with real estate interests.

Contacts: Dr. Dhrubajyoti Ghosh, Calcutta Metropolitan Water and Sewer Authority, Calcutta, India; Professor Christine Furedy, York University, Toronto, Ontario, Canada (see appendix F for complete address).

Special groups of farmers

Although the practice varies from one society to another, it is common for urban farming to be dominated by minorities or economically disadvantaged populations. For instance, in Tanzania urban agriculture employs a higher percentage of youth, aged and unskilled labour than other informal industries. Such demographic realities explain in part the lack of recognition and support for urban agriculture and therefore have important policy implications. Three groups of disadvantaged farmers stand out in particular: women, immigrants and those farming in response to crisis.

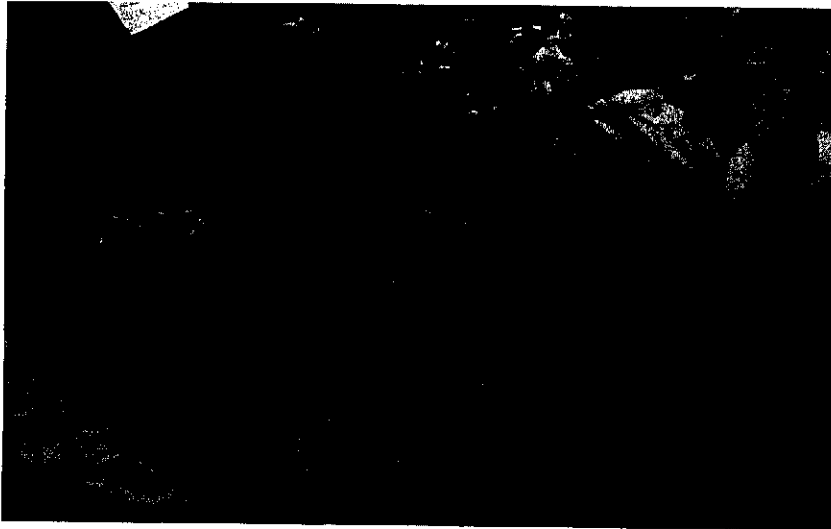


Photo 3.7 Women selling their farm products at a street market in Abidjan

Women farmers

The image of the male as the family provider is common in many cultures. However, household surveys in countries throughout Africa and Latin America find that women are more commonly accountable for family food production and preparation. Perhaps because feeding the family is the responsibility of the woman, she is more immediately conscious of deficiencies in food security and the first to seek opportunities to augment food supply.

In some low-income economies, women are not fully integrated into the urban workforce. Their lack of access and familiarity with the formal economies limits the economic activities they can engage in. Furthermore, responsibility for managing the household and raising the children imposes additional restrictions on the range of other work women can do.⁹ Farming has the advantage that it can be undertaken close to or at home.

In countries and cultures where women do most of the rural farming, women are also likely to do most of the urban farming, according to most researchers in Sub-Saharan Africa and Latin America (table 3.2). Surveys in Kenya and other East African countries show that three-fifths to two-thirds of the primary urban farmers are women, who receive some help in planting and harvesting from their families.¹⁰ The Centre for Education and Technology (CET) in Chile finds that women represent 90% of the urban agriculture producers in their low-income areas.¹¹ In a Lima study, four-fifths of home gardens were found to be farmed by women.¹² In Port Moresby, Papua New Guinea, a 1981 survey found that 67% of the principal gardeners were women.¹³ In some countries and cultures, however, including Senegal and

Table 3.2 Gender composition of urban farmers in selected cities

Country	Gender composition
AFRICA	An estimated 64% of African urban farmers are female.
Kenya	In Nairobi, 65% of urban farmers are women.
Uganda	In Kampala, 67% of urban farmers are older women.
Zaire	In Kisangani, 64% of urban farmers are women.
SOUTH AMERICA	
Colombia	Sixty-seven percent of the hydroponic cultivators in the Jerusalem project in Bogotá are women.

