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Urban Agriculture

Food, Jobs and Sustainable Cities



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Contents

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* From the collection of Urban Resources Systems, Patricia Goudvis, photographer.

+ From the collection of Urban Resources Systems.

From the collection of the American Community Gardening Association.

All other photos from the collection of The Urban Agriculture Network.

Introduction to the series

The trend, now well known, is irreversible: the number of people living in cities will more than double in 35 years. In 1990 the world's urban population stood at 2.4 billion. In 2025 it is expected to reach 5.5 billion, a trend accelerating in developing countries, whose share of the total will rise from 63% in 1990 to 80% in 2025.

At the same time, it is clear that past incentives to keep the developing world's people in rural areas—on the theory that growth of cities led only to unemployment—have not worked. The rural-versus-urban development model has not been successful, because people want to go where the jobs are, and jobs are seen to exist in cities. Thus, it is necessary to help people help themselves to a better life—wherever they are.

There lies an enormous challenge—to prepare the cities and the settlements around them not merely to absorb this population but to assist in finding or creating livelihoods, social services, adequate shelter and an environment in which they can flourish. It is a challenge that will be faced by the second United Nations Conference on Human Settlements—Habitat II—in June 1996. This series, developed for Habitat II, will help those people preparing for the conference, those attending it and those working to follow up on Conference commitments with action around the world.

The United Nations Development Programme (UNDP), working closely with the Conference leadership, has produced this series of books. UNDP has a history of working in urban settings and is strongly committed to the goals of Habitat II as goals that fit into UNDP's vision of sustainable human development. That development not only generates growth—it distributes the benefits equitably.

It regenerates the environment rather than destroy it. It empowers people rather than marginalizes them. It gives priority to the poor, enlarging their choices and providing for their participation in decisions that affect their lives. And that development is pro-city because it is pro-poor, pro-nature, pro-jobs and pro-women.

UNDP also published in 1991 a strategy paper on urban development cooperation, "Cities, People and Poverty", followed in 1992 by a policy paper on the urban environment. The two papers provided guidelines not only for UNDP but for the UN system.

This new series builds on past publications and provides direct support to UNDP's "Action Package" for Habitat II, with various national, regional and global activities. That package calls for UNDP to work with UN system partners in each developing country to help countries prepare for the Conference and its follow-up by reviewing past policies, selecting best practices for replication, and preparing national urban action plans. UNDP organized, among various other activities, regional workshops in Accra, Amman, Bangkok, Katmandu, Quito, and Warsaw to build local partnerships with NGOs and others to promote urban development. UNDP called an International Colloquium of Mayors in 1994, beginning a round of activities to strengthen cities' ability to serve their residents' needs.

This series focuses on practical issues—on urban agriculture and sustainable livelihoods, rural-urban linkages, approaches to participatory local governance, gender equality, the role of the informal sector, employment generation and building the capacity of those who administer the cities of the world.

At this point, solid information built on realism and experience is needed more than theory. These books provide such information and guidance. I commend my colleagues at UNDP and the collaborating institutions and agencies for producing this series. I urge our country offices to continue to work closely with the people in each country to make urban life productive and sustainable.

James Gustave Speth
Administrator

United Nations Development Programme

Foreword

This book has four main purposes: (1) to present a comprehensive picture of urban agriculture in Asia, Africa and Latin America; (2) to define a distinct industry that needs to be recognized and treated as such; (3) to persuade leaders in government, non-governmental organizations, research institutions and other public and private entities to conduct research, support action projects and eliminate unnecessary constraints to the growth of the urban agriculture industry and (4) to foster a climate that empowers practitioners and the agencies that back them to fulfill the industry's potential for improving public well-being and the quality of urban life.

The book reveals that urban agriculture has been overlooked, underestimated and underreported. It outlines the historical prejudices and biases against urban farming, which for the most part are either unfounded or obsolete. Actual problems that can result from ill-practised cultivation and animal rearing in urbanized areas are identified, as are the many benefits of well-planned and well-executed urban agriculture.

Additionally, the volume reviews the history and current status of urban farming in terms of its relevance for the future, describes some of the urban agricultural enterprises that exist in a score of countries and explores potential methods of promoting the urban agriculture industry.

Through extensive interviews and correspondence, it has become clear that urban agriculture has been underrated in all but a handful of countries—and mostly overlooked by the international development community. During the 1980s, the industry was in a period

of rapid growth, which included a transfer of methods, particularly from Asia to Africa and Latin America. Nutritionists, energy specialists, geographers, urban planners, agriculturists and social scientists began to report on this growth at an unprecedented rate, each from their own point of view. This book is, we believe, the first effort to pull together their findings. We therefore consider it to be a "wake-up call".

