Urban agriculture is a relatively new urban issue, in which different sectors and institutions are involved. It requires the development of new planning practices, or the adaptation of existing ones, and supportive policies. The preceding chapter argues that participatory and multi-stakeholder processes and tools are required in this process. This chapter elaborates on this argument by focusing on urban land use planning. It takes a South East African perspective and analyses the different paradigms, approaches, and tools towards urban policy making and planning related to urban agriculture. Major issues and challenges include the distribution, control of, and access to the use of land and other resources, conflicts between uses and users, and the regulatory framework for urban agriculture. The chapter ends with a discussion on planning tools and techniques which can be used to integrate urban agriculture into urban planning and development.
Urban agriculture is increasingly becoming an important activity in urban economies, both in the South and the North. It can contribute significantly to the well being of farmers and other citizens, if properly managed. The growth of human settlements creates a competition between the traditional urban land uses and urban agriculture. Whilst regional and urban planners have generally accepted the peri-urban zone as a mixed zone in terms of land use categories (including urban agriculture), the intra-urban zone in most cases remains a preserve for “traditional” urban uses.

As is argued in this book, urban agriculture, however, has the potential to prosper in modern cities because of its multiple functions and relations with city issues. Cities provide easy access to markets and a prevailing high demand for food. Other reasons for agriculture in the city are reduced transport costs for produce and an abundance of resources and opportunities (such as recycled waste, under-employment and the availability of urban labour). In fact, urban agricultural practices have always been part of the city, but the integration into the urban economy is what is lacking in today’s urban planning and policies.

Urban planning in most developing countries has tended to be characterised by long-range comprehensive planning, which adopt a blue-print approach. This type of planning is associated with rigidity and a lack of responsiveness to social issues, and has negatively affected the integration of urban agriculture. Planning departments are often ill-equipped, understaffed and the position of planners is not often at the level of real decision making. This means that their decisions are not always recognised and their plans are often shelved for lack of resources to implement them.

**Box 3.1 Land use planning in Zambia**

Land use planning in Zambia provides for exclusive land uses and does not provide for mixed land use. This implies that designated land can only be for residential use. Under the Town and Country Planning Act Cap 283 of the Laws of Zambia, the use of residential land, road reserve or recreational land for urban agriculture (as the practice is in most Zambian towns and cities) therefore contradicts the provisions of the legislation that guides physical development in Zambia. The Public Health Act Cap 295 of the Laws of Zambia also excludes the use of residential areas for urban agricultural purposes for its perceived nature as a source of disease transmission to humans. To this effect, the public Health Act has prescribed measures such as destruction of crops and livestock including prosecution of such “urban farmers”. In this regard, urban areas in general have adopted prohibitive by-laws, which bar cultivation within urban confines with, at times, the exception of vegetable gardens and growing flowers.

*Source: Mposha, 2005*
Most planners in developing countries have a view of the city which is based on old-fashioned European or American models and pertaining to countries in which most of them have been trained. In addition, land laws in their own countries are archaic, while laws on health and environment which are promulgated at the national level leave little room for urban councils to manoeuvre at the local level (Foeken, 2006).

The scenario described in Box 3.2 is not yet a reality, although promising examples are given in this book. Urban planners and other professionals often lack information and technical know-how to cope with urban agriculture and facilitate its integration into urban development. Despite the growing recognition of urban agriculture, there are still many city planners, local authorities, sectoral organisations and NGOs who associate agriculture with rural areas only and are unaware of its presence in the urban areas.

However, this situation is slowly changing with increasing recognition of the importance of urban agriculture in the overall functioning of the wider urban economy. Most governments and local authorities have now begun to support (peri-)urban agriculture and are seeking ways in which to facilitate sustainable, safe and profitable production. Latin American cities such as Rosario (see the case in chapter 2) have adopted a facilitating environment for urban agriculture. New capital cities such as Dodoma in Tanzania have been designed to accommodate (peri-)urban agriculture, while agriculture has been incorporated into urban expansion plans for Dar-es-Salaam and Maputo (Mougeot, 2000).

Box 3.2 Urban agriculture in the future

Beyond promotional programmes and projects of the 1970s and 1980s, more national and local governments and specific public sectors will support UA in the South for food security, jobs and environmental benefits. UA will be accepted and implemented more systematically as a major intervention in food security and social security programmes, and environmental agencies and programmes will also include more UA. Community and civic organisations will increasingly support UA and women will continue to dominate the industry. Public private partnerships are accelerating and national and local UA organisations appear destined to come together into regional networks. Food markets in many of the world’s countries will carry an increasing share of products grown in the cities. Urban planning will more widely incorporate UA as another form of land use in urban space economies. In the South, and at least for some decades to come, the low-income type of UA will continue to expand, diversify supply and make fresh perishable food more affordable to larger sectors of city populations.

Source: Mposha, 1999

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Debates surrounding urban planning standards and the feasibility of implementing these in cities of the developing world have resulted in a change in approach by planners who have realised that long-range planning is often unable to respond to the fast-changing circumstances of rapidly urbanising areas. New planning tools and approaches that are more flexible, seek greater community participation, more responsive and move away from the blue-print approach are being experimented with. The role of an urban planner has changed from that of an expert, technical designer of the future urban form to a facilitator of community needs and aspirations, often pushed or pulled by policy makers through various declarations, for example the Quito Declaration, chapter 1 and the Harare Declaration (see box 3.8).

Planners are often accused of posing the greatest challenge to urban agriculture as they have not integrated it into urban areas as a land use nor designed residential estates to allow the activity to be carried out on-plot. The central question here is how planners, urban managers and policy makers can facilitate or support urban agriculture. There is a need to understand what planning is all about and the constraints that planners face in trying to integrate urban agriculture into development plans.
Urban Land Use Planning

Urban, city or town planning is the discipline of land use planning which deals with the physical, social, and economic development of metropolitan regions, municipalities and neighbourhoods. Land use planning is the term used for a branch of public policy which encompasses various disciplines which seek to order and regulate the use of land in an efficient way (Chapin and Kaiser, 1979). Urban planners shape patterns of land use and the built environment in and around cities to solve and prevent challenges of urbanisation, including providing shelter, food and other basic needs of life, protecting and conserving the natural environment and assuring equitable and efficient distribution of community resources, including land. (Quon, 1999)

As a profession, urban planning lays claim to being comprehensive in scope, future oriented, public interest driven, and of wanting to enhance the liveability of human settlements. It is also distinguished by its focus on numerous functional systems that make up the community, including the study of their characteristics and interconnectedness (Faludi, 1973).

Land use planning

An urban area is made up of complementing and conflicting uses and demands that have to be properly managed. This scenario is made worse by the fact that land is a finite resource and the demands on a particular piece of land are many and varied.

Land use planning is viewed as the process of organising the use of land and its resources to best meet the people’s needs over time according to the land’s capabilities. (Chapin and Kaiser, 1997) According to this definition every piece of land within an urban environment should have an appropriate use. The definition further relates to the concepts of sustainable development and use of resources.

Land use planning can also be viewed as the development of a plan for the future use of land, for instance, through zoning. Land use planning is not a haphazard event but should be a well thought out process. Thus, if a certain use of land, for instance urban agriculture, is not considered during the planning process, it would then be very difficult to properly include it in the implementation of the plan, and to achieve the maximum benefit.

Urban planning and the urban food system

Land use, housing, transportation, the environment, the urban economy and recreation, amongst others, are issues that planners are heavily involved in. The food system, however, is notable by its absence from the writing of planning scholars, from the plans prepared by planners and from the lecture rooms in which planning students are taught. As opposed to other commercial or private activities in cities, urban food production has never been addressed properly by legal regulation and planning (Dresher, 2000, Roberts, 2004).

The food system is defined as the chain of activities connecting food production, processing, distribution, consumption and waste management, as well as the associated regulatory institutions and activities. There are conceptual and practical reasons why planners should devote more attention to the food system, since it is paramount in the improvement of human settlements to better serve the needs of the people, and in incorporating linkages.
between various aspects such as physical, natural, housing, transportation, land use, and economic empowerment.

**Approaches to urban planning**

As mentioned, urban planning is continuing to develop and in many cities planners are experimenting with new approaches and tools, based on different views or paradigms. There is little information available on what these different visions imply for urban agriculture, although issues of importance are mentioned in various texts (Kaufmann, 2000, Quon, 1999, van den Berg, 2000). Participatory approaches are becoming more popular. Other approaches brought in by the donor community are also taking root. It is against this background that urban agriculture can be made much more visible than it currently is.

Urban agriculture could play an important role in urban planning by linking to environmental, social and economic issues (see chapter 1). All of the different approaches to urban planning provide specific opportunities and linkages to facilitate and catalyse the integration of urban agriculture into urban planning. The five models discussed below are based on descriptions from Chapin and Kaiser (1979), but are still valid.

**The Ecological Model** is most current among environmental health and transport planners. It applies a systems view, in which the city is seen as a system of inter-related parts akin to a biological system. Planning is used as an approach to make cities healthy and disease free. Open and green spaces are seen as lungs to purify pollutants from the environment. It is dominant in environmental planning and management approaches, as promoted by Local Agenda 21 (as developed after the Earth Summit in Rio de Janeiro, 1992). Dar es Salaam-Tanzania and Lusaka-Zambia are cities where this approach has been applied.

The implications of the Ecological Model for urban agriculture are that:

- urban agriculture is considered as a tool for environmental management through nutrient and waste recycling;
- nutritional and health conditions of residents can be improved through urban agriculture;
- urban agriculture may constitute a good use of derelict and open spaces;
- city gardens help to beautify the city;
- potential health risks for consumers - use of wastewater, soil erosion - need to be considered.

