

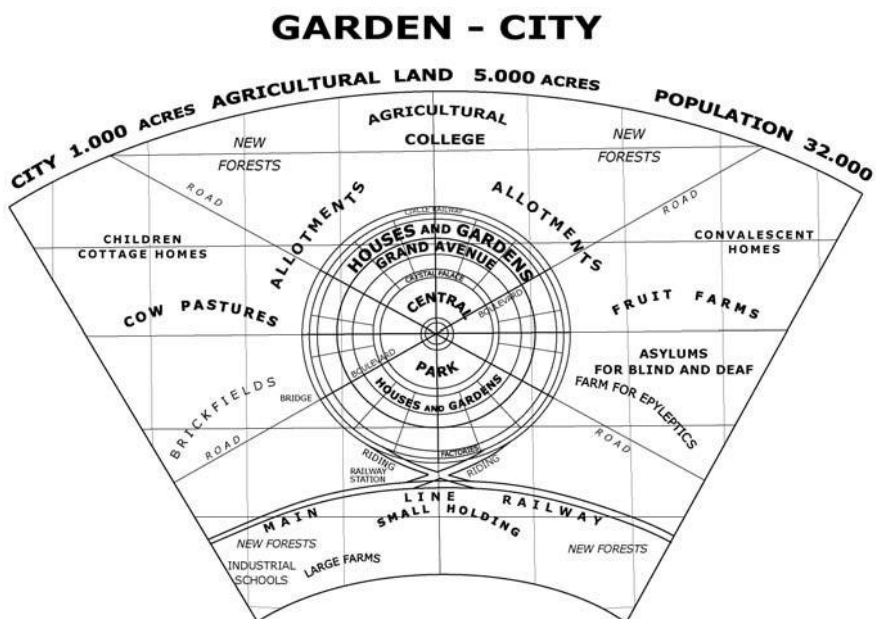
Integration of Urban Agriculture into Spatial Planning, 2009

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Introduction

The benefits of urban and peri-urban agriculture in the cities and towns of sub-Saharan Africa (SSA) are well recognized across a number of development challenges, including poverty alleviation, environmental conservation and redressing the negative impacts of urbanization. The benefits are appreciated at the local level by authorities and farmers, such that involvement in urban agriculture is increasing. For example, it is estimated that in Tanzania at least 30 per cent of the total urban residents practice urban agriculture as one of their primary livelihood strategies (URT, 2003). In Dar es Salaam, the United Nations Development Programme (UNDP, 1998) reports that one out of five (i.e. 20 per cent) residents in the city are engaged in urban agriculture. The local government reform report of 1998 noted that more people were engaged in urban agriculture than in the formal employment sector. This has not come about by chance, but rather by the intent and activities of urban residents who, despite at times an unsupportive policy environment, have turned to urban agriculture as a means of livelihood. This demonstrates that it is a viable and valuable occupation for urban dwellers, and that, consequently, land-use planning authorities need to make provision for urban agriculture, especially during the spatial planning process to ensure that there is sufficient land and in suitable locations.

Spatial planning in this context refers to the processes of defining land use (including residential, commercial, urban agriculture, industrial, open space, recreational facilities, parks, future urban land, infrastructural service facilities



Source: redrawn by W. Magigi

Figure 8.1 *The Garden City concept and plan of Ebenezer Howard (1878)*

and utilities, areas for conservation and hazardous land) that promote equal access of residents to urban services. This includes services related to economic, health and environmental benefits for all sectors and wealth classes. The implementation of spatial planning therefore helps to create a liveable city with a healthy economy and environment. In Tanzania, this falls under the zoning regulations provided in the 2006 Urban Planning Act.

Spatial urban planning emerged during the industrialization and urbanization surge in Europe during the 19th century (Faludi, 1970, 1984; Hall, 1988). It was during this period that the idea of integration of urban agriculture evolved through the concept of the Garden City developed by Ebenezer Howard (Friedmann, 1987; Lynch, 1990). The underlying goal of the Garden City concept was to combat urban overcrowding, diseases and food insecurity in London through the establishment of garden cities, each supporting about 30,000 inhabitants by being self-contained in terms of employment, food production and recreation. Ebenezer Howard theorized a concentric plan for the Garden City, in many ways similar to the satellite towns and green belts associated with modern cities (see Figure 8.1). A central feature was that the plan included residences which were surrounded by woodland and had horticultural spaces and family gardens to meet the needs of the whole urban community.

The Garden City as a spatial planning concept was implemented in several European cities, including Letchworth and Welwyn. This was further exported

Spatial planning approaches

Dowall and Clark (1996) and Drescher and Iaquina (1999) show that urban planning approaches and tools include master planning, structure planning and land-use zoning. These planning approaches have been claimed to be inflexible, rigid and not adaptive to the challenges that urban land development presents (Armstrong, 1987; Iaquina and Drescher, 2000; Drescher, 2001). Principally, none of the land-use planning approaches and tools included urban and peri-urban agriculture. Additionally, the legal basis did not allow for the inclusion of urban and peri-urban agriculture within land-use plans because it was always regarded as a temporary activity in SSA cities (Kyessi, 1997; Madaleno, 2000; Mougeot, 2005; van Veenhuizen, 2006). However, the stark reality is contrary to this and calls for more participatory planning approaches to meet urban dwellers' needs and aspirations. This would require revisions to land-use plans, policies and the legal regulations around spatial planning and around urban agriculture (Healey, 1997; Sawio, 1998; Rakodi and Lloyd-Jones, 2002).

The policy and legal frameworks of different countries with respect to urban agriculture

The legal regulatory framework around land-use planning refers to the set of laws, regulations and decrees endorsed and approved by the required authority that contributes to preparing, coordinating and implementing spatial land-use plans. It is within these land-use plans that the development of urban and peri-urban agriculture may be recognized and provided with a designated space. These plans are then used to support, or constrain certain land-use activities – in this instance, urban agriculture. Where there is an array of supportive policies or regulations, across and between the different administrative and regulatory dimensions of city management (i.e. social, economic and environmental), this can be taken to mean that urban and peri-urban agriculture is welcomed within the specific city. In instances where regulations are absent, this indicates that the city authorities are neglectful or uninformed about the benefits of urban agriculture, or might indeed be antagonistic towards it. Where supportive policies are in place, then it is incumbent upon urban planners to make the necessary spaces and places available through land-use zonation and planning.