As an industry, urban agriculture is closely linked to several urban, ecological, social and economic systems. It provides economic benefits for urban farmers and their communities and cities. It enhances the living environment and can improve efficiency in urban management. It contributes to better public health (if practised properly) and furthers social participation in the community. It can play an important role in reducing some types of hazards and in aiding the survivors of others.

Because of these multiple linkages and benefits, urban agriculture—more than most other industries—requires partnerships between public and private interests to achieve its potential. Yet urban farmers by and large believe that they are isolated pioneers without support. They have difficulty accomplishing what other industries consider routine, such as buying necessary inputs (seeds, fertilizer and tools), borrowing capital or buying insurance, acquiring a manual or obtaining instructions on how to produce a new product or crop or even protecting their activities against theft. Through solidarity and dissemination of knowledge, urban farmers should have a more secure foundation that ensures better returns for their efforts.

Study approach and audience

This volume focuses on urban agriculture in Asia, Africa and Latin America, particularly on cities visited by UNDP consultants from The Urban Agriculture Network during four study trips in 1991 and 1992, and on subsequent tours of other cities. It makes only occasional references to urban agriculture in Europe, the Middle East, the Pacific islands, the Caribbean and North America. This was a decision made at the outset because it was foreseen that the greatest potential benefits could be realized in the developing regions represented by the countries visited. However, the findings and conclusions of this document do refer to reports on other geographic areas where the information is available. It is important to note that some wealthy

countries, including Japan and the Netherlands, have long been leaders in urban agriculture.

The intended audience for this book includes policy-makers, researchers, development agency staff, government agencies, non-governmental organizations and private organizations concerned with food security as well as those involved in agricultural production, processing and marketing; urban hunger and nutrition; microenterprise development; the urban environment and waste management. The priority audience is in the developing countries but includes international agencies and readers with related concerns in industrial countries. For instance, recent books on "green" and ecological cities have chapters on urban agriculture, and it is hoped that this book will resonate with some of their readers. There is also considerable interest in urban agriculture among the supporters of sustainable agriculture. The views expressed in this book are not necessarily shared by UNDP's Executive Board or other member governments of the UNDP.

Background

The findings and conclusions are based on field research the organization conducted in 18 countries in Asia, Africa and Latin America during 1991 and 1992, supplemented by additional trips to several other countries, along with desk and library research that reviewed studies from the early 1970s through 1995. More than 300 interviews and more than 100 site visits were conducted with farmers, government officials and representatives of non-governmental organizations, community groups and research institutes. Important information was also obtained through visits to research and operating agencies of the United Nations and participation in workshops and conferences.

The book is thus not the work of one author or even a team, but has literally hundreds of committed authors: the members of The Urban Agriculture Network. The beginnings of the network date to early 1991, when UNDP/DGIP, with the technical support of the Urban Development Unit, launched this benchmark study of urban agriculture to provide a common base of knowledge on the issues, strengths, problems and concerns related to urban farming. By emphasizing a global field-visit approach, UNDP enabled a network to form gradually, with the study authors initially acting as its central node.

Reading and using this book

Part I of this book outlines just how significant urban agriculture is and why its processes fit into the urban food and ecological systems. It provides an overview of urban farming today and in the past, including some success stories from different regions of the globe. Part II gives a detailed characterization of urban farming—defining who the farmers are, where farming is undertaken, what crops are farmed and how, and which actors play a key role in the activity. Part III discusses the benefits of urban farming and the problems it can cause when poorly practised, as well as the constraints farmers face. Finally, part IV looks to the future to define a strategy for promoting urban farming throughout the world.

Various readers may wish to use this volume in different ways. *Leaders of development agencies* may be less interested than farmers in studying the many examples of different urban agricultural enterprises. They may, however, wish at least to scan the case studies in parts I and II, which present snapshots of particular applications. Part IV, on the other hand, is addressed to their municipal, regional and global agendas and may be of less interest to practitioners.

Certainly *farmers* know all too well the information in the chapter in part III on the constraints facing urban agriculture. This book nonetheless can provide them with useful comparative information as well as serve as a source of ideas from other countries and regions. Perhaps a sense of belonging to a global community of fellow practitioners will emerge from their reading of parts I and II.

Some *specialists* will know far more than what can be found in this book on their particular area of interest; they may, however, be able to integrate that focused knowledge into other domains with which they are less familiar. A sanitation specialist, for example, may be surprised by the significant links of waste to the urban food system.

All readers will gain from part III, which contains chapters on the benefits, problems and constraints of urban agriculture. If a consensus can be found about what can and should be done, a new urgency will be created to break the shackles that are retarding urban agriculture's development.