**New Urbanism** (design, engineering, architecture) propagates the idea of a compact city. The key feature of this model of city development is to reverse the trend of the urban sprawl by learning from traditional urban development patterns. It promotes small plot sizes and building up open spaces within the city, but also uses of recreation. The model is applied in many new cities like Lilongwe, Dodoma, and Abuja.

The implications of the New Urbanism approach for urban agriculture are that:

- economic imperatives in the new urbanism militate against urban agriculture;
- it has been criticised by those that see home space as multi-functional production areas, and not just as a place to sleep;
- the model follows the recommendations of some aid agencies like the World Bank that have been advocating for the reduction of urban residential plots, leaving very little space for urban agriculture (see box 3.3);
The Collaborative or Communicative Model is a procedural theory of how planning should be done. It acknowledges the divergent social-political and at times ethnic groups in the city, and encourages a process of consensus building in addressing problems and developing a vision for the city. The assumption is that with negotiation, problems in the city can be resolved. The model emphasises the role of the planner and the leadership s/he provides. It promotes multi-stakeholder processes (see chapter 2), in which the planner should bring consensus among stakeholders and should not impose his own blue-print as in the new urbanism model. It assumes an even distribution of power among stakeholders. The implications of the Collaborative Model for urban agriculture are that:

- the mainstreaming of multi-stakeholder processes may give a voice to urban producers and place emphasis on urban agriculture being demand driven;
- there is a need to pay attention to issues of who has power and influence among stakeholders and on how a common position on urban agriculture can be negotiated;
- urban agriculture should emerge as a community need and be expressed as such; if it is a community need, it can find its place in urban development.

The contemporary Just City Perspective is characterised by democratic radicalism. It calls for a radical form of participation that goes beyond stakeholder involvement. It places emphasis on governance by the civil society, and making explicit the differences in power and the need for the “excluded” to fight for power and influence change. The implications of the Just City concept for urban agriculture are that:

- urban farmers need to organise themselves so that they can effectively lobby local authorities;
- the authorities need to be engaged in debates for the rights of urban farmers to earn a living out of a legitimate and honest means;
- negotiation is necessary for the use of any open land available for urban agriculture activities; this will also involve negotiating for the legalisation of informal settlements and informal sector activities.

The New Life Model argues that development institutions have realised that urban agriculture can facilitate the creation of new institutions. It links urban agriculture to different aspects of urban development such as poverty alleviation, urban nutrition and environmentalism, informal sector employment and gender, and argues for further enhancement of UA in these sectors (see also chapter 1). The implications of the New Life theory for urban agriculture are that:

- urban agriculture is a new field of development or perspective in sustainable city development and needs to be taken on board in the urban development discourse.

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**Box 3.3 The case for larger residential plots - Maseru**

In Maseru, Swaziland, there has been economic pressure in support of urban agriculture. Up to the mid-1980’s, it was doubtful that the planners could do much to stop urban agriculture even if they had wanted to. The main opponent to the growth of intensive horticulture in Maseru has in fact been the World Bank, whose emissaries have pressed for smaller plots for low-income households on the grounds of cost efficiency. This in turn is based on a zoning concept that treats land in residential areas as strictly non-productive sleeping quarters, rather than potentially productive land units.

*Source: Greenhow, 2002*
emphasizes on the inter-linkages between urban agriculture and other urban development issues;
urban agriculture may attract a lot of international development assistance if properly organized and well promoted;
in city dynamics urban agriculture will adapt and develop itself to urban needs, until another main issue (new kid on the block) emerges and becomes in vogue.

The models discussed above have shaped the way different land uses and urban forms have emerged. These models are adhered to by urban authorities and NGOs and the visions espoused in the paradigms influence the way policies are developed. By clarifying the linkages and the potential role UA can and should have in urban development, it should be possible to integrate UA and articulate it clearly in urban development policies.

Policy Formulation and Urban Agriculture

Thus it is important to clarify potential roles and positive impacts of UA in the city and link these to current planning practices and perspectives. Urban planning is undertaken under existing national and municipal policies. Therefore analysing and influencing this process of policy formulation is paramount in seeking the integration of urban agriculture into sustainable urban development. The next sections highlight the status quo with regard to the integration of urban agriculture into urban development.

Municipalities in most countries are local planning authorities as promulgated by the various town and country planning acts. As local planning authorities, the municipalities have powers and functions to plan and implement local development plans, including enforcement of development control. Furthermore, municipalities have the power to specify or formulate development policies through by-laws. As policy-making bodies, municipalities therefore determine and shape the process of development at the local level. It is therefore within the ambit of municipalities to promote or prohibit urban agriculture.

A policy framework for urban agriculture would encompass planning policies, legislation and regulations that guide or regulate land use planning and management. However, in most cities, urban agriculture is ignored, not addressed in national and municipal policies or is not acknowledged as a valid urban land use. And when regulations or by-laws on, or related to, urban agriculture exist, this is often not under an overall and clear policy, and the law may be interpreted differently by different actors (Foeken, 2006).

One could however question the need for a specific policy on urban agriculture, and argue that urban agriculture rather should relate to existing agricultural, land use or environmental policies (Wolfgang, 2002). These policies however should then still set out objectives of equity entitlements to food and other urban area resources, principally land and water, so as to accommodate these for urban agriculture.

Whether urban agriculture is specific or not, in considering appropriate planning and policy measures, one needs to distinguish between profit-driven (and often capital-intensive) urban agriculture on the one hand and more subsistence, for-food, and largely informal urban
agriculture on the other. The for-food urban agriculture tends to address the household food security aspects largely with very little emphasis on the economic aspects. Policies on or related to urban agriculture should be aimed or related to the following issues:

- pro-poor poverty reduction;
- local economic development;
- environmental management;
- integration of disadvantaged groups;
- promotion of participatory governance and democratic cities.

The most relevant urban policy areas to urban agriculture are (see also chapter 1) those on land use, public health, environment, social ( & economic) development and food security.

Land use

The key issues here, especially for informal urban agriculture, are the recognition of urban agriculture as an official urban land use, access to land and other resources, and security of tenure. Most municipalities either have city development structure plans, strategic plans or city development strategies, but most of these plans fail to take urban agriculture into account.

The policy instrument that can be used to achieve the objective of integrating urban agriculture into urban land use planning is urban land use zoning (see also the last section of this chapter). Layout plans could indicate the areas within the city in which urban agriculture is allowed, including guidelines from planners on types of urban agriculture. In Botswana, the City of Gaborone has set up poultry zones on land considered of low potential for development of other land uses (Ministry of Agriculture, Botswana, 2006).

Other policy options include the temporary use of vacant public and private land for urban agriculture. Municipalities could, for example, allow undeveloped land to be used for urban agriculture subject to negotiation between the owner and the user. Further, municipalities have the option of promoting multifunctional land use. This could be done through encouraging community participation in the management of open spaces, where food can be grown in combination with other urban functions such as recreation and city greening. The case of Rosario (Lattuca et al., 2005) highlights this approach.

Health

Most cities have used the potential health risks of urban agriculture as a justification for prohibiting it. And indeed, urban agriculture, like any other industry, has potential risks for human health (see also chapters 8, 9, 11 and 12). But most of these potential negative effects can be minimised when urban agriculture is acknowledged and subsequently properly managed. Municipalities should develop and implement policies that minimise health risks without compromising the food production needs of the urban poor. For instance, in Cuenca in Ecuador, the policy thrust has been to regulate use of chemical fertilisers and pesticides in urban areas, to promote training and exchange on ecological farming practices, to provide licenses and incentives (eg. tax reduction) to micro-enterprises that produce and supply ecologically-friendly inputs (compost, bio-pesticides, quality seeds etc.) and to promote secure hygienic conditions for crop handling, food processing and vending of food.

Environment

There are several positive effects of urban agriculture on the city environment, but as with health, proper management is necessary to mitigate potential risks (see chapters 8 and 9). In this chapter the example of linking to Environmental Management Plans (as in Dar Es Salaam) is given. Urban agriculture can also assist to reduce environmental pollution through the recycling of solid and liquid waste in the process of agricultural production. For example, the City of Harare irrigates pastures on three large-scale commercial farms, which support
over 10,000 cows, using wastewater from its Crowborough and Firle sewer works. The water filters down and eventually finds its way back to the city reservoir after a natural purification process (Toriro, 2003).

Social development
Urban agriculture is a sector that integrates the urban poor and unemployed into the urban economy. In so doing, it contributes immensely to feelings of higher self-esteem and safety among the urban poor. Urban agriculture has started receiving finances through regular municipal or state/national subsidies or financing mechanism. The mayor of Kampala has set aside a budget for urban agriculture, having realised its important social dimension (Makumbi, 2005).

Urban food security
As was stated in the introduction, most municipalities have no food policies, in spite of the increasing problem of urban food insecurity and growing urban poverty. Current trends regarding urban food insecurity in municipalities reveal that reliance on food produced in the rural areas is not sufficient, especially for the urban poor (FAO, 2001). Despite food being a basic human need (and right), urban food security issues are low or not on the agenda of municipal policy makers and planners. Putting urban agriculture on the agenda and integrating it into urban planning, should be done by giving attention to urban food systems (availability and origin of food and linking to the rural areas around cities). It is therefore recommended that municipalities should make urban food security a policy issue and develop plans to enhance food production in the urban and pen-urban zones. The Vancouver Food Policy Council (see chapter 2) is a good example.

International development programmes
Apart from issues at local or municipal level, further linkages should also be sought with international perspectives and programmes, which can stimulate or facilitate attention for and integration of urban agriculture in urban development. By flagging important international support and institutions that are supportive of urban agriculture, local policy makers are more likely to be responsive to set up local programmes. This responsiveness can be consolidated through exchange programmes, collaborative research as well as co-funding of research and pilot projects. Some contemporary programmes are mentioned below.