Table 8.1 provides a brief comparative analysis of policies that are supportive of urban agriculture in several SSA cities compared with two from South America and two from Europe. It can be seen that different cities emphasize different aspects, and that not all are at the same stage of development with respect to urban agriculture:

- In Rosario (Argentina), the Urban Agriculture Programme (UAP) was established to support smallholder farmers in the city, as well as to provide support to farmers in the production of aromatic and medicinal plants, as

well as traditional produce. Key components included product improvement via agro-industries and their sale through farmers' markets and fairs. Specific attention was also given to promoting farmers' social organization through a network, with special attention to women. Rosario has a very complete and effective legal and regulatory framework for the promotion of urban and peri-urban agriculture. The UAP was incorporated within the strategic plan of the city's development framework, helping to provide access for smallholder farmers to funds from financial institutions, and encouraging participatory budgets for the creation of agro-industries.

- In Brasilia (Brazil), between 1995 and 1998, the government of the federal district developed a wide array of legal and regulatory instruments in order to facilitate access to credit and inputs, to support family agro-industries, and to establish adequate spaces for the sale of urban and peri-urban agriculture products.
- In Nairobi (Kenya) there are no provincial or municipal promotion programmes or a policy basis to support urban and peri-urban agriculture. However, the activity is ongoing in road reserves, along river banks and within other open spaces. Laws from colonial days tend to restrict urban agriculture; but agricultural activities are tolerated in the city.
- Dar es Salaam (Tanzania) is involved in environmental planning and management through the Sustainable Cities Programme that was established in 1992. Urban agriculture was regarded as an important livelihood strategy and was therefore included in the city's strategic plan. Around the same time, urban and peri-urban agriculture was further enshrined in the national land development and human settlement development policies. But it has rarely been included in land-use plans and promotional practices since then.
- Kampala (Uganda) has accepted and included urban agriculture in the city setting; but poor harmonization of land development and health legislation has resulted in it being restricted largely to slum areas. The mayor has allocated a budget for urban agriculture, having realized its important social dimension. But poor urban farmers gain access to land for urban agriculture only as customary tenants on private land, and are only allowed to cultivate annual crops because their landlords and the city authorities do not allow perennial crops. Farmers are always at risk of having their land taken away for other purposes. 60 per cent of farmers are actively searching for land.
- Zimbabwe has included urban agriculture in its legal setting. However, implementation modalities in city land development plans have only begun to be effective, with both accommodative and restrictive laws in place. In Harare, an audit of the policy and legislative framework was undertaken to identify policies and legislations that affect urban agriculture. Confusing and contradictory laws and a prohibitive environment have been reported, although there has not been a general prohibition of agricultural activities. In August 2003, a meeting was held in cooperation with the UNDP, the

Table 8.1 Selected cities with experiences of different levels of integrating and promoting urban and peri-urban agriculture (UPA) in spatial planning

	Argentina Rosario	Brazil Brasilia	Hungary Central Region	Germany Freiburg	Tanzania Dar es Salaam	Kenya Nairobi	Uganda Kampala	Zimbabwe Harare	Zambia Lusaka
Land use for UPA	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes
Support for UPA processing	Yes	No	No	No	No	No	No	No	No
Support for UPA commercialization/marketing	Yes	No	No	No	No	No	Yes	No	No
Access to credit for UPA	No	Yes	No	Yes	No	No	No	Yes	No
Access to water and other inputs for UPA	No	No	No	Yes	No	No	No	No	No
Sanitary and environmental control for UPA	No	Yes	No	Yes	No	No	No	Yes	No
Land laws allowed smallholder farmers to hold farms within a stipulated tenure or period of time	Yes	No	No	Yes	Yes	No	No	No	No
Land demarcation for UPA	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes
Municipal/city UPA programmes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes
Physical/strategic plans for UPA	Yes	No	No	Yes	Yes	No	Yes	Yes	No

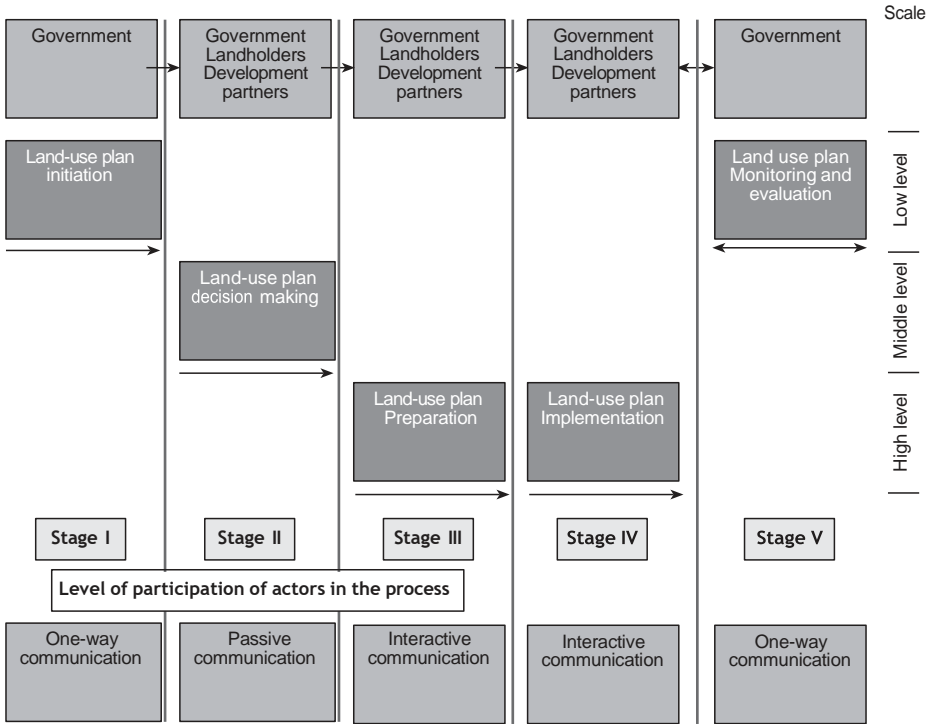
Source: Atukunda (1998); Drescher and laquinta (1999); Bakker et al (2000); Santandreu and Castro (2006); Van Veenhuizen (2006)

United Nations Children's Fund (UNICEF), the United Nations Food and Agriculture Organization Regional Office for Southern Africa (FAO-SAFR), the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN), the Resource Centres on Urban Agriculture and Food Security (RUAF) Foundation and the International Development Research Centre (IDRC), where the existence and importance of urban agriculture was recognized and calls were made for its incorporation within urban development plans. Authorities from Kenya, Malawi, Swaziland, Tanzania and Zimbabwe took part.

