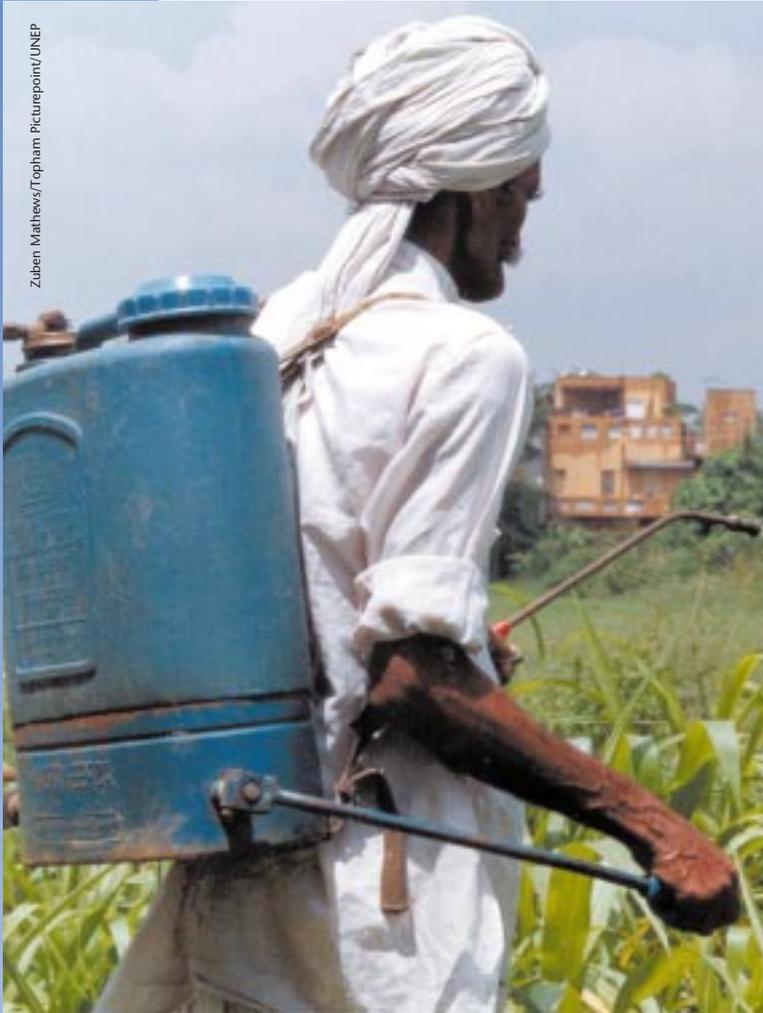


# URBAN ENVIRONMENT

## FOOD

Did You Know that in China the 14 largest cities produce 85 percent or more of their vegetables?

Zuben Mathews/Topham Picturepoint/UNEP



### The rise of urban agriculture

The role of urban agriculture (UA) in the food supply of cities and towns, as a complement to rural agriculture, is becoming an important issue in a globalizing world economy. It is estimated that approximately 800 million people worldwide engage in urban agriculture, meaning agriculture located within or on the outskirts of towns or cities. Although proper data is lacking, there is evidence that UA is increasing in many urban areas, sometimes dramatically so, particularly in developing countries.

African towns and cities where specific UA increases have been measured include Dakar, Senegal, Kumasi, Ghana, Lome, Togo, Bissau, Guinea Bissau, Dar-es-Salaam, Tanzania, and Nairobi, Kenya. The products range from market garden vegetables to livestock such as cattle and poultry. Recent estimates indicate that 72 percent of all urban households in Russia raise food, and 68 percent do so in Tanzania. Berlin has over 80,000 urban farmers, while in China the 14 largest cities produce 85 percent or more of their vegetables.

UA contributed an estimated two percent of the city GDP in Shanghai, China and four percent in Lima, Peru, in the latter part of the 1990s. It was estimated that the number of people obtaining part of their food from UA in six East and Southern African countries will rise from about 25 million to 40 million by 2020. It is thought that globally UA now produces 15 percent of all food consumed in urban areas, and that this percentage is likely to double within twenty years.

Factors affecting this rise in UA include increasing levels of urban poverty, structural adjustment and agricultural policies, economic transition, disasters, and policy initiatives on UA. For the poor, economic benefits are considerable – they save by consuming food produced at home, and they earn extra income by selling produce.

In Africa, Latin America, and Asia, women predominate in UA, seeking to earn income and improve household diets. Studies in Nairobi, Kenya, Kampala, Uganda, and Harare, Zimbabwe, demonstrate that UA improves the nutrition of the poor, as measured by caloric and protein intake and children's weight. One study from West Africa suggests that where men are the urban farmers such nutritional benefits do not occur. This could be of concern for the alleviation of poverty, since recent trends indicate that more African men are taking up urban farming, apparently due to the effects of structural adjustment.