The Habitat Agenda was first drafted in 1996 in Istanbul, Turkey. It constitutes a new social contract towards improving human settlements in the world. It is a reaffirmation of the commitment to better standards of living and improvement of quality of life in human settlements. It highlights the role and importance of local authorities and of a wide range of other interested parties in the struggle to improve human settlements. The Agenda makes specific references to urban agriculture and has several issues it can relate to.

The Millennium Development Goals inspire and motivate agencies and countries to work towards a common goal. They raise and maintain public awareness in rich countries, thus maintaining political pressure for aid spending and effectiveness. They can also enable citizens of partner countries to compare their progress with others. The MDGs provide an opportunity to link urban agriculture with world development goals (especially goal 1, 3 and 7 and 8).

The Special Programme on Food Security (SPFS) of the United Nations Food and Agriculture Organisation (FAO) is a multi-disciplinary programme aimed at promoting an integrated and participative approach to food security. In addition, the FAO committee on Agriculture recommended the development of an organisation-wide programme on urban agriculture, now one of the Priority Areas for Inter-disciplinary Action (PAIA), “Food for the Cities”. Under this programme, FAO has started urban garden allotments in several cities.
The United Nations Habitat NEPAD Cities Initiative captures a strategic operational approach in addressing the urban challenge in Africa, by emphasising development and the environment. It is based on a broad participation of public, private and community groups, and concerned with inter-sectoral and inter-organisational aspects. It relies on bottom-up and demand-led responses and on local capacity building. Urban agriculture is listed as a relevant and immediate livelihood strategy in times of conflict and disaster.

The Environmental Planning and Management Process (EPM) is based on the premise that achieving sustainable development requires all actors to recognise the interconnectedness of the environment and development activities. It has been popularised by the United Nations Environment program UNEP in partnership with UN Habitat, and applied in their Sustainable Cities Programme. It became a framework through which cities could implement the Local Agenda 21 and the Habitat Global Plan of Action. The Dar es Salaam Sustainable Cities programme has modelled its planning around the participatory approaches of the EPM process (see box 3.4). The Local Agenda 21 promotes development of action plans for sustainable development by local authorities jointly with stakeholders and citizens. It provides planning guidelines, incentive grants, training workshops, seminars, and promotes exchange of experiences in drafting local policies and action plans.

**Box 3.4 Integration of urban agriculture into urban planning- the case of Dar es Salaam**

In 1992, the city of Dar Es Salaam adopted the Environmental Planning and Management (EPM) approach in its City Consultation. This new approach has been the engine of change in many aspects and also related to urban agriculture. Under this new approach the city held a mini-consultation in 1993 to deliberate on agriculture. In the consultation, stakeholders agreed that agriculture in the city contributed substantially (almost 30 percent) in household food supplies and that it had become an integral part of urban livelihood strategies. A Working Group was formed to work out strategies for putting urban agriculture on the city agenda. The Working Group used a participatory approach to come up with a strategic plan on urban agriculture for the city.

The results of this process are good: from action, plan preparation, implementation of demonstration projects and further integration of agriculture in the city's urban zonification. Findings of the working group included results of these projects and were a basis of deciding on where and to what extent agriculture can be practised in the city's urban zonification. The SUDP also has deliberately set apart several areas to be used for large- and medium-scale urban agriculture in the future and gives corresponding development conditions. This is contrary to the earlier “zonification” where an area could only be considered for agricultural activities while awaiting to be assigned other to uses such as residential or industrial areas. The major difference is that the Master Plan considered UA as a transitional land use whereas the SUDP considers it to be an important activity with a very important contribution to its citizens. Recognition is reflected in several laws and regulations, among them are the Agricultural and Livestock Policy (1997) and the National Human Settlements Development Policy (Jan 2000).

There is no one single way of organising urban agriculture and success very much depends on adaptation to local conditions. In Dar Es Salaam, it is seen, that agriculture can be effectively integrated in urban land use plans.

*Adopted from Martin D. Kitilla and Anasteria Mlambo, 2003, Integration of Urban Agriculture in City Development in Dar es Salaam*

Poverty Reduction Strategy Papers (PSRPs) are prepared by member countries through a participatory process involving domestic stakeholders as well as external development partners, including the World Bank and the International Monetary Fund. A review of most of the PSRPs shows that they do not take into account urban agriculture as a strategy for poverty reduction (yet)!
HIV/AIDS and urban agriculture

HIV/AIDS has emerged as one of the foremost challenges for development and poverty alleviation. Sub-Saharan Africa is home to nearly 30 million of the world’s 42 million people living with HIV and AIDS. Local governments have been called upon to address the HIV and AIDS problem seriously. Urban agriculture might provide an opportunity to do something positive for people infected and affected by HIV/AIDS. Governments should provide land and waste water resources that can be used to boost the nutritional status of sufferers and their dependants. Medicinal plants can be readily grown and harvested within the local environment. Self-employment in home and community gardens may strengthen self-esteem (see also box 3.5).

Box 3.5 HIV/AIDS and urban agriculture in Botswana

The Ministry of Health in Botswana has a National Nutrition Plan of Action which uses urban agriculture and is designed to provide guidelines for the government, acting in partnership with NGOs, the private sector, local communities, and families. The ministry intends to use urban and peri-urban agriculture to improve nutrition, by provision of foods that are rich in essential nutrients to HIV/AIDS affected households. The promotion of urban agriculture is also more urgent especially considering the increasing number of orphans due to HIV/AIDS pandemic. It should be noted that urban poverty is worse than in the rural areas where in most cases the family support systems still exists. The ever-increasing cost of living also impacts heavily on the urban poor, especially the women who bear the heavy burden of providing care for the aged, disabled, orphaned, sick relatives and to a large extent to HIV/AIDS patients through the home-based care programmes.


Access to land

Urban farming requires some land space, whether the farming system is soil based or not. Land is one of the most controversial issues associated with urban agriculture, referring to the issues of secure tenure and conflicts over use of scarce urban land, water and other resources. Since the other chapters in this book deal with other resources, the emphasis here is on land. Land for urban agriculture is either not available, or when available it may not be accessible, and when accessible it may not be usable for a particular form of agriculture (Mushamba et al., 2003).

Availability

In most cities and towns there is a high demand for land for residential, commercial and industrial development, among others. The productive or potentially productive areas of the city that have not been paved over are not limited to communal farms and private gardens. In many cities such as Accra, Ghana, Setif in Algeria, Divo in Ivory Coast (See for instance, the Urban Agriculture Magazine Number 11) a lease for agricultural use of the land is only given for one year, because of claims for other uses. This makes availability of land, and other resources associated with land such as water, a great concern for the urban farmer.

Institutional land areas (belonging to hospitals, schools, and churches), riverbanks and roadsides, parks, lands under high-voltage electrical towers that cannot be used for buildings and those surrounding refuse dumps make up much of a municipality’s territory. Planning the use and exploitation of these spaces requires mapping their location as a first step and then assessing their potential. It is important to assess the availability of land for urban agriculture in a given city in the short-, medium- or long-term period. Land may not be available due to rapid development of the built-up environment.
Accessibility

Land may be available but not accessible because of social or political reasons. Accessibility relates to the opportunity for the actual utilisation of available land by needy households or groups, taking into account administrative procedures and conflicts that may arise. Access may refer to the land itself or the use of the land. Often the ownership and tenure patterns are not known because of lack of records or frequent change of hands. Traditional forms of ownership as under customary law also exist (see the case on Abidjan). Land may also be far from where farmers live and public transportation and roads could be inadequate or not available. A viable land may be too costly for farmers to rent. Farmers may not have the social or political connections necessary to learn about or gain access to the plots that are available. The poor and recent migrants in cities often lack access to land for urban agriculture. Planning policies and legislation that deem urban agriculture as an illegal activity can prevent farmers from accessing land. Discrimination by gender may prevent equal access by men and women.

Usability

The usability of available and accessible land is determined by factors such as topography, size of plot, soil texture and quality, availability of water and security of tenure. Also, services such as water for irrigation and inputs or market facilities, transportation infrastructure are factors that determine a plot’s usability. In Rosario (Dubbelling, 2003) the following variables are used to define the suitability of the land: environmental quality; potential agronomic use; actual use (and previous use if the area has been used as a dump or for other hazardous activities); current regulations for land use; urban and city projects planned; water supply; ownership; and population groups interested in agriculture.

Box 3.6 Accessing land for UA in Kampala

Since the early 1970’s, the urban population of Kampala has grown considerably and an increasing number of vulnerable households have turned to urban cultivation as an alternative source of food, as a means of saving on food expenditure, and as a way of generating cash income. Of the city’s population of nearly 1.5 million inhabitants, 40 percent consume either a crop or animal product produced in the city, while 70 percent of all poultry products consumed are produced within the city (Ssebaana 2002). Agriculture in Kampala is practised mainly in valley slums where the poor live in informal settlements. Although urban agriculture offers easy access to services and markets, gaining access to land to grow food and rear animals is a challenge for the urban poor.

The majority of the poor gain their access to land as customary tenants on privately owned land in periurban areas, a form of land tenure unique to Buganda known as bibanja (plots) on mailoland. Many poor people who lack land ownership rights gain access to land in poor areas like wetlands, road and railway reservations or waste disposal sites, and grow annual crops. Others utilise their backyards or encroach on undeveloped land left to fallow by landowners. Despite being squatters, the poor have usufruct on the plots they farm. Landlords and city authorities do not allow squatters to grow perennial crops, and the poor squatters stand to be evicted at any time if the occupied land is going to be “developed”.

A research undertaken on how the poor access land for urban agriculture revealed different modes (Nuwagaba et al, 2003): squatting (46 percent), borrowing (34 percent), inheriting (11 percent), renting (5 percent), co-owning with spouses (4 percent). Currently in Uganda, the spouse co-ownership of land is a contentious issue particularly among gender activists who contend that women have for long been left out from the benefits of family resources. The majority of urban farmers in Kampala (60 percent) indicate that they are actively searching for land, and mention plans to borrow from the government or relatives, or seek funds to buy.