- In Ghana, the Accra Metropolitan Assembly seeks to promote urban agriculture and to review by-laws to make them producer friendly. There are strong restrictions on sale, irrigation and livestock keeping. The Land Administration Project was launched to create land banks for agricultural development and investments.
- Swaziland shows the negative effects of continued reduction of residential plot sizes on urban agricultural activities. The food producing sector was expanding until the World Bank pressed for smaller plots.
- In Botswana, the Ministry of Agriculture argues that proper zoning encourages urban agricultural activities. Implementation of poultry zones on land considered of low potential for the development of other land uses has been successful in Gaborone. The National Nutrition Plan of Action intends to improve the nutritional situation of HIV/AIDS-affected households by supporting urban agriculture in cooperation with non-governmental organizations (NGOs), the private sector, local communities and families.

Land-use (spatial) planning processes

Land-use planning involves different stages and processes. These include initiation (i.e. setting the agenda), decision-making, preparation, implementation, evaluation and monitoring (see Figure 8.3). In SSA, spatial land-use planning decision-making follows either a top-down or bottom-up approach. The top-down decision-making occurs where communities, households and farmers are largely passive recipients of instructions and orders regarding land zonation and permissible uses. Communication is largely in one direction and passive, where the interests of the higher-level institutions are emphasized (see Figure 8.3). In Tanzania, the current policy and legal basis gives mandate and power to the local and central government planning authorities to initiate, decide and implement land-use planning processes. In most SSA countries, urban planning power and decisions are centralized even if the policy guidelines advocate a more decentralized approach and model. Decentralizing power to community level seems difficult if we take the examples of Kenya and Uganda, where town and country ordinances inherited from the colonial period are still in use. The inadequate decentralization of power to local level affects the land-use planning process, which internationally currently calls for community involve-



Source: Magigi (2008)

Figure 8.3 Land-use planning processes

ment. This lack of local community involvement in land-use planning, results in difficulties in terms of implementation and monitoring, as is discussed later.

Bottom-up land-use decision-making occurs when the local communities at the grassroots level initiate their own projects, using their own resources and those from supportive stakeholders. Consultation and interactive participation or communication are all achieved from the beginning to the end. However, long bureaucratic processes in initiation and planning approval are common, which may discourage local communities. Adopting participatory land-use planning as the favoured and entrenched planning approach helps to achieve this and therefore contributes to land-use planning effectiveness.

Proper and timely communication to different stakeholders interested in spatial land-use planning processes is important. This fosters the commitment of actors, resource mobilization and negotiations of actors during the process. Figure 8.3 shows the level of involvement and communication modes of different stakeholders. This is grouped into three parts according to a scale that includes high, middle and low. High level is when there is interactive communication and information flows among actors (Pretty, 1995). This is achieved particularly in the third and fourth stage where the preparation and implementation of land-use plans is needed. The first stage and the fifth typically involve

low levels of communication. In these stages, the government appears to follow the Town and Country Planning Act of 1956. Under this act, landowners are considered passive participants rather than active stakeholders in the process. This shows a top-down approach in decision-making and implementation. Under such a model, urban and peri-urban agriculture can often be neglected. In contrast, where needs are identified and communicated by communities and solutions are initiated by them (i.e. bottom-up approaches), space is found for urban agriculture.

The second stage is typified by passive participation where landholders are not active in land-use planning processes. This particularly occurs when the government initiates the project with a top-down approach. It is also at this stage that landholders and other land developers, including private investors, engage in preparing their plan (URT, 2006, Section 16). Accurate information needs to be communicated to different stakeholders in this stage in order to facilitate its preparation and subsequent implementation as the case study settlements below demonstrate.

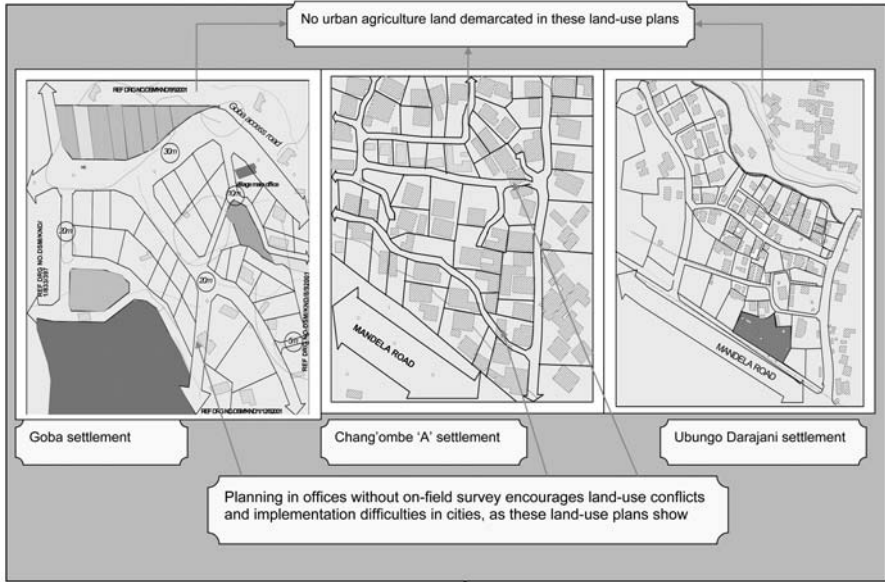
The case of Dar es Salaam: A look at special land-use planning processes in Goba, Ubungo Darajani and Chang'ombe 'A'

The Ministry for Lands and Human Settlements Development declared three settlements in the city of Dar es Salaam as planning areas on 13 August 1993 through Government Notice (GN) no 231. Before the declaration, these areas were zoned for different land uses according to the 1978 Dar es Salaam Master Plan – namely, industrial areas, hazardous land for future industrial use and agricultural land for future settlement development.