Source: Compiled by The Urban Agriculture Network from various sources.

Senegal and Argentina, our field visits and interviews found that the majority of urban farmers are men.

When both husband and wife are otherwise employed, women are more likely than men to be engaged part time in food production. In Dar es Salaam, some women employed by the government first supplemented their meagre incomes by urban farming; after a few years, the women took up urban agriculture full time. As a full-time occupation, their farming income was on average five to ten times their salary.¹⁴

In general, it appears that male family members are more likely to be active in cash-earning activities than in fungible ones. In Bolivia, for example, women are concerned with food crops and men concentrate on cash crops.¹⁵ A similar pattern is found in Zambia.

Women's importance in urban agriculture is not limited to food production. Women are more likely to be engaged in processing preserves, spices, relishes, salsas and dried food for family and neighbours and for the market. In some cultures, women are the primary marketers of urban agricultural products. In Africa and Latin America, one can see more women than men selling food on the street and in the markets. Gathering wood and manufacturing fuel from urban waste are also commonly women's work and enterprise. On the other hand, collecting and processing solid waste for soil improvement and livestock fodder is more commonly done by men and children in urban situations.¹⁶

A number of studies have defined the greater difficulties that rural women farmers face compared with men. Field interviews suggest that the same bias exists for urban women. Urban women face greater difficulty than men in attaining access to land, water, credit, extension services and essential inputs.

Some constraints women face arise from the specific urban context. In some parts of Africa, for example, women have traditionally had the right of access to tribal land for vegetable production. When the family moves to the city, women's accountability to feed the family continues in the culture, but the traditional usufruct to land is lost with formal land titles and land use laws.

Immigrant farmers

In many cities, immigrant groups bring new technologies from their native country or region. Japanese immigrants are well-known mar-

ket gardeners in California and southern Brazil. On the North American east coast and in Argentina, Italians have been important urban gardeners. In Côte d'Ivoire, Vietnamese immigrants have far higher yields per hectare than the native farmers. In Senegal, the most productive farmers are the Lebanese; in Panama, as in much of Asia, it is the Chinese.

Expatriate participation in urban agriculture is more pronounced in some farming systems (such as fish, mushrooms, vegetables and ornamental horticulture) than in others (livestock, fruit orcharding and poultry). Those who come from countries with an urban agriculture tradition are more likely to take up agriculture in their new settings. But as opportunities present themselves in growing urban food markets, other immigrants will join them.

However, rural farmers may need help in adapting rural technologies and methods to their new urban setting. Programs to assist immigrants in relearning farming in an urban setting could help to accelerate these groups' transition into productive urban life.

Immigrant farmers may also face problems in gaining access to markets and in adapting farming technology to local conditions. Finally, urban agriculture is perceived in some places as being of "low status" because it is practised by immigrants.¹⁷ Being viewed as an immigrants' trade can have cultural and policy implications for the industry because the stigma sometimes discourages native groups from taking it up.

Crisis farmers

Refugee camps, whether formal or informal, generally have urban characteristics. This is particularly true of the increasingly common camps of long duration, some of which become semi-permanent. From the day of formation, each camp begins to shape its own special economy—part subsidy, part trade and part production. Because the largest part of such an economy is food, urban agriculture can play a special role.

The recent trend among refugee organizations is to emphasize a degree of self-reliance among refugee camp inhabitants; this independence can encompass nutritional self-reliance, particularly in micronutrients. Since some of the inputs to agricultural production will be the camp's wastes, the burden on the surrounding local community's infrastructure can be reduced. The camps can achieve some

food self-reliance if the agricultural inputs are provided to the refugees. The farming activity is also likely to lead to some social satisfaction and increased community interaction.

Crops with a short maturity cycle can be grown even in short-term refugee camps. Whether they are of urban or rural origin, a significant proportion of the refugees are likely to have some farming skills, and land is usually available in or around the camps.