Adopted from: Kiguli et al., 2004
Incentives for producers to invest are compromised by the lack of security concerning land tenure and the fear of eviction. Why erect terraces, improve and fertilise the soil, or build irrigation reservoirs if the government does not guarantee that benefits can be reaped from those investments? Taxation rules and legal frameworks are therefore necessary to provide security and incentives for producers.

**Land tenure**

Security of land tenure is very important, but hard to get for urban farmers, especially for those farming off-plot (on plots away from the homestead, like open areas in the city) or in peri-urban areas. Land tenure refers to the system of rights and institutions that governs access to and use of land and other resources on that land. It determines who can use what land and how. It derives from both statutory and customary law. Research on land tenure suggests that the most apparent qualitative linkage between tenure and food security is that increased security of tenure in productive resources enables more efficient and profitable production and hence greater access to food products.

Land tenure determines the level of investment that urban farmers themselves put into projects. The private sector is often not willing to advance loans to urban farmers as they lack legal rights to land and are therefore unable to use it as collateral. The tenure situation of women is even more precarious (MDP-FAO, 2001). Administrative arrangements for secure tenure are cumbersome and proper registration of plots and users is often non-existent. However, (temporary) user permits have been successfully negotiated in some countries concerning leases for public and private land for specific periods of time with clear conditions as is highlighted in the cases.

**Implications for urban planning and management**

Improving the availability of suitable land for urban agriculture is important. Urban agriculture therefore should be included into official land use categories, statistics and surveys, so as to inform urban local authorities. Geographic Information Systems (GIS) could be used for registration purposes, for improving land use monitoring and evaluation activities, and as a basis for a transparent taxation system. The case study of Rosario highlighted in chapter 2 created a land bank, where land was categorised by type and those areas where UA could take place were identified. Governador Valadares (see case) included urban agriculture in their master plans and made sure that land was made available for the activity. In Gaborone in Botswana, special poultry zones were created around the city. Dar es Salaam also has zones where livestock is raised. The case study of Beijing highlights the impact of zoning in making land available for urban agriculture. A study by SWEDEPLAN highlights that in Sweden many housing developers are now incorporating composting and kitchen gardening into designs and layouts for housing projects (Greenhow, 2002). Greenhouses are allowed on the walls of apartments facing the south. In housing schemes built in the 1960’s where redevelopment is taking place, composting facilities and space for gardening are being provided. (ibid).

Municipal land use plans need to be studied to determine if spaces can be allocated for cultivation, aquaculture, animal husbandry and forestry, among other activities. Depending on the country, these municipal plans can be part of strategic plans, urban development plans, or land use plans.
Integrating Urban Agriculture into National and Municipal Policies

Policies related to urban agriculture can be categorised in the continuum from full endorsement and facilitation to regulation or outright prohibition. Under the more restrictive policies community concerns are ignored. Urban agriculture is not permitted, regardless of the desires of the community. These policies are characterised by restrictive legislation, lack of flexibility or room for innovation, resistance to change within the local authority and rigid adherence to rules. On the contrary, enabling or endorsing approaches are found when authority, statutory powers and other frameworks are used to assist, advise and guide communities on the way forward for urban agriculture; community concerns are given attention; and innovation and new ideas are encouraged.

Most current legislative frameworks do not facilitate urban agriculture, but leave room for flexible interpretation. In Nakuru, Kenya, Foeken (2006) shows that the laws, both national and local, tend to restrict urban agriculture, but that the practice is tolerated in the city. Most laws and by-laws are archaic and have been borrowed from the colonial days and are therefore not in keeping with the design and activities that take place now in cities of the developing countries. Legislation should therefore be crafted so that it supports promotion and regulation of urban agricultural activities.

Promoting urban agriculture at local and city level includes lobbying with different stakeholders at different levels, including the Municipality, NGOs, Departments of Lands, Agriculture, Food Security, Health and Local Governments and farmers, providing them with targeted information and best practices.

Box 3.7 Legislative framework for urban agriculture in Zimbabwe

An audit of the policy and legislative framework for urban agriculture in Zimbabwe was undertaken by the Zimbabwe Environmental Law Association (ZELA) and the Municipal Development Partnership of Eastern and Southern Africa (MDP) from December 2003 to February 2004. The main objective of the audit was to identify relevant and current policies and legislation which impact on urban agriculture and to provide recommendations on how current legislation can be reviewed in order to develop an enabling legislative framework.

One of the key findings was that indeed there is not one but many pieces of legislation that impact on urban agriculture in Zimbabwe, both at the national and the municipal level. There have not been any recent regulations or by-laws gazetted to the effect of regulating urban agriculture in Harare, Zimbabwe. It was also found that legislation does not refer to urban agriculture per se, but to farming in urban environments. The different types of legislation and the absence of the term urban agriculture in such legislation, coupled with misinterpretation by those who enforce the law, leads to confusion on the legal standing of urban agriculture.

The research also established that in what is seemingly a very prohibitive environment, there are indeed many opportunities that exist in legislation for the practice of urban agriculture, contrary to popular belief that the law prohibits urban agriculture in Zimbabwe. Urban agriculture has grown in importance, but is still considered as a rural activity in the law. Existing law seeks to regulate the practice of urban agriculture so that the negative effects can be prevented, and when they do happen, that prompt relevant action can be taken.

National government interventions
National policies determine activities or local policies promulgated by local governments. On the other hand, local authorities can lobby national governments to make policies which may then be adopted at national level. By-laws are made by local authorities and are only applicable within the jurisdiction of that particular local authority. Outsiders cannot be bound by these rules as long as they are outside the jurisdiction of that local authority. By-laws however should not be ultra vires national law. If they are, they become illegal and are not enforceable to the extent of the inconsistency. A policy is a broad operational framework (a way of doing things) for an organisation, institution or a country. Policies are statements of good intentions and are not legally binding. They therefore cannot be enforced in a court of law but only have persuasive or normative value. However, policies can result in the enactment of legislation or by-laws if it is deemed necessary.

The process of enacting laws and by-laws is generally long whilst policy development is fairly easy. It is for this reason that most cities and countries have chosen for policies on urban agriculture. Several platforms are available for convincing policy makers to push for policies on urban agriculture. On the other hand, by using international development programmes, workshops and conferences it may be possible to lobby governments and local authorities, for example the Harare Declaration arising from a conference on urban agriculture and food security. It is also possible to target national agencies and players like local government associations and push through them the mandate for national policy change. Policy change follows practice.

National governments could possibly have a role to play in:

- The creation of an institutional home for urban agriculture by selecting a national lead agency on urban agriculture and the establishment of an inter-departmental committee on urban food production and consumption;
- The creation of an appropriate legal framework for urban agriculture;
- Stimulation of policy and action-oriented research on urban agriculture, including research on the functioning of informal networks in urban agriculture, technologies for safe re-use of urban wastes and waste water, space confined and water saving technologies, integrated pest management and other ecological farming practices, small scale food processing techniques etc;
- Facilitating awareness raising among city administrators, urban planners, technical departments and NGOs through seminars and workshops that provide them with reliable data and positive examples (“best practices”); and
- Co-financing of city urban agriculture programmes.

The Government of Tanzania for example has, since the 1970s, openly supported urban agriculture through clear policy statements, as a means of boosting a poorly performing economy and meeting the need for food self sufficiency. The government and political leaders have, time and time again, encouraged urban dwellers to grow crops and keep livestock in their backyards and in open spaces. Other countries are following Tanzania’s example as stated in the Harare Declaration on Urban and Peri-Urban Agriculture in Eastern and Southern Africa (see box 3.8).

Local government interventions
Local or municipal authorities can play a key role in enabling and regulating urban agriculture, amongst others by:

- Stimulating the dialogue and cooperation among the direct and indirect stakeholders in urban agriculture (see chapter 2).
- Reviewing and revising existing municipal by-laws and regulations regarding urban agriculture.
- Integrating urban agriculture into sector policies.
- Securing access to land and enhancing the security of user rights of urban farmers, among others by urban land use planning and zonification, provision of land, and the promotion of multi-functional land use.
- Promoting safe re-use of urban organic wastes and wastewater in agriculture.
- Stimulating enhanced support to processes of technological innovation in urban agriculture and promoting ecological farming practices.
- Facilitating local marketing of fresh, urban-produced food.

Box 3.8 Harare Declaration on urban and peri-urban agriculture

Ministers from local governments from Kenya, Malawi, Swaziland, Tanzania and Zimbabwe met in Harare, Zimbabwe, on Urban and Peri-urban Agriculture (UPA) in Eastern and Southern Africa organised by the Ministry of Local Government, Public Works and National Housing of the Government of Zimbabwe and the Municipal Development Partnership for Eastern and Southern Africa, in collaboration with UNDP, UNICEF, FAO-SAFR, FANRPAN, RUAPFS and IDRC, on 28 and 29 August, 2003. They acknowledged that UPA is a widely practiced activity in and around towns and cities within the region on parcels of land with alternative competing uses. Consequently, UPA has generally been practised informally without appropriate policy, legislative and institutional frameworks. Therefore, UPA plays, and will continue to play, a significant role in promoting food security, employment creation and income generation, health and nutrition and improving the economies of urban areas. Some governments in the region have made significant progress in incorporating UPA in their urban development plans, and others are now beginning to rise to the challenge.

Furthermore, they recognised the existence and increasing practice of UPA and also noted the many challenges that it faces.

They therefore called for the promotion of a shared vision of UPA that takes into account the specific needs and conditions in the region, and accordingly committed themselves to developing policies and appropriate instruments that will create an enabling environment for integrating UPA into urban economies.