The zoning of the settlements through the master plan approach in 1978 in Dar es Salaam occurred despite extensive mushrooming of private housing developments that already existed since the 1960s in the area (see Table 8.4). It was also prepared without taking into account landholders' views, preferences and inputs. Likewise, the proposed plan was not implemented at that time and the consequence was non-adherence. This scenario is common in many SSA cities, including Lagos and Nairobi (Arimah, 1999; Olima and Kreibich, 2002).

Landholders in the settlements were acting as passive participants as their interests were not considered during the initiation, decision-making and subsequent preparation stages. This resulted in increased land-use conflicts during implementation where more than 75 per cent of landholders resisted the implementation of the spatial land-use plan in 2005. Urban agriculture was not included and therefore exclusion still exists in practice (see Figure 8.4).

In the case of Ubungo Darajani, the initiation was conducted in 1997 by a community-based organization (CBO) called Ubungo Darajani Settlement Development Association (UDASEDA). The organization members who were landholders (65 per cent) were motivated after the government declaration in 1990 to acquire their land. The government intention here was to implement the 1978 Dar es Salaam Master Plan, which zoned these areas as industrial,



Source: Magigi (2008)

Figure 8.4 Extract from land-use plans

hazardous land and agricultural land, despite the presence of surveyed plots within the areas. 30 per cent of the landholders were motivated due to the fact that they had already begun surveying their plots before the new zoning initiatives, but had lapsed due to prohibitive costs. Some also complained that they had been swindled and had lost money to unregistered surveyors (5 per cent). These three factors created solidarity among the settlement because landholders faced common problems. Interviews with the sub-ward leader revealed that most of the landholders were not even aware of the existence of the 1978 Master Plan. Many therefore continued to subdivide their land for sale without regard to the 1978 plan proposal. Subdivisions affect urban agriculture implementation as land is getting smaller and smaller, which is common to other settlements studied.

The initiation in Ubungo Darajani took two years while the other cases took only six months. The latter entailed writing orders and directives to planning authorities and local leaders. The case of Ubungo Darajani involved establishing contacts with the local authority and consultations with various institutions for support. The preparation and subsequent land-use planning in Ubungo Darajani therefore included cadastral surveying, infrastructure provision, including drainage and water provision, and land registration. Community social capital mobilization in terms of funds, consultative meetings with Ardhi University (by then called University College of Land and Architecture Studies, UCLAS), and interactive communication with local and central government were the key strategies for success. Funds were mobilized

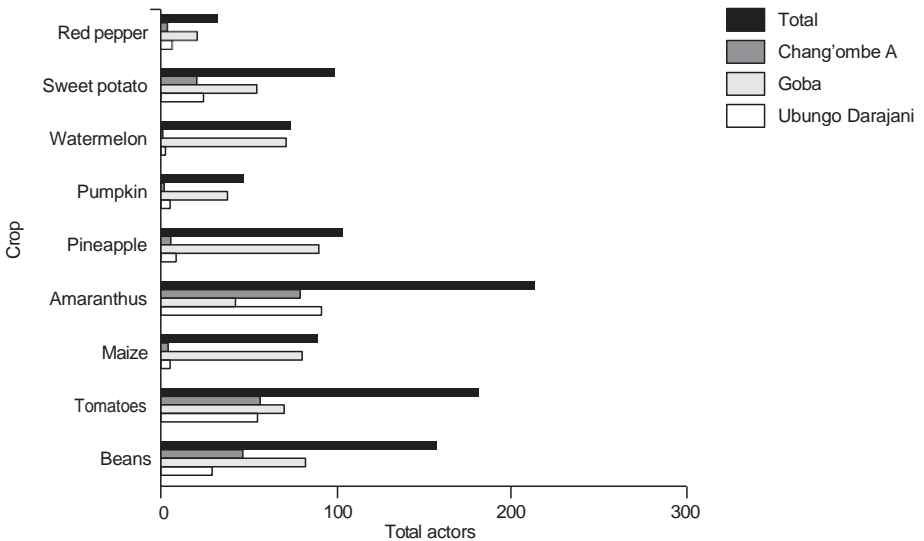
within the community and used for paying consultants. For infrastructure provision, residents were able to provide stones and sand for drainage improvement, while those who had money contributed funds to buy cement and bricks.

Monitoring and evaluation are the processes of tracking and documenting the implementation (or the progress toward implementation) of land-use plan decisions. This needs to be done at least at intervals of two to five years, according to the Urban Land Use Planning Act of 2006 in Tanzania, and should be documented in the form of a tracking record or reports and upgrading. Reports must be available for public review and should describe management actions proposed or undertaken to implement land-use plan decisions, forming the basis for annual budget documents. In all three cases, there has been no such process. For example, the land-use plans for Ubungo, Goba and Chang’ombe ‘A’ were prepared and approved in 2004, 2001 and 1997, respectively. There has been no assessment by local authorities on the results of the plans for each area, or any reviews on sustainable impacts after five years, as stipulated by the Land-Use Planning Act of 2006.