Urban agriculture may have a role to play not only in emergencies where large population movements take place, but also where temporary breakdowns in food supply to cities occur through natural, civic, economic or wartime disasters. Food production may come to a standstill, the infrastructure may collapse and distribution in particular may fail. In addition to taking steps such as reducing consumption and recycling, portions of the population may turn temporarily to farming to survive the crisis. Such temporary farming activity was noted recently in the former Yugoslavia, Baghdad and Kinshasa.¹⁸ Many mayors of disaster-struck cities have responded by making public land available to residents for food production; this practice was particularly widespread on both sides of the Atlantic during and after the Second World War.

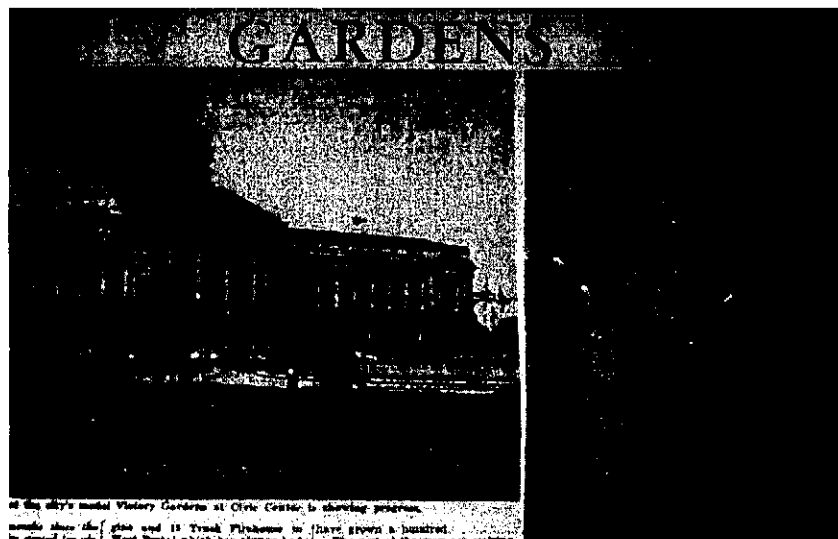


Photo 3.8 "Victory garden" in front of the San Francisco civic centre during the Second World War



There is no such person as the "average urban farmer". He or she may come from any portion of a city's population spectrum. She is often a woman working on a small scale, less than full time. Urban farmers include the wealthy and the poor, recent immigrants and landed gentry. During the 1980s and early 1990s, the number of urban farmers grew rapidly, probably faster than the rate of urbanization.

Although they represent a significant share of the population in numerous developing-country cities, urban farmers face considerable obstacles and biases. They are pioneers in an important industry without the benefits accorded most industries by government, associations and commercial organizations. Nevertheless, in one place after another, urban farmers are beginning to be heard and noticed. National policies favouring urban agriculture are being established, national associations are being formed, surveys are being carried out and in a few cities and countries, government departments are becoming operational.

Notes

1. Diana Lee-Smith and Davinder Lamba, "The Potential of Urban Farming in Africa", *Ecodecision* (December 1991), p. 39.
2. International Institute of Rural Reconstruction, *Family Food Production Program for Negros: IIRR Annual Report 1990* (Silang, Cavite, Philippines: IIRR, 1990).
3. See *ECHO Development Notes*, issue 40 (and other issues), published by Educational Concerns for Hunger Organization (ECHO), North Fort Myers, FL 33916-2239 USA.
4. Christine Furedy and Dhruvdyoti Ghosh, "Ecological Traditions and the Creative Use of Urban Wastes: Lessons from Calcutta," paper presented at an international conference on the Ecological Aspects of Solid Waste Disposal, Hong Kong, 18-22 December 1983.
5. Bishwapriya Sanyal, "Urban Agriculture: Who Cultivates and Why? A Case Study of Lusaka, Zambia", *Food and Nutrition Bulletin* 7 (September 1985): 15-24.
6. Carole Rakodi, "Urban Agriculture: Research Questions and Zambian Evidence", *The Journal of Modern African Studies* 26, no. 3 (1988): 495-515.
7. Carole Rakodi, "Self-Reliance or Survival? Food Production in African Cities, with Particular Reference to Zambia", *African Urban Studies* 21 (spring 1985): 53-63.
8. Z.S.K. Mvena, I.J. Lupanga and M.R.S. Mlozi, "Urban Agriculture in Tanzania: A Study of Six Towns", draft report, Sokoine University of Agriculture, Morogoro, Tanzania, October 1991.
9. Rakodi, "Urban Agriculture," p. 496.
10. This was a finding of several surveys, including those by the Mazingira Institute (Kenya) and Sokoine University (Tanzania).
11. José Dasso, personal communication, 1993.