Adopted from MDP, 2003

Opportunities to integrate agriculture into urban planning

The most commonly used planning tools in shaping the urban environment include master plans, local plans, subject plans, site plans and neighbourhood improvement plans. When drafting these plans, planning policy is drafted simultaneously to accompany them. These plans guide the use of private and public land, community and individual health, public safety, circulation and transportation. The plan includes broad policy statements and detailed zoning of land uses, with associated by-laws or ordinances and regulations listed in supplementary documents. Urban agriculture needs to be recognised and included as part of a development strategy with subsequent allocation of land for it in municipal plans.

In most urban settlements, the Master Plan has become a statutory provision. The law stipulates that a master plan needs to be prepared to guide urban development in the medium term - often 10-15 years. The preparation process involves wide consultation and public display of the master plan report. The master plan makes land allocation on a broader scale with the typical generous provision for open space, green areas and recreational areas as a public good. But master plans are rather static and slow to assume change. Still, there is great potential in the master planning process for integrating urban agriculture into its goals and spatial development framework. The cases of Rosario and Cienfuegos in Latin America and Dar es Salaam in Tanzania highlight how urban agriculture can be incorporated into a city master plan.
Derived from the master plan, Local Plans are prepared for specific development zones. It is much more detailed and includes a layout of how the land will be allocated and demarcated. It provides the opportunity for integrating urban agriculture on-plot as well as off-plot, since issues of plot sizes, mix, densities, tenure etc. are dealt with in the local plan. The Human Settlements Policy of Tanzania has designated special areas, where people would be granted legal rights to engage in urban agricultural activities, at the level of the local plan.

In any spatial area, a Subject Plan may be prepared, to deal with specific subject matter, for example public transport, drainage etc. These plans are often prepared when there has been a major public problem. Opportunity exists for urban agriculture to be presented in specific areas through subject plans. Under the EPM approach adopted in Tanzania, a working group on urban agriculture in Dar es Salaam produced a subject plan on urban agriculture.

Site Plans are the lowest level of land use planning and concentrate on individual stands or plots. Site plans are used to position development activities within the stand. Site plans relate especially to on-site urban agricultural activities, where space should be left around the dwelling to allow farming.

Finally, one should also seek to integrate urban agriculture into for example neighbourhood improvement plans (informal housing areas/ squatter upgrading programmes), plot subdivision plans and urban regeneration/ renewal plans. In all these situations, scrutiny should be made of all land that can possibly be used for urban agriculture. This requires the involvement and lobbying of local urban agriculture interest groups (see for instance the case of Cagayan de Oro in the Philippines in Box 3.9).

**Box 3.9 Building food-secure neighbourhoods, the role of allotment gardens**

Cagayan de Oro is one of the three model cities in the Philippines under the UN-Habitat Sustainable Cities Programme due to its efforts in addressing the challenges of urban environmental management and food security. This is particularly evident in its allotment garden programme, which enables multi-functional land uses such as food production and income generation, treatment and nutrient recycling of biodegradable household wastes and excreta, as well as open spaces for community and family activities.

The first allotment garden of Cagayan de Oro was established in 2003 (Holmer et al., 2003). Since then, the number has grown to five self-sustaining gardens located in different urban areas of the city, enabling a total of 50 urban poor families to get legal access to land for vegetable production. These allotment gardens are characterised by a concentration in one place of six to twenty small land parcels of about 300 m² each that are assigned to individual families, who are organised in an association. In the allotment gardens, the parcels are cultivated by individual families.

Aside from contributing to the food security of the community, the gardens are also essential for the successful implementation of the city’s integrated solid waste management programme as mandated under Philippine law. In the city districts that have an allotment garden, the amount of residual wastes delivered to the landfill site has been reduced by more than one third since the segregated bio-degradable household wastes are converted into compost in the gardens. So-called ecological sanitation (‘Ecosan’) toilets have been recently established in four of the five areas. They serve as show cases for improved sanitation.

The city government of Cagayan de Oro is presently mainstreaming the allotment garden concept into its overall city planning and development, which will also use participatory GIS-based approaches to identify suitable areas for future garden sites. A city ordinance is presently being prepared to reduce taxes for landowners who make their land available for this purpose.

*Adapted from: Robert J. Holmer and Axel Drescher, 2005*
Zoning refers to the designation of land in a municipality to different related land uses and the regulation of the use of the land in those areas. Residential, commercial, and industrial are typical urban zones. Under zoning, regulations of the spacing of buildings, size (in terms of floor area or bulk factor) are included with the aim of conserving or promoting human health, safety and convenience. It is argued that zoning encourages urban agricultural activities to be undertaken (Ministry of Agriculture, Botswana, 2006, and in Kathmandu (Weise and Boyd, 2001). Zoning of poultry zones has been successfully used in the case of Gaborone (Botswana) as a strategy to encourage poultry production. The case of Beijing in China in regards to zoning has already been mentioned.

Geographic Information Systems (GIS) can be used for mapping land for urban agriculture, for registration purposes and for improving land use monitoring and evaluation. A methodology for mapping vegetable production on open spaces has been successfully implemented in Dar es Salaam, Tanzania. The mapping procedure comprised an analysis of aerial imagery, mapping in the field, and integration of the results into a GIS. The basic functions of GIS proved to be a very useful. Integrated in local government and planning processes, the GIS database can contribute to raise public awareness on the situation of urban farmers, help to improve extension services, and can be used by town planners for further analysis and planning purposes. (Dongus and Dresher, 2001).

**Plans and Standards**

To stimulate UA, enhance its potential and facilitate its integration into urban development, municipal land use regulations that accompany the produced plans should clearly spell out urban agriculture as a legitimate land use. Standards for layout planning need to be developed on land size that considers agricultural production around the house. For example, standards already exist for the size of schools, open spaces, and roads per thousand inhabitants. Improved standards for community or neighbourhood gardens in dense areas and community or neighbourhood gardens together with private gardens in less dense gardens should be part of the plan formulation process. Further, specifications should be made for the types of activities that are permissible in given areas.

**Table 3.1 Integration of UA through various planning tools**

<table>
<thead>
<tr>
<th>Level of Planning</th>
<th>How To Integrate Urban Agriculture</th>
<th>Planning Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Master Plan</strong></td>
<td>· State-wide policies and goals for the planning&lt;br&gt;· Designation of areas for urban agriculture by the city, municipality, town or board</td>
<td>Local Authority</td>
</tr>
<tr>
<td><strong>Local Plan</strong></td>
<td>· Create zones for urban agriculture within specific areas that are part of the master plan</td>
<td>Local Authority</td>
</tr>
<tr>
<td><strong>Subject Plan</strong></td>
<td>· Address issues of urban agriculture on a thematic basis</td>
<td>Local Authority</td>
</tr>
<tr>
<td><strong>Local/Layout Plan</strong></td>
<td>· Create a map indicating land for urban agriculture, among other uses&lt;br&gt;· Show designated land in blocks and plots&lt;br&gt;· Use by surveyors to peg urban agriculture plots</td>
<td>Local Authority</td>
</tr>
<tr>
<td><strong>Site plan</strong></td>
<td>· Indicate areas for urban agriculture within an individual plot or stand</td>
<td>Individual developers</td>
</tr>
</tbody>
</table>

**Zoning land for urban agriculture**

Zoning refers to the designation of land in a municipality to different related land uses and the regulation of the use of the land in those areas. Residential, commercial, and industrial are typical urban zones. Under zoning, regulations of the spacing of buildings, size (in terms of floor area or bulk factor) are included with the aim of conserving or promoting human health, safety and convenience. It is argued that zoning encourages urban agricultural activities to be undertaken (Ministry of Agriculture, Botswana, 2006, and in Kathmandu (Weise and Boyd, 2001). Zoning of poultry zones has been successfully used in the case of Gaborone (Botswana) as a strategy to encourage poultry production. The case of Beijing in China in regards to zoning has already been mentioned.
Housing standards have been a subject of long discussion and debate. Minimum plot sizes have been revised upwards and downwards over time. There is a need to understand housing as a multi-functional space for production, reproduction and socialising, and not just as a place to sleep (Jarlov, 2001). In those cases where the (high) price of serviced land is used as an argument against bigger plot sizes, unserviced off-plot land for urban agriculture should be identified. The case of Mbabane in Swaziland (Greenhow, 2002) highlighted the negative effect of the continued reduction of residential plot sizes on urban agriculture activities. Plots should be large enough to allow on-plot urban agriculture to take place. This will be influenced by the set-back distances of dwellings from neighbouring boundaries. If the plot is too small or the dwelling is designed in such a manner as to cover the entire plot, then there will not be enough land for cultivation.

**Indirect planning tools**

Indirect planning tools are used to regulate land use on land that is privately owned. This is done by permitting certain uses or by prohibiting other uses. These measures are often accompanied by stimulation in the form of information and incentives, including tax incentives or exemptions, environmental impact assessments and subdivision control. Subdivision control, particularly for peri-urban land, ensures that encroachment by land uses other than UA is controlled. Tax exemptions can be introduced for land that is made available for urban farming. Licences can be granted to the public at nominal rates for land to be used for urban agriculture (see also chapter 4). In Rosario, Argentina, land under urban agriculture attracts a lower property tax whilst in Valdares, Brazil, community urban agricultural activities are exempt from water tariffs through an association of urban agriculture and community farming. (RUAF, 2005). In the latter, the exemption is for a given quantity of water in accordance with the profile of the activity. In case the user does not carry out UA according to standard practice, the penalty will be to return to the public treasury an amount of money equal to the reduction in tariffs.

Urban agriculture by its nature has more direct effects at the local than at the national level. Even at the local level, the extent to which the practice can influence issues will also differ among local authorities depending on the nature, size of the city and the standard of living of the people within the local authority. Local authorities will therefore respond to the issue of urban agriculture at various levels through the use of different instruments. The current situation in most countries is that there are more by-laws that deal with the issue of urban agriculture in a more meaningful way than laws that are made at the national level (eg. Regulations or Acts of Parliament.) Even then, the by-laws that are in place do not deal directly and concisely with the issue but approach urban agriculture from a different perspective, regulating activities that have a bearing on urban agriculture rather than regulating the practice of urban agriculture itself. It is therefore important that national laws which recognise urban agriculture are promulgated at national level.