Extent and characteristics of urban agriculture

Crop farming

Ubungo Darajani, Chang’ombe ‘A’ and Goba smallholder farmers grow a wide range of crops (see Figure 8.5). These include African indigenous vegetables (AIVs) and exotic species. The primary AIVs are amaranth, sweet potatoes, cowpea leaves and pumpkins. In Goba settlement, smallholder farmers are involved in all types of crop farming, including pineapple, maize, beans,



Source: Magigi (2008)

Figure 8.5 Crops grown in the case study areas

Table 8.2 Location of market areas with respect to study settlements (km away)

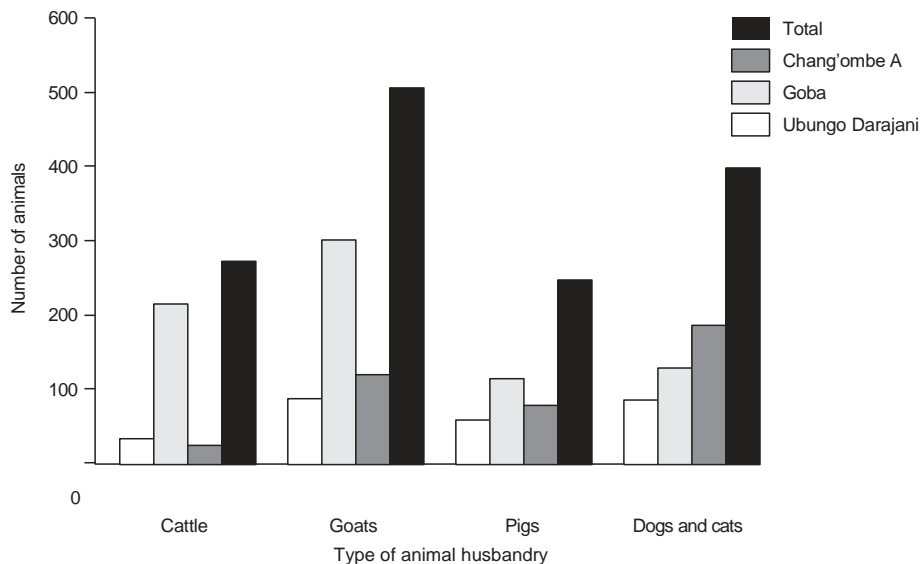
Market Case	Kariakoo	Kisutu	Bugur-uni	Makum-busho	Tandale	Tegeta	Mwenge	Tandika	Temeke Sterior
Goba	10.8	12	12	9	10	3.8	5	18	16
Chang'ombe	12	12.4	3	8	6	17	13	3	2.5
Ubungo Darajani	8	8.4	3	5.7	3.5	8	3	6	5.5

Source: Magigi (2008)

tomatoes and watermelon. Likewise, Figure 8.5 indicates that amaranth farming dominates in the urban zones compared to peri-urban settlement (i.e. Goba). Vegetables such as amaranth are perishable and require good packaging and proximity to the marketplace. Long distances to market (see Table 8.2) and the hot climate in the city affects leafy vegetables and other forms of crop farming. Maize and other crops dominate peri-urban settlements compared to urban areas. This is due to the availability of land and the presence of taps and deep water in these areas, which facilitates production. Generally, access to land and inadequate water for crop farming are primary constraints on urban agriculture.

Animal husbandry

Within Goba, Chang’ombe ‘A’ and Ubungo Darajani, both meat and dairy types of indoor and outdoor animal farming were observed. The large number of animals shows the importance of animal husbandry for food security for the producers themselves and for other people who purchase meat (see Figure 8.6). Milk and meat provide protein to smallholder farmers, their families and to



Source: Magigi (2008)

Figure 8.6 Extent of animal farming in the case study areas

other urban dwellers. The milk and the by-products produced by smallholder farmers in peri-urban areas of the city are mainly consumed in urban areas.

Poultry farming

Chicken farming is common in the case study areas. Free-range and indoor farming systems are practised, and both indigenous and exotic breeds are kept. This form of farming can be done on small plots. The cost involved includes the construction of a stall for keeping hens and treatment. For a production unit of 100 chickens kept to sell eggs alone, approximately US\$600 in profit is gained per month, excluding other expenses.

Horticulture production

Vegetables grown in and around the case study settlements include *Amaranthus* spp. (known as African spinach), sweet potato leaves (*Ipomea batatas*) and pumpkin leaves (*Cucurbita moschata*). Others include cowpea leaves, cauliflower, cabbage, carrot, spinach, mustard leaves, okra and tomato. In addition, a range of culinary herbs such as fenugreek and coriander are cultivated. These vegetables are perishable and must to be produced close to markets. Due to unregulated land use, the production is often done on fragile land that has been demarcated for conservation and on plots in residential premises (see Table 8.3).

Voices of different stakeholders regarding urban agriculture implementation in the city

Understanding the voices of different stakeholders helps to explore existing policy and practical problems. A total of 450 stakeholders were interviewed, including smallholder farmers (360), the private sector, donor community and government officials, policy-makers and ward councillors. The main problems indicated by the farmers were:

- distance to market areas, which increases their cost of production and lowers their profit;
- insecurity of land tenure, which was exacerbated by lack of designated areas for farming;
- lack of subsidies and credit schemes that can facilitate farming, due to lack of collateral;
- city harassment, which increases fear of eviction and restriction of farming in plot areas;
- theft of their crops;
- inadequate water facilities to enhance their farming activities;
- inadequate extension services or urban farming within the city; and
- poor understanding of policy and legal basis guiding urban land development.

Table 8.3 *Location of urban farming activities in the case study areas*

<i>Form of urban agriculture</i>	<i>Ubungo Darajani</i>	<i>Goba</i>	<i>Chang'ombe 'A'</i>	<i>Remarks</i>
Crop farming				
• Maize	Undeveloped plots and along the Kibangu River Valley	In plots and off plots	Undeveloped plots	Fertilizer is not used for farming; only manure to some smallholder farmers
• Pineapple	In plots	In plots and off plots	In plots	Organic fertilizer from cattle dung and decomposed waste used
• Bananas	In plots	In plots and off plots	In plots	Organic fertilizer from cattle dung and decomposed waste used
• Beans	In plots, undeveloped plots and along the valley	In plots and off plots	In plots and undeveloped plots	Organic fertilizer from cattle dung and decomposed waste used
Animal husbandry				
• Cattle	In plots	In plots	In plots	Create air pollution but the dung is beneficial for farming
• Domestic animals including dogs and cats	In plots	In plots	In plots	Can be accommodated since used for protection in homes Need medical care
• Pigs	In plots	In plots	In plots	Create noise and air pollution, and require more care in rearing Potential in peri-urban areas
Poultry keeping				
• Hens	In plots	In plots	In plots	Create noise and air pollution, and require more care in rearing in residential plots
• Pigeons	In plots	In plots	In plots	Most are domestic and are kept for aesthetic reasons
Horticulture (gardening)	In plots, undeveloped plots and along the river valley, institutional and industrial premises, road and railway strips	In plots and empty spaces, undeveloped plots and along the river valley	In plots, undeveloped plots, institutional and industrial premises, road and railway strips	Pollution of water affects the valley products Plots and undeveloped plots are preferred; tap water for irrigation
Floriculture	In plots, road and railway strips	In plots	In plots, road and railway strips	Mostly for selling within and outside the city; no information on international transportation
Seedlings/tree planting	In plots, road and railway strips	In plots	In plots, road and railway strips	Both fruit and canopy trees are common