Concluding thoughts

As you read, keep sight of some of the broader implications of farming in the city: towns, cities and metropolises that are ecologically sustainable; an opportunity for the poor to become nutritionally self-reliant

and to supplement their income; and a thriving industry that contributes to economic development. This is the promise that farming holds for urban areas.

Some public officials, business leaders, leaders of non-governmental organizations and other key individuals may already be persuaded of the merits of urban agriculture. It is hoped that this book will help convince others as well.

Anders Wijkman
Assistant Administrator and Director
Bureau for Policy and Programme Support
New York
January 9, 1996

Preface

This volume is due largely to the funding, foresight, enthusiasm and leadership of the Science, Technology and Private Sector Division and the Urban Development Unit of the Management Development and Governance Division of the United Nations Development Programme.

Intellectual guidance was provided by an advisory committee drawn from private and public agencies. Members of this committee actively participated in review meetings over a two-year period (they are acknowledged in appendix A). A second round of study trips, sponsored by a number of agencies, added to the body of knowledge. (The countries and cities visited during the course of this study are listed in appendix E.)

The field work undertaken as part of this study was successful in large measure because of the vast knowledge, warm hospitality and boundless generosity of hundreds of members of an ever-expanding network. An early draft of this report was sent to 50 experts, and many of their comments significantly shaped this final version. (They, too, are credited in appendix A.)

The unofficial network was formalized in 1993 by the creation of The Urban Agriculture Network, a non-profit resource centre based in Washington, D.C. This centre has accumulated a considerable collection of books, articles, unpublished reports, bibliographies, videos and radio programmes that are available for consultation by anyone interested (appendix G offers an indication of the breadth of the collection).

However, The Urban Agriculture Network was not created merely as a resource centre. It is intended as a foundation from which a network of urban agriculture practitioners and supporters can be launched—a “network of networks”. The beginnings of regional nodes are already visible. A Latin America-wide conference has led to the launch of a network in that region; another network is sprouting in

a few countries in Africa; and a conference was held in December 1995 in South Asia, with a view towards forming a network in that region as well. The momentum towards greater recognition of this industry seems finally to be gathering.

Some clarification is appropriate. First, most chapters emphasize issues associated with the lowest-income population. This treatment is not based on any characteristics inherent to the industry. Rather, it reflects UNDP's, and the authors', special interest.

Second, the book is neither a technical how-to manual nor an academic document. It is based largely on interviews and field observations. Written sources are cited (in notes at the end of each chapter and in appendix C); however, information obtained from the first-hand sources on which much of the book is based is not similarly referenced in the notes that follow each chapter.

In the case examples, first-hand sources are referred to as "Urban Agriculture Network case file". Where possible, contacts are identified to benefit readers who wish further information. If detailed contact information is listed in appendix F (selected resource people), that provided in the case is abbreviated.

Third, because urban agriculture consists of many diverse activities, not all conclusions or summary statements are valid in all instances or all countries. Moreover, general statements cannot encompass the full scope of urban agriculture efforts. As a result, exceptions and contradictions will occasionally be found in this volume.

In addition, some examples of urban agriculture are based on secondary material. Some that existed in the 1980s may no longer exist; similarly, some former successes may no longer be thriving. Urban agriculture is often transitory. But even as one site is abandoned or reused, another is put into intensive cultivation. Participants and active organizations also come and go—again, an intrinsic characteristic of urban farming itself. Updates from readers will enable the material to be updated in a future edition.

For this purpose, and so that readers can alert us to any conclusions that may prove wrong when more data are available, a response form is provided (appendix H) to help guide next efforts.

*Jac Smit
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The Urban Agriculture Network
Washington, DC*

Acronyms

AVRD	Asian Vegetable Research and Development Center
CEPIS	Centre for Sanitary Engineering and Environmental Sciences
FAO	Food and Agriculture Organization (United Nations)
GTZ	German Agency for Technical Cooperation
HUFACAM	Huertos Familiares, Aborizacion y Crianza de Animales Menores
IDRC	International Development Research Centre (Canada)
NGO	Non-governmental organization
ODA	Overseas Development Administration (United Kingdom)
SIDA	Swedish International Development Authority
UNCHS	United Nations Centre for Human Settlements
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNICEF	United Nations Childrens Fund
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WHO	World Health Organization (United Nations)

P a r t
one

**The global significance
of urban agriculture**

C h a p t e r
one

Cities that feed themselves

At first glance, the term “urban agriculture” may appear to be an oxymoron. Agriculture is considered the quintessential rural activity, and urban agriculture is often perceived as archaic, temporary and inappropriate. Some consider it marginal at best, perhaps a constructive recreational activity or an aesthetic function that helps to beautify the “ugly” city. In fact, urban agriculture is a significant economic activity, central to the lives of tens of millions of people throughout the world. It is a rapidly growing industry that is increasingly essential to the economic and nutritional security of urban residents and that has far-reaching economic, environmental and health implications.