**Conclusions**

This chapter argues that the multiple functions and relation to other urban issues offer sufficient reasons for the integration of urban agriculture into sustainable urban development. Urban planning and design regulations are needed to facilitate this integration. However, planners do not make decisions, they only recommend them. The urban planner operates in an institutional environment that is at the centre of diverse political interests. The fact that urban planning officials are accountable to politically-elected councillors, most of whom

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*Women in a township in New Brighton, South Africa have invited a councillor to ask for gardening land.*
have no relevant urban planning and management expertise, restricts development of innovative ways for integrating agricultural activities into the urban land use system (Chaipa, 2001). In addition, there is often limited capacity to enforce planning regulations with many other actors involved in enforcement, e.g. municipal police, courts, politicians etc. Furthermore, most practising planners are content with observing the status quo by implementing development control according to laid-down procedures, standards and provisions for legislation such as the Urban Councils Act. A critical shortage of skilled planners also hampers innovative and responsive planning (Chaipa, 2001).

Cities require an enabling policy framework to guide the enhancement of urban agriculture. This framework should have adequate legislation to enable access to land and guarantee rights for farmers. Institutionally, the framework should acknowledge that urban agriculture falls under the jurisdiction of several different levels and types of authorities, eg. agriculture, forestry, parks and gardens, public works and urban planning.

Coordination and information sharing are important, as is its integration into other municipal developmental projects. Integration of urban agriculture into programmes dealing with MDGs, HIV/AIDS and poverty alleviation is important. The draft policy paper on UA in Botswana highlights the linkage between UA and HIV/AIDS.

Some of the innovative techniques such as land banks, participatory planning and long-term leases for land used for UA activities are beginning to address concerns of ensuring adequate access to land and other resources for UA by the urban poor and should be encouraged. To the extent possible, GIS should be used for registration purposes, for improving land use monitoring and evaluation activities, and as a basis for a transparent taxation system. Incentives in the form of local tax reductions, tariffs and promotions for urban agriculture should be encouraged.

Urban planners have an active role to play in integrating urban agriculture into urban planning, especially in encouraging it as an urban land use, and in catalysing change in the public perception. The cases discussed in this and the other chapters of this book demonstrate that it is possible to integrate UA into urban planning and come up with regulations that reinforce this. Such regulations have more chances to succeed, if they are permissive instead of prohibitive. The successful and sustainable integration of urban agriculture into urban land use systems is a complex task requiring a multi-stakeholder approach (as was outlined in chapter 2). The urban planner can and should take a leading role here by creating a conducive operational environment. Urban agriculture stakeholder forums, formed by stakeholders including planners, farmers, producers and representatives of various agencies, can be very useful for developing shared vision, resolving conflicts and developing joint action programmes. Urban planners are well positioned to change the views of politicians, other municipal staff and the public about what is appropriate urban form and function, and what activities are suited to the urban area. This requires intensive public and political awareness raising and good urban governance.

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CHAPTER 3: URBAN LAND USE PLANNING


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Land Availability for Urban Agriculture in Abidjan, Cote d’Ivoire

Moussa Sy

This text is a synthesis of a research report (in French) on urban agriculture and land use carried out in 2002 by the national coordination in Ivory Coast: Bureau National d’Études Techniques et de Développement (BNETD) of the Francophone Network on Urban Agriculture in Central and West Africa (RFAU/AOC)

Abidjan is the economic capital of Cote d’Ivoire and is located on the shores of the Gulf of Guinea, about 550 km from Accra, 1,300 km from Bamako and 1,150 km from Ouagadougou. The city is important to the West African economy with its seaport serving the neighbouring countries of Burkina Faso, Mali, and Niger. Abidjan and its suburbs cover an area of 137,000 hectares, of which 58,000 are occupied by the town itself and the remaining 79,000 by the peri-urban districts of Bingerville, Anyama, Bassam and Songon. The city grows by about 450 to 500 hectares in its peri-urban areas every year (ASDA: Abidjan Urban Master Plan, 2000). Hundreds of hectares being used for agriculture are confiscated and indemnified every year by either the State or by private investors. Therefore, the competition for the use of land for agricultural and non-agricultural activities is high. Land access constitutes one of the main preoccupations of peri-urban agricultural producers.

Abidjan’s population has grown from 2 million inhabitants in 1988 to 2.5 million in 1993 and was about 3 million in 2001. The current average population growth rate is about 3.8 percent. It is estimated that about 800,000 working people of Abidjan are involved in urban agriculture, or more than 3 percent of the total population. Nearly 70 percent of these agricultural producers are between 25 and 35 of age, explained by the high unemployment rate in Abidjan and consequently the importance of urban agriculture. In addition to supplying fresh produce, peri-urban agriculture contributes to poverty alleviation by employing at least 3 percent of the active population in Abidjan. Furthermore, urban producers make urban sites attractive and contribute to improvement of places such as the shores of the Cocody Bay (coast road) and the Boulevard de Marseilles, as well as the east side of Hotel du Golf at M’pouto.

Despite these advantages, urban agriculture is not legalised. Urban land legislation has been developed to cater for housing, but not for agricultural activities. Access to land in Abidjan is therefore an obstacle to the development of urban and peri-urban agriculture.

In relation to the development of urban and peri-urban agriculture, the actors who have a stake in land tenure/ownership in Abidjan can be classified into four categories: the state of Cote d’Ivoire - the “official owner” of all the country’s land -, represented by the Ministry of Construction and Urbanisation, Ministry of Agriculture and other institutions as BNETD and AGEF (Agence de Gestion Foncière); traditional land owners belonging mostly to the ethnic group of the E briés; private investors (housing promoters, multinational firms, etc.); and private individuals, who are small urban land owners.
Land management

Land scarcity and the increase in the number of producers has generated a strong pressure on the availability of cultivable lands and resulted in several land disputes, in the past years. The need for housing is pressing in Abidjan. Nearly 20,000 houses are built every year, which requires about 670 hectares of land per year\(^1\). Next to the major land owners mentioned above, the inherited land, generally, is the property of the community and is under the responsibility of the village chief. But in the face of important financial interests related to land, some heads of families manage their properties in a more and more individual way. A majority of the land disputes can be linked to the land management approach of village owners.

Box 3.10 Typical urban producer in Abidjan

According to the 2002 survey, the average urban producer working in the peri-urban areas of Abidjan is a male, is not from Côte d’Ivoire, in his thirties, and is married and with a family of about 8 people. He has been practicing agriculture for ten years and has a low level of education (below primary school level). His main crops are manioc or vegetables, but he also engages in cattle rearing and horticulture. He markets his produce locally and has an average monthly income of 50,000 francs. He doesn’t benefit from any financing for his activity and is a tenant on the land he cultivates. He experiences great difficulties to access land. He uses chemicals and fertilisers in his activity and has little awareness of the health hazards linked to their use.

The State owns land registered under its name and land that is not registered under its name. There are three strategies to appropriate land:

- direct use of registered land which has not been allocated to any use;
- expropriate for public interest reasons land that is registered under the names of private individuals;
- purge of customary right on non-registered land (the management of which lies with traditional chiefs).

Virgin lands including the areas where peri-urban agriculture is practiced represent 66 percent (67 700 hectares) of the non built-up areas of Abidjan. These areas constitute an asset for the long-term development of peri-urban agriculture of the town, but the practice is that these lands will be quickly absorbed by housing areas. In the non built-up areas (within the town) the agricultural sites generally represent illegal occupations of land reserved for housing and infrastructure. They are hardly accounted for, and this makes it difficult to estimate the land occupied by agriculture, particularly in urban areas.

The impact of land management on the development of urban and peripheral urban agriculture depends on whether the producer is the landowner or not. The study reveals that 57 percent of the producers questioned are not the owners of the land they use. Many of the traditional chiefs of Abidjan’s peripheral urban area rent lands to agricultural producers. The producers and the landowners are generally bound by a “moral contract”. In the absence of a legally binding contract, the village landowner may at any given time of the year ask the producer to return his land. Thus, morally binding contracts and / or non-certified sales deeds on non-declared lands makes it difficult to obtain a legal document from the administration (land deed) and makes the producers’ land ownership even more precarious. However, selling to private investors seems more profitable than renting land to agricultural producers.

Land legislation and appropriation strategies

The Land Act of 1998 does not feature urban agriculture. Laws developed in relation to land and agriculture deal with the rural areas. Disputes related to land legislation have always
The legislation of Côte d’Ivoire is complex. Since the colonial period, several statutory orders and decisions signed by Ministers and Governors of the French West African Colonies (A.O.F) have allowed colonisers to take possession of the land and facilitate the activities of foreign agricultural planters. But regardless of the period in which these acts of law ruling land were passed, the traditional land owners remain the most important group.

A study of the urbanisation master plan of Abidjan and its suburbs, a census of projects in the peripheral urban areas and urban areas, and a study of the existing agricultural sites shows that the municipality could have been more proactive in the allocation of non-used urban land for agricultural activities. The agricultural areas that are located inside the town are numerous and have an average size of 1000 m². The majority of such sites are found in the town’s peripheral urban zone. These sites count individual producer plots (manioc, maize, yam, vegetables, etc.) as well as big industrial plantations (coconut, palm and pineapple groves, hevea, etc.). The study shows land reserves for short-term agricultural projects (2 to 5 years), which cover 27,414 hectares, and reserves for long-term projects (5 to 15 years) of 67,600 hectares.

The majority of urban producers encounter difficulties to access land, particularly the migrant farmers (who represent more than 5 percent of the total producers). This demand for land is higher within the town than in the peri-urban areas.