Source: Magigi (2008)

Urban planners, city managers and policy-makers, including councillors, admitted to the benefits of urban agriculture in improving and subsidizing the poor in the city. They were aware that the activity is not only practised by the poor, but even by rich individuals and elite groups. Some examples:

Dar es Salaam city has abundant land in peri-urban zones and its dormitory districts of Mkuranga, Bagamoyo and Kibaha. If land in these areas is put into farming and identified farmers to use the land, it will be easy for them to get organized, get credit and therefore influence decision-making processes in terms of improving their social well-being. (Director of NEMC-Research and Publication)

We can tolerate gardening and floriculture farming in urban settings as they do not require much land for a person to get involved in. This is important in plots and off plots and not cropping of maize and other high raised crops. This can cause malaria, mice and hideouts for criminals. They also create fear, especially during harvesting, where raping is experienced in the city. (Director of Human Settlement Development, Ministry of Lands and Human Settlements Developments)

We cannot allow urban farming such as animal husbandry, including pigs, cattle and goats, in a city setting. We need to accommodate only domestic animals that must be kept in a safe way [to prevent] endangering people, including dogs. (Director of Ministry of Health)

Spatial planning barriers to urban agriculture in Dar es Salaam

Low urban agriculture rent price at market value as city investment expands

The guidelines on property taxes for urban farming activities are generalized and low compared with other urban land uses. For a person with high- and medium-density residential premises, the land rent for 2007/2008 is approximately 10,000 Tanzanian shillings (US\$8); for commercial residential areas, it is 30,000 Tanzanian shillings (US\$24); and for commercial and industrial premises, it is 450,000 Tanzanian shillings (US\$360). This serves the government for revenue collection. A plot of equivalent size for urban agriculture requires the payment of 20 Tanzanian shillings only (US\$0.02). While attractive to farmers, this serves to entrench the perception that it is not an important land use, and there is a constant motivation to replace the land with land uses that generate higher taxes per unit area for the city.

Legal and policy environment

The agriculture policy environment in Tanzania is marked by a common dichotomy between urban and rural development administration. It leaves

little scope for acknowledging the specific characteristics and needs of agriculture in urban areas. Agricultural policies and programmes are primarily designed for rural areas and are therefore not always compatible with the needs of urban agriculture. Moreover, cross-sectoral policies do not recognize urban agriculture. For example, the 2005 National Strategy for Growth and Poverty Reduction does not cite urban agriculture as a strategy for poverty reduction, including employment creation and improved nutritious food security provision.

Inadequate water for meeting both city urban population and urban agriculture demand

The water demand for Dar es Salaam city is under pressure from the rapidly expanding urban and peri-urban population. The major water sources include the Ruvu chini and Juu plants, Mtoni plants and water wells in residential settlements. According to DAWASCO, the water consumption per capita is 187 litres per day in the city. The water infrastructure is plagued by breakdown of the water system, power interruptions and aged pipes. Only 18 per cent of households are connected to the tap water system, while the rest use deep and shallow wells for both domestic and agricultural uses. Thus, it is difficult to make policies and programmes for the provision of water for urban agriculture when the current systems cannot meet the requirements of the increasing urban population of approximately 3 million. Other sources of water need to be in place to supplement the city's water supply system, including use of deep wells and rainwater harvesting.

Housing density and mixed land uses

Table 8.4 shows that in all three sites housing density increased from 1970 to 1980. During this period, it was influenced by a 'villagization' and broad acre policy (1972), abolition of local governments (1972), the Uganda war (1978) and a food crisis (1980) in Tanzania. It was during this period that people began constructing their buildings without building permits from local authorities. In the years from 1981 onwards, the construction of buildings has been increasing beyond what urban planning officials can easily coordinate and control. Inadequate human resources and exclusion of community involvement in land-use planning and its implementation occurred throughout this time. Open spaces demarcated for public use were also encroached upon for other uses; as a result, housing density increased and agricultural land disappeared. Identifying available land close to particular settlements requires urgent attention.

Land-use zoning and conditions for change of use

In policy documents, including master plans for peri-urban areas, land currently under agricultural use is frequently designated as areas for future urban expansion, rather than protected for agricultural activities. Consequently, the local authorities place little emphasis on managing such land

Table 8.4 Chronological documentation of housing density in case study areas

Year	Area								
	Chang'ombe 'A'			Ubungo Darajani			Goba		
	Number of houses	Housing density	Agric-ultural land (ha)	Number of houses	Housing density	Agric-ultural land (ha)	Number of houses	Housing density	Agric-ultural land (ha)
1960–1965	240	1.2	165.0	12	0.4	19.0	20	0.3	56.0
1966–1970	320	1.7	162.8	78	3.0	16.2	55	0.9	54.0
1970–1975	820	4.3	138.0	165	6.3	10.4	146	2.4	51.0
1976–1980	1470	7.8	112.0	196	7.5	8.2	254	4.2	48.7
1981–1985	2045	10.9	98.0	240	9.2	6.1	340	5.6	46.2
1986–1990	3605	19.2	28.0	297	11.4	3.4	460	7.6	42.1
1991–1995	3820	20.4	19.2	310	11.9	3.1	570	9.5	41.5
1996–2000	4120	22.0	16.8	348	13.3	2.6	640	10.6	41.9
2001–2005	4196	22.3	17.3	436	16.7	2.8	702	11.7	41.8
2006–2007	4200	22.4	17.5	442	17.0	2.9	720	12.0	42.6

Note: Housing density = total housing per given unit area.