12. Vera Niñez, "Working at Half-Potential: Constructive Analysis of Home Garden Programmes in the Lima Slums with Suggestions for an Alternative Approach", *Food and Nutrition Bulletin* 7 (September 1985), p. 9.

13. D.E. Vasey, "Functions of Food Gardens in the National Capital District", University of Papua New Guinea, Port Moresby, 1981, p. 41.

14. Malongo R.S. Mlozi, "Urban Women and Agricultural Extension: The Case of Tanzania", in Adrian Blunt, ed., *Proceedings of the 33rd Annual Adult Education Research Conference: AERC 1992* (Saskatoon, Canada: University of Saskatchewan, 1992), pp. 174-75.

15. Julio Prudencio Böhr, personal communication, May 1993.

16. African Development Bank, loan to Addis Ababa, 1993; presentation by J. Arroya Moreno, Instituto de Promoción de la Economía Social (IPES), Lima, Peru, at a USAID-sponsored workshop on the Habitat II conference, Arlington, Va., 11 April 1995.

17. Walther Manshard, "Market Gardens in West African Urban Communities" (Freiburg, Germany: Institut für Kulturgeographie der Universität, n.d.), p. 7.

18. Roger Thurow, "Amid Destruction Sarajevo Blooms as a Garden Spot", *Wall Street Journal*, 14 July 1994; "Kinshasa—The Garden Spot of Africa?" telegram from the US Embassy, Kinshasa, Zaire, to the Secretary of State, Washington, D.C., 10 April 1992.

C h a p t e r

four

Where is farming found in the city?

A close look around most developing cities reveals urban agriculture everywhere. Urban agriculture is so much a part of the landscape that it is often not even noticed: fruit trees along streets, a backyard vegetable garden, trees for fuel and construction wood in peri-urban areas, vegetables grown on slopes in low-density areas of the city, fish in ponds, a chicken farm inside an industrial district, a greenhouse behind a petrol station.

Yet the widespread perception is that cities in developing countries are solidly built up, with no area to spare. Agriculture and urbanization are viewed as conflicting activities, and any non-built use of land is seen as temporary. The World Bank, for example, in an otherwise perceptive analysis, labelled the considerable open space in greater Moscow as "vacant".¹ Yet most of this land is in fact agricultural and is helping Moscow's population sustain itself in the face of the collapse of the Russian food supply system.

In most developing-country cities, considerable vacant and underutilized land and water surfaces in the urbanized sphere are or can be used for agricultural production (tables 4.1 and 4.2). Furthermore, the agricultural use of areas at the edge of cities is not necessarily a marginal use; rather, it is an integral part of that urban area's expanding productive system. As the city grows, agriculture can grow with it, even as the periphery extends and housing and commerce take over farm sites.

Historically, towns were situated in their particular sites for a variety of reasons, for example, it was a strategic spot or crossroads, or it provided sheltered harbour. No matter what the reason, the site typically had to be accompanied by adjacent surfaces that were sufficiently fertile to feed the population of the settlement. In fact, the towns that survived and flourished and became the metropolises of today were often located in the most fertile parts of a country or region, especially