The low income of the majority of agricultural producers in combination with the strong demand for land creates a permanent threat of expulsion and sense of insecurity for the land users. Landowners lease their lands to agricultural producers in the hope of “brighter days” when richer private investors would buy the land or when they would sell parcels to a new housing programme.

The present administrative procedure for land access is in itself a factor of exclusion, considering that a considerable number of the agricultural producers are illiterate. Seventy-five (75) percent of the producers who encounter difficulties in accessing land have an education that is below primary school level. Also the number of years of experience in agriculture is important. Those with more than 10 years of experience encounter less difficulties in accessing land.

Apart from land shortage, other factors too make land access difficult for producers in the peripheral urban area:

- insufficient attention paid to the need for agricultural land by the Ministry of Urbanisation;
- preference of village landowners to sell their land to private investors for financial reasons;
- limited financial capacities of small producers;
- expulsion threats to producers that spontaneously occupy listed land or land that is inappropriate for construction.

Spontaneous and illegal land occupation is the most practical response of producers to their difficulties to access land. Some examples are the occupation of the “Parc des Expositions” by
market gardeners of Port Bouët, or the land belonging to CI - TELCOM (Côte d’Ivoire Telecom) at Marcory “Sans Fil”. The gardeners contribute to cleaning of these areas, but in the end, face a continuous threat of expulsion by the State and/or the municipal authorities. Landslides due to improper management of steep slopes and road accidents when close to important traffic networks are also problems caused by spontaneous and illegal land occupation.

The urban producers interviewed, foresaw enormous improvements if the municipal authorities or the Ministry of Constructions would provide access to appropriate land on a permanent or temporary basis. In addition, more simplified administrative procedures are needed to get title deeds for these lands. There is also a need to provide information on the current situation to the main actors, especially the institutions in charge of urban planning.

Land prices in Abidjan vary according to location. Considering their endowment in infrastructure (accessibility, clean water supply, public electricity, public transport) the renting or selling prices of land within the town are high (from FCFA 3,500 to 100,000 per m²). Land located in the peripheral urban area without infrastructures and without a definite administrative status has relatively lower renting or selling prices. More than 80 percent of tenant producers pay less than FCFA 35,000 per month. In the peripheral urban area landowners sell their land between FCFA 500 and 2500 per m².

**Conclusion**

Access to land is one of the main concerns of urban producers. The majority of peri-urban producers (63 percent) encounter difficulties in accessing land. It will be important to formulate municipal action plans and to jointly find solutions to land issues related to urban agriculture. Some suggestions are to:

- Organise awareness campaigns for agricultural producers, especially women, for example on the procedure for acquisition of land deeds;
- Facilitate access to finance for agricultural producers;
- Encourage the producers to form cooperatives;
- Improve individual access to land;
- Sensitise consumer associations on quality control of urban agriculture production;
- Improve the capability of municipal authorities in land administration.

**Notes**

1 Hypothesis for calculation: for a low to middle income standing housing area, we consider on average 60 percent of the land allocated to house constructions, 15 percent for roads and 25 percent for infrastructure. Considering an average of 200m² per house, this represents 400 hectares for houses. 40 percent of the land is allocated for road building or infrastructures, representing 267 hectares. The building of 20000 houses annually would necessitate a supplementary 670 hectares of urban land every year.

2 This analysis was largely inspired by the writings of Professor Albert Ley/ PhD in law, former Head of the land estate service, the land registry and land conservation in Cote d’Ivoire in “Le régime domanial et foncier et le développement économique de la Côte d’Ivoire”/tome 18/1972

**References**

Albert Ley. 1972. Le régime domanial et foncier et le développement économique de la Côte d’Ivoire
As a country with a very large population and a relatively small amount of arable land, agriculture has always occupied a very important position in China’s economy. Throughout history, the food supply in China has been very fragile.

In order to promote mutual support of industry and agriculture, and at the same time the integration of the urban and rural economies, China reorganised its spatial arrangement in the 1960s by enlarging the administrative boundaries of most of its cities. For example, the total administrative area of Beijing was enlarged from 4,822 km² in 1956 to 16,808 km² in 1958, which included ten urban and periurban districts as well as eight counties. In 1949, the total area of the city was just about 63 km², including only four traditional urban districts.

This spatial enlargement of cities sparked the development of periurban agriculture in China. Thus, “suburban agriculture” (a term often used by Chinese scholars), is located mainly in the periurban areas and is fully oriented towards urban demand: the production of vegetables, fruit, milk, fish, livestock and poultry, as well as some high value-added grain products such as bean varieties. Suburban agriculture is labour-, and relatively capital-intensive with a high level of productivity. It has absorbed many rural labourers and provided a stable and diversified food supply to the urban residents in terms of quantity. More than 70 percent of non-staple food in the city, mainly consisting of vegetables and milk, was produced by the city itself during the 1960s and 1970s, with periurban agriculture playing a big role.

Many new cities were born and many existing cities, particularly the big cities, grew further, both in population and in area. Subsequently, more rural people migrated to the cities in search of a better life.

This process promoted the further development of periurban agriculture, due to: 1) urban growth creating a larger demand for diversified agricultural products; 2) rural migrants replacing the cheaper labour force in periurban agriculture as many of these farmers started to work in the industrial economy; and 3) competition for the scarce land between different economic activities making periurban agricultural production more capital-intensive.

These changes (migration, farmers decision making, etc.) up to the 1980s and the end of food shortages provided a powerful engine for urbanisation in China in the 1990s. Around 1990, the food shortage in China, in terms of quantity, came to an end. However, problems in terms of quality remained.

The late 1990s marked a turning point that brought a new development in periurban agriculture in China. Instead of paying attention to the quantity of food supply, people started to give priority to the quality of food supply. China began to incorporate the concept
of food security into its planning agenda and regarded it as a new strategy. Food security in China means a sufficient, sustainable, accessible, diversified and nourishing supply. And periurban agriculture is important for food security in China.

Different municipal governments carried out programmes aimed at modernisation of the peri-urban agriculture sector. Agro-tourism has become the most dynamic component of periurban agriculture in China in the last five years, thanks to China’s rapid economic development. In fact, agro-tourism has become more important than agriculture itself in terms of employment and income generation in some parks in Beijing (3).

In Beijing, as well as in Shanghai, agriculture-oriented science and technology development and demonstration parks have been established. Xiaotangshan modern agricultural demonstration park in Beijing is one such park.

Xiaotangshan town is gaining fame for its agro-tourism. In 1998, the municipal government of Beijing decided to develop a large modern periurban agriculture demonstration park around the city. According to the master plan, the park will include four towns as well as 45 villages, covering an area of 112 km² with a population of more than 40,000.

Starting in 1998, a series of infrastructure projects were put into place. By 2001, the initial phase of the construction was completed and the park was opened to the public. In order to provide better service to the urban market, the park was further divided into eight sub-zones, each having its own focus. The eight sub-zones are classified as follows:

- **Precision agriculture zone:** In this demonstration zone, all production processes such as irrigation, fertilisation, etc. are monitored and managed by a nerve centre equipped with (GPS, GIS and Remote Sensing) technologies, where it is demonstrated that yields per ha may increase by 18-30 percent at a lower cost.

- **Flower producing zone:** Many popular and high value flowers, such as the lily, rose and chrysanthemum, are planted according to market demand in this zone. Currently, the producing capacity of the zone is 6 million plants.

- **Tree nursery zone:** This area of 156 ha is one of the largest tree nurseries in China and in Asia; the zone can provide 2 million young trees each year to the urban market of a variety of species.

- **Aquaculture zone:** Technologically supported by the National Engineering Centre for Freshwater Fishery, this zone is famous for its development of new aquatic products with green feed. Sturgeon is currently the main product.

- **Lamb raising zone:** In this zone of about 67 ha, 30 million RMB Yuan (equivalent to approximately 3.6 million US Dollars) has been invested in infrastructure to raise 800,000 lambs per year. As an important component for local economic restructuring, all lines of service, from lamb breeding to mutton processing, are offered within this zone.

- **Seed zone:** To speed up the economic restructuring of the surrounding rural areas and to enhance the value of their agricultural products, the seed zone has been designed to provide...
rural farmers with high quality seeds of selected flowers and crops. Currently, orchids and strawberries are the dominant specialisations.

Agricultural product-processing zone: Guided by urban market demand, agricultural products are carefully processed in this zone, and sent to various supermarkets in wholesale packaging. These products are usually displayed on special counters with a higher price than the regular products in the supermarkets.

Agro-tourism zone and programme: Located around the historical royal resort and the beautiful hot springs, various zones are included in the agro-tourism programme. It also offers hotels and venues for meetings, training and leisure activities.

The modern agriculture park in Xiaotangshan region is proving to be very successful. In the past three years, it has attracted 51 enterprises to operate their businesses in the various zones, with a total investment of 3 billion RMB Yuan. Up to 100,000 people have visited the park. It is expected that in the coming five years, more than 500 million RMB Yuan will be further invested in the infrastructure. In 2008, when the Olympic Games take place in Beijing, the park will be one of the most important green food production areas in Beijing and in China.

The following elements have attributed to the success of the park. Firstly, the strong push and promotion from all levels of government was a precondition and necessity, particularly in the initial stage when kick-off investment and preferential policies were needed. Secondly, the active involvement of enterprises has determined the success of the park and its zones. As key players, enterprises act as a platform between suppliers and consumers, providing services to both villagers and urban residents. With the advantage of comprehensive and intensive utilisation of the land resources, and effective quality control in its production systems, the economic return of modern periurban agriculture can be 30-50 times higher than before. Thirdly, the participation and support of local farmers has been a basic requirement for smooth development. The local farmers not only provide labour but also the permission for land leasing as they collectively own the land.