Source: Magigi (2008)

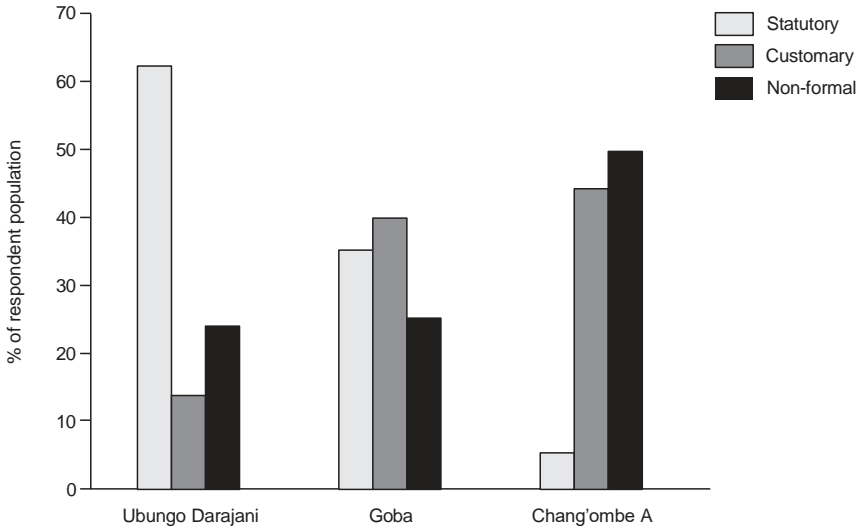
in order to meet proposed future needs. This permits the encroachment of residents and continued land subdivision, and later becomes difficult for the government to plan for peri-urban settlements. Awareness of land-use change procedures is low amongst residents when they want to use their plot for farming. This is an important aspect of urban planning when planners want to monitor and coordinate urban development in an organized fashion. Land-use planning often excludes farming in the land-use plans, and planning briefs rarely consider urban agriculture and its implementation modalities. These barriers enhance the exclusion of urban agriculture in spatial planning.

Land tenure

Within the three settlements, land tenure systems consist of a wide range of statutory, customary and non-formal categories. The statutory system refers to owning land through formal procedures where the title deeds are granted to the landholder. The customary system refers to the ownership that is inherited, and the non-formal categories include informal land transactions, such as buying from friends and the encroachment of public lands (see Figure 8.7).

Ubungo Darajani, Goba and Chang'ombe settlements were developed under traditional or customary tenure systems, which were at that time outside urban administrative boundaries. The land was later absorbed by the expanding city. During such times, various statutory tenure categories, such as formally granted rights of occupancy, were introduced to which later housing development had to conform. Alternatively, early developments have changed their tenure status as regularization programmes were introduced at Ubungo Darajani. This allowed informal status to become formal when local communities became involved in spatial land-use planning.

Tenure as a limitation to urban agriculture relates to access to resources. For example, 6 per cent of landholders in the case study had *short-term titles* of 2 to 15 years. This limits the ability of smallholder farmers to access financial



Source: Magigi (2008)

Figure 8.7 Tenure modalities in the case study settlements

credit that can help to improve their farming system and outputs. Therefore, there is a need to consider granting long-term titles to attract financial assistance to smallholder farmers who want to legalize their land. Providing a range of tenure options could be the most effective means of enabling the urban poor to improve their living conditions and livelihood opportunities and, therefore, to improve urban land governance.

Inadequate access to land-use planning information and language

Over three-quarters (78 per cent) of the respondents interviewed were not aware of the official requirements of land-use planning processes, as well as procedures to obtain land for urban agriculture. This is because they have little contact with government agencies. For others, a major constraint on their ability to conform to official requirements is the simple problem of understanding bureaucratic forms, procedures and even language. For example, planning regulations, standards and administrative procedures are published in English that the majority of landholders and tenants in Tanzania hardly use. There is a need for such documents and policies to be available in local languages (e.g. Swahili).

Adaptation of planning standards and building regulation

Formal land-use planning standards and regulations – for example, those used in the development of new formal settlements – would generally not be appropriate for upgrading many informal settlements. These will impose severe payment burdens on residents or the building of a particular type of housing that may be difficult for smallholder farmers to afford. Smallholder farmers

Table 8.5 Summary of planning standards

Site number	Infrastructure facility	National planning standards	Community agreed standards approved by the Ministry of Lands and Human Settlement Development		
			Ubungo Darajani	Goba	Chang'ombe 'A'
1	Standard for residential areas				
	High-density plots	400–800m ²	12–800m ²	400–800m ²	20–800m ²
	Medium-density plots	801–1600m ²	900–1600m ²	801–1600m ²	801–1600m ²
	Low-density plots	1600–4000m ²	1601–4000m ²	1600–4000m ²	1600–4000m ²
2	Road right of way				
	Access path (footpath)	3–6m	2–3m	3–6m	3–6m
	Access road (residential area)	10–20m	8–10m	10–20m	10–20m
	Local distributor (residential area)	10–20m	12m	10–20m	10–20m
	District road	20–30m	20–30m (existing)	20–30m	20–30m
	Primary road	20–30m	20–30m (existing)	20–30m	20–30m
	Trunk road	60–70m	60–70m (existing)	60–70m	60–70m

Source: Magigi (2008)

depending upon small plot farming cannot exist in a settlement upgraded according to conventional regulations. Besides, smallholder farmers are wary of situations where they cannot keep up with payments and do not have the means to begin building an approved permanent house because of their unsustainable income levels. This affects their living standards in urban areas; as a result, shifting to peri-urban land is common. The main planning standards used are summarized in Table 8.5.

Table 8.5 shows that the minimum plot standard area for Ubungo Darajani and Chang'ombe 'A' is 12 and 20 square metres, respectively. With plots this size it is difficult to consolidate urban agriculture due to minimal plot coverage ratio, which also accompanies building standards (see Table 8.6).