### Urban Agriculture in the Latin America and Caribbean Region

Every available space - including roofs and balconies - has been given over to urban food production in Cuba's capital, Havana. Intensive urban farming methods including hydroponics and permaculture, help secure fresh food for urban dwellers. Policy support helps the growth and sophistication of UA. The city council facilitates the integrated management of waste water for food production, aided by high-level coordination between several government ministries. Regional standards for waste water treatment are developed by the Pan American Centre for Sanitary Engineering and Environmental Sciences in Lima, Peru. Systems of waste water management and re-use at different levels of purity, from woodlots to aquaculture, are promoted and utilized in several countries of the region.

## The economics of urban agriculture

Although UA is found to be growing in absolute terms, its contribution to urban food supply varies, relative to rural agriculture, depending on product and season. Studies in developing countries show that fewer levels of trade (e.g., brokers and processors) and a higher percentage of producers are involved in UA than in rural-urban or international agricultural trade. Volumes traded and transport costs are higher in the latter, while marginal sale profits and bargaining power of producers are higher in UA.

High urban land values are clearly the main factor influencing economic pressure against UA. Preferences for fresh food are one factor in favour of peri-urban agriculture. Food security, especially at the level of urban poverty, is another.

In industrialized economies, peri-urban agriculture is typified by market gardening, with daily sales to commercial outlets or through farmers' markets. In poor countries, peri-urban agriculture is typified by part-time farming, relying on seeds, know-how and implements brought from low-input rural farming systems, often rain-fed. Most UA falls between these extremes, with the tendency towards intensification always present. One study shows that the intensity and productivity of urban farming increases with city size, as does the use of organic inputs and the networking of exchange and trade of UA outputs.

## Emerging issues and policy implications

Human health risks, especially from urban livestock keeping, present a problem in the growth of UA. In many countries, livestock keeping is not allowed in urban areas. For urban farmers struggling for food security, access to resources and inputs, primarily land and water, present the main problem. The relationship between UA and the rural-urban transmission of zoonotic diseases remains under-researched. But disease transmission is a problem affecting food supply and security, even in industrialized food systems, as recent livestock disease crises such as BSE and Foot and Mouth disease have shown.

Yet the tight integration of UA with the urban eco-system - nutrient cycles and the re-use of liquid and solid waste - represents a useful potential for urban policy and technology. Increasing demand and competition for water means that in many regions, especially in arid areas, most crops will increasingly have to be grown with treated wastewater, even exclusively so.

## Policy Development in Africa

The Municipal Development Programme (MDP) has recently assessed UA policy initiatives in East and Southern Africa. Central governments as well as local authorities are increasingly taking initiatives on UA to address rising urban poverty and food insecurity. Kenya, Tanzania, Uganda, Zambia and Zimbabwe are at various stages of shifting towards UA support measures. With assistance from the Cities Feeding People programme of the International Development Research Centre, which works with UNCHS (Habitat) as well as FAO, WHO and the World Bank on UA initiatives, MDP will produce a book that looks at rules and strategies for formal or informal access to land and other resources for UA; policy and planning instruments that have a bearing on UA; markets in and availability of resources for UA, especially land and water; institutional arrangements that enhance or constrain access to these resources for UA; and mechanisms in place currently and their legitimacy.

## Urban Farming

Urban farming has become a critical variable in sustainability. With the impact of economic recession and the effects of structural adjustment, the cultivation of food crops is now both more widespread and economically significant in many African urban areas. In Kenya, Egypt, Mali and Tanzania, poor urban households will spend 60 percent or more of their incomes on food. City dwellers pay 10 to 30 percent more for their food than do rural inhabitants. Worsening food security underpins much of the burgeoning of agricultural micro-enterprises on the African cityscape. Two out of three urban families in Kenya and Tanzania may engage in farming, where every open space, utility service reserve, road, valley or garden in the towns has been taken up for planting of all sorts of crops. Women play a vital role in urban agriculture, many of whom engage in cultivation as a survival strategy. This process of "ruralization" of African cities is not a consequence of mass rural-urban migration, but rather a response to the fluctuations in the economies of developing countries' cities. Urban cultivation is not practiced exclusively or even primarily by recent migrants. The majority of farmers originate from poor households that are fully entrenched in the urban economy. More than 60 percent of Lusaka's farmers had been in the city for more than five years before embarking on plot gardens, and nearly 45 percent for more than 10 years.

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### Rooftop Gardening in St. Petersburg, Russia

Many Russian citizens have suffered from shortages of basic foodstuffs and fresh vegetables as a result of the economic and political reform. The Roof Top Gardening Programme was started by the Urban Gardening Club (UGC) with assistance from the USA charity ECHO. A pilot project on the rooftops of two apartment buildings produced a yield of 27 kg of radishes, 15 kg of onions and 9 kg of parsley. These vegetables had lower levels of heavy metal contamination than vegetables grown 30 km from the city. During the winter, the residents grew a winter salad vegetable 'witloof'. All these were used as supplement food for the neighbourhood.