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Land as an Entry Point for the Development of Urban Agriculture: The case of Governador Valadares in Brazil

Marielle Dubbeling

Governador Valadares has a population of around 250,000 inhabitants and is located along the river Doce, in the State of Minas Gerais in Brazil. A major problem of the city is the rising unemployment due to migration. However, the Municipality accounts for large areas of public and private vacant land, rivers and lakes with a distinct production potential for urban agriculture and fish farming. Moreover, the Municipality currently imports 90 percent of the vegetables consumed in the city. Taking these facts into account, the local government, in close collaboration with other actors, decided to promote urban agriculture, especially home- and community gardens and fish farms.

In 2002, the city embarked on a multi-stakeholder process that aimed to integrate urban agriculture into municipal planning policies and programmes, as a means of increasing the access of the urban poor to land for food production. The long term goals were to eradicate poverty and strengthen participatory governance at municipal level. This initiative in Governador Valadares, and similar processes in Cienfuegos, Cuba and Rosario, Argentina (see Chapter 2) were supported under the project “Optimisation of Use of Vacant Land for Urban Agriculture” promoted by the Urban Management Program for Latin America and the Caribbean (UMP- LAC/UNHABITAT), the International Development Research Center (IDRC) of Canada and IPES – Promotion of Sustainable Development in Peru.

A multi-disciplinary team was formed by representatives of municipal departments (agriculture, planning and environment), social movements, NGOs and the University of Valadares. This team created the Forum for Urban Agriculture and Food Security, which took responsibility for documenting and analysing existing urban agriculture practices in the municipality, identifying problems and opportunities and developing a municipal action plan for urban agriculture.

The Forum decided to compile a land inventory to determine the sites in the city that would be suitable for (promoting or expanding) urban agriculture. A general lack of data on actual and potential use of land for urban agriculture implied that there were few guiding principles to determine targets for effective urban agriculture activities, or to capitalise on emerging opportunities. The land inventory therefore would help address these issues and in addition:

- improve availability of information on potential sites for urban agriculture in order to enhance planning and promotion of urban agriculture;
- provide a record on actual and potential agricultural land uses which could act as a benchmark for monitoring land allocation and land use change;
- identify links between urban agriculture and complementary urban management activities such as management of green areas, establishment of new housing schemes etc.;
- enhance the information base in general, to assist land use decision-making including neighbourhood plans and updating of by-laws.
Participatory baseline studies and land use mapping
Participatory baseline studies were carried out to identify and characterise cultivated and cultivable land in the city (in terms of property status, surface area, agronomic quality, feasibility of production and levels of accessibility). A typology of vacant spaces was developed by the project team, which distinguished:

- non-constructed municipal or state-owned land areas earmarked for future industrial or housing development, but could temporarily be used for urban agriculture;
- protected land areas or green spaces - mainly municipal tenure (urban parks, planted roadsides, public squares, green areas, river margins, and flood zones);
- public or private institutional land (belonging to commercial enterprises and social institutions such as schools, churches or hospitals);
- vacant or underutilised private household plots;
- urban water bodies.

Land use maps were based on information from urban producers and community representatives, and municipal databases (the land registry) and geographical information systems (GIS). In Governador Valadares, the use of questionnaires, plot diagrams and designs, and statistical analysis made it possible to get an understanding of the access and land use strategies of the poor producers.

Availability versus access to land
The study showed that the insecure tenure of, and access to, land by urban producers was a key limiting factor for urban agriculture development in Valadares. Availability of land was not the constraining factor (36 percent of the municipal land was deemed suitable for Urban Agriculture). Land already used for urban agriculture production was almost all privately owned (household plots). This indicated a problem related to individual or communal access to non-household plots (for example green spaces, river margins, and institutional land areas).

The Forum organised a municipal meeting, with the participation of more than 100 community representatives and different municipal departments, to formulate action proposals to overcome the identified obstacles to land access. They also discussed the prospective use in urban agriculture for each land type, identifying the best use for each area (such as fish farming, growing of medicinal plants, fruit or vegetable growing) in the future.

Inclusion in Municipal Planning
Urban agriculture was included in the revised City Strategic Development Plan, and thus recognised as a legitimate use of urban land. At the same time it was also included in sectoral programmes dealing with the management of green areas, urban water bodies (urban rivers and lakes) and low-income housing programmes. Incorporating urban agriculture land use in official GIS databases and the land registry also facilitated identification and formal leasing of vacant plots to poor producers.

Facilitating legal framework
A law that led to the reduction of urban real estate taxes for vacant lots that are allotted to urban agriculture production was enacted. The government undertook to intervene between
institutional and private land owners on the one hand and urban producers and community groups on the other. The government could in this way facilitate (and control) temporary user rights to interested urban farmers.

**Pilot Projects**
From 2002 to 2005, 47 community gardens were initiated developed and were all located on institutional land areas and public green areas. These gardens receive municipal support in the form of infrastructure and technical assistance. A Community Gardeners’ Association was formed and a weekly market for urban agricultural produce was inaugurated, with support from the Food Supply programme of the Municipal Department for Environment, Agriculture and Food Supply. A total of 1,500 families are currently involved in urban agriculture in Valdares.

*Note*

1 Based on project documents of the Municipality of Governador Valadares and University Vale do Rio Doce.

**References**
The following unpublished documents prepared under the project referred to as “Projeto: Otimização do uso de espaços vazios para Agricultura Urbana. Municipality of Governador Valadares and University Vale do Rio Doce.

Elaboração, regulação e formalização dos distintos componentes normativos/legais (marco político facilitador) propostas nos Planos de Ação, 2002.

Informe da elaboração e legislação de instrumentos de cessão de terrenos que garantam a segurança do uso pelos produtores dos terrenos públicos e privados para a AU, 2002.

Informe da elaboração das propostas de instrumentos legais (incentivos fiscais e econômicos) para o uso do IPTU progressivo e regressivo para incentivar o uso produtivo dos espaços privados, 2002.

Informe das propostas para a inclusão da AU no Plano Diretor da cidade com base no Estatuto da Cidade, 2002.
Resources

The Peri-Urban Interface: a tale of two cities
Brook, Robert M.; Dávila, Julio (eds) 2000 School of Agricultural and Forest Sciences, University of Wales, Bangor, UK; Development Planning Unit, University College London; UK London: DfID.
This publication is based on the research conducted by the Natural Resource Systems Programme of the UK Department for International Development on natural resources in the ‘periurban interface’. It describes research conducted in two city-regions: Kumasi, Ghana, and Hubli-Dharwad, India.

The Political Economy of Urban Agriculture
This report contains case studies commissioned by the Municipal Development Programme for a preparatory workshop in Harare, in February 2001The five country case studies are on Uganda, Kenya, Tanzania, Zambia and Zimbabwe.

Planning for Urban Agriculture: a review of tools and strategies for urban planners
On the basis of published and “grey” literature and a survey among 26 urban planning professionals from 18 cities around the world, key planning-related constraints facing urban farmers were identified together with possible responses to these constraints. The findings are compiled in this publication.

Placing the food system on the urban agenda: the role of municipal institutions in food systems planning
This article looks at the relationship of city planning and the urban food system in the USA. Existing and potential city institutions that could offer more comprehensive management of the urban food system are examined. These include the city department of food, the policy council, and the city-planning department.

The Peri-Urban Interface, Approaches to Sustainable Natural and Human Resource Use
Periurban interfaces – the places where urban and rural areas meet – suffer from large problems caused by rapid urbanisation. This book gives a comprehensive overview of periurban (rural–urban) areas of the developing world, with extensive case material from Africa, Asia, Latin America and the Caribbean. And it lays out strategies for research and overcoming these problems and promoting truly sustainable natural and human resource development.

Continuous Productive Urban Landscapes: Designing Urban Agriculture for Sustainable Cities
This book provides a design proposal for a new kind of sustainable urban landscape: urban agriculture. By growing food within an urban, rather than an exclusively rural environment, urban agriculture would reduce the need for industrialised production, packaging and transportation of foodstuffs to the city-dwelling consumers. The impact that this would have on the future shape of cities could be immense. Urban design is shown in practice through international case studies and the arguments presented are supported by quantified economic, environmental and social justifications.

Urban Agriculture and Land Use Planning

Magazines


Urban Agriculture Magazine, no 15: Multiple Functions of Urban Agriculture, December, 2005

Environment and Urbanization Vol. 12, no. 2: Sustainable Cities Revisited III

Environment and Urbanization Vol. 15, no. 1: Rural-Urban Transformations

Environment and Urbanization Vol. 17, no. 2: Chronic Poverty
www.iied.org
The International Institute for Environment and Development provides expertise in achieving sustainable development at local, national, and global levels. Many publications, amongst others Environment and Urbanisation, can be found here.

www.ucl.ac.uk/dpu/pui
This is the site of the peri-urban interface programme of the University College of London. Research findings of this programme, general publications and related events are regularly updated.

www.mcgill.ca/mchg/
The website features the Making the Edible Landscape Project: This three-year collaborative project aims to demonstrate the value of including urban agriculture as a permanent feature in city planning and housing design. Project activities are being undertaken in three cities: Colombo, Sri Lanka; Kampala, Uganda; and Rosario, Argentina.

http://vancouver.ca/commsvcs/socialplanning/initiatives/foodpolicy/index.htm
This website reports on the development of a just and sustainable food system for the City of Vancouver (see also case study in this Chapter). Integrating urban agriculture into urban land use planning and design is key to their food policy.

www.planning.org/2006conference/sessionproposal/foodsystembg.htm
Site of the American Planning Association (APA). On this page an overview is given on The discussion of food system planning within APA and the annual conference in 2006. Furthermore on this site research highlights, publications and knowledge exchange.

www.cyburbia.org/forums
This bulletin board on urban/town planning-related topics has a page on urban agriculture and community gardening in urban planning.