In an urbanizing world running short of resources, the possibility that cities can depend on the ingenuity of their residents to generate food security for themselves is significant. In countries where hunger and malnutrition are predominantly urban problems, an activity that can contribute to the nutritional self-reliance of a community, city or metropolitan region is significant. In cities choking in their own waste and pollution, an industry that can use urban waste as a basic resource is significant.

Sometimes called metropolitan-intensive agriculture, urban agriculture can be defined as *an industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city or metropolis, on land and water dispersed throughout the urban and peri-urban area, applying intensive production methods, using and reusing natural resources and urban wastes, to yield a diversity of crops and livestock.*

Urban agriculture contributes significantly to the socio-economic development of towns and cities throughout the world. In several economies, particularly developing ones, it is one of the largest

urban productive industries. In low-income cities, it is a prime generator of jobs.

Urban agriculture is an easy-in, easy-out entrepreneurial activity for people at different levels of income. For the poorest of the poor, it provides good access to food. For the stable poor, it provides a source of income and good-quality food at low cost. For middle-income families, it offers the possibility of savings and a return on their investment in urban property. For small and large entrepreneurs, it is a profitable business.

There is no “average urban farmer”. Frequently, the urban farmer is a woman with a family who has lived in a town or city for five or more years, grows vegetables and raises small livestock to feed her family and earns income from sales within the community. But urban farmers also include wealthy producers of specialty crops for expensive restaurants and export, agribusinesses with plantations and out-grower contracts, fishermen cooperatives, “Saturday only” part-timers who grow cassava by the roadside and market gardeners with yearly contracts with supermarkets and hotels.

Urban agriculture is a large industry consisting of many small-scale farmers and some large agribusinesses. Urban agriculture takes place on smaller tracts of land than rural farmers’ fields and on open spaces that are vacant, idle or unsuited for urban development. Although the most common site is the household plot, urban agriculture can be found throughout the metropolitan area. A large-scale operator may rent ten hectares in an industrial zone. A small-scale farmer may make a living on as little as 200 square metres. A household garden may cover 20 square metres or less.

Some typical examples of urban agriculture include:

- ▼ Fish and other aquatic products harvested from tanks, ponds, rivers, sewage lagoons and estuaries
- ▼ Horticulture on excess vacant space at large facilities principally dedicated to other activities (for example, airports, large factories)
- ▼ Rabbits, guinea pigs and chickens raised in bookshelf cages hung on walls
- ▼ Vegetables grown in hydroponic solutions on roofs, patios and stairways
- ▼ Market gardens on vacant plots, in the green wedges between urbanized corridors or along highways and railroads in peri-urban areas.

Urban farming is, perforce, intensive, making the best use of space, with a predominance of shorter-cycle, higher-value market crops. It utilizes multicropping and integrated farming techniques and makes judicious use of both horizontal and vertical space (through such techniques as chicken-coop boxes on shelves, multispecies fish ponds and container farming). Because water is expensive and usually in short supply, urban farming tends to be more conservative and efficient in its water usage than rural farming.

Urban agriculture is oriented to close-by urban markets rather than national or global markets. Proximity to the market predisposes crop selection to perishable products—urban farmers have a competitive edge over rural farmers in being able to deliver fresher produce to consumers. Urban agriculture also normally involves fewer middlemen between farmer and consumer than rural agriculture, and the transportation and storage needs of urban produce are much lower.

The potential of urban agriculture is largely untapped and undervalued. Intensive urban horticulture can yield several times as much produce per area as rural agriculture. Limited availability of resources (land and water) and inputs in urban areas has led to the development of farming techniques that require only a fraction of the water and fertilizer needed for tractor-cultivated rural farms per unit of production. Urban farming also can absorb a significant amount of urban solid and liquid waste, helping the city reduce its waste management problems and costs. And in addition to providing crops and animals for consumption or income, urban farming contributes to environmental enhancement and disaster management (for example, through the planting of trees on steep slopes or deep-rooted tall grass in floodplains).

Myths and reality

Despite all these benefits, urban agriculture is an ill-understood industry. Urban farming is often minimized as being merely “kitchen gardening” or marginalized as a leftover of rural habits. The benefits of urban farming are lost behind myths that are the products of cultural, planning and policy biases. These biases and their consequences are considered in detail in chapter 9. It is necessary, however, to identify and address the myths surrounding urban agriculture at the outset, since these myths misrepresent the significance of urban farming and hinder recognition of its potential.