Tables 8.5 and 8.6 indicate that in promoting urban agriculture, the availability of space and density distribution needs to be considered (see Figure 8.8). For example, Table 8.6 shows that the minimal plot for Goba, a peri-urban settlement, ranges from 400 to 4000 square metres. Similarly, the availability

Table 8.6 Minimum plot coverage

Size	Plot size	National standards used	Community agreed standards	Plot coverage in Ubungo Darajani		Plot coverage in Goba and Chang'ombe 'A'	
				Range	Number of plots	Range	Number of plots
High density	400–800m ²	40%	12–800m ²	50–120%	234	50–120%	458
Medium density	801–1600m ²	25%	900–1600m ²	30–38%	35	30–38%	114
Low density	1600–4000m ²	15%	1601–4000m ²	10–15%	–	10–15%	67

Source: Magigi (2008)



Source: Magigi (2008)

Figure 8.8 Settlement growth processes and possibility of integrating farming: (a) Part of Goba neighbourhood showing initial stage where urban agriculture integration can be well planned in advance; (b) part of Ubungo Darajani neighbourhood showing consolidated stage where urban agriculture can be integrated; (c) part of Chang'ombe 'A' neighbourhood showing saturated stage where urban agriculture integration needs attention

of unoccupied land within the peri-urban settlements becomes one of the criteria for consolidating the sector in urban areas. Likewise, it shows the potential of peri-urban land consolidation to accommodate urban agriculture in a city setting where mixed urban uses and density distribution are high.

Financial aspects

The annual budgets of the urban local authorities are approved by central government. Experience shows that these funds are inadequate to implement the land-use development programmes in the country. Increased cost of infrastructure provision and maintenance calls for heavy investment by the responsible ministries.

Policy and planning implications

Before an attempt is made to find the way forward, we need to raise the question: how do future urban land development policies and institutional structures of urban planning enable effective integration of urban and peri-urban agriculture within spatial land-use planning? This question becomes more significant in the context of current rapid urbanization processes, food insecurity, policy change and increased urban land market and investment.

Human settlements and building regulation policies and legislation

In Tanzania, the National Human Settlement Development Policy (NHSDP)-URT of 2000, Section 4.3.7, identifies urban agriculture as one of the urban development strategies with the potential to reduce urban poverty, therefore requiring appropriate management. However, although the policy advocates

urban agriculture as an important component of sustainable development, it also recognizes that if not properly promoted and practised, it can lead to conflicts with other urban land uses, degradation and water pollution, which could threaten human health and safety. Similarly, increased urbanization and the consequent requirements for better water infrastructure are associated challenges, which demand trade-offs. Under consideration of these positive and negative consequences, the policy states that the government shall:

... designate special areas within planning areas whereby people will be granted legal rights to engage themselves in agricultural activities; and will continue to regulate and research on the conduct of urban agriculture and will ensure that it does not disrupt planned urban development, review existing laws to facilitate planned urban agriculture, and lastly will facilitate the construction of appropriate infrastructure to prevent land degradation, water pollution, health and safety hazards in areas where agriculture is permitted.

... first ensure the need for administrative boundary expansion shall be substantiated scientifically in a participatory manner between the interest parties. Secondly, ensure villages engulfed in urban areas as a result of the expansion of township boundaries shall cease to be villages whether or not they are registered and their administration shall come under the respective urban local authority.

These two government policy statements show an acceptance of urban agriculture and the need to accommodate it in an organized manner. City local authorities have even listed urban agriculture as one of the issues to be promoted in the city strategic plan since 1992. In 1993, a working group was formed to develop strategies for integrating urban agriculture within the city agenda. It designated special zones for agriculture within the city strategic plan.

Whereas the master plan considered urban agriculture as a transitional land use, the strategic plan regards it as an important activity and affords it corresponding importance in development. But the practice shows that eviction of smallholder farmers remains a common occurrence. This is due to a lack of land-use plans or general planning schemes in the city that inform smallholder farmers of where they can, and cannot, cultivate. Even when a legal framework is given, there is a lack of implementation. This is common to other SSA cities, such as Kampala (Uganda) and Harare (Zimbabwe) (van Veenhuizen, 2006).

In line with adopting flexible and participatory planning approaches, the NHSDP shows that planning for urban development has been based on master plans as a tool for coordinating and controlling land development. The blueprint nature of master plans means that they are relatively inflexible and cannot be easily adapted to constantly changing social and economic circumstances. Master plans have not been as effective as intended, thus leading to

haphazard growth of towns with inadequate infrastructure and services. The increasing demand for housing in cities beyond planning capacity triggers the haphazard growth of a city. In recognition of the NHSDP, the 1995 National Land Policy remarks that urban planning will aim to achieve the following:

First, identification of key planning issues in land and environmental management and in the provision of housing infrastructure services. Secondly, preparation of detailed land-use plans for land development. Thirdly, identification and mobilization of local and external resources for implementing urban development programmes; and, fourthly, promoting community participation in planning, integrating and coordinating the actions and resources of various sectoral implementing agencies, including those in the popular sector.

In supporting the above, forms of participation in land-use planning processes explained in Figure 8.3 help to understand at which stage urban agriculture can be incorporated. It is at the outset, through interactive and consultative communication with the spatial land-use planning project, that such needs can be integrated. It is very difficult for city officials, including planners, to know what is happening at the local level in residential settlements. Communities need to engage with elected representatives and government officials and to report needs, concerns and problems.

2005 National Strategy for Growth and Poverty Reduction in Tanzania

Poverty reduction is a central tenet of achieving and strengthening urban land governance objectives and therefore meeting the Millennium Development Goals (MDGs). Poverty, here, is a relative term reflecting both income and non-income elements (IMF, 2002). Enabling landholders, including smallholder farmers, to access land and information, and to participate in policy and decision-making processes, is one contribution to empowerment and a step towards getting out of poverty.

Options to reduce barriers to integrating urban agriculture within spatial planning

In order to reduce existing barriers to the integration of urban and peri-urban agriculture within planning processes and outcomes, the following is needed:

- Adopt flexible land-use planning approaches, standards and values.
- Include smallholder farmers and their values in the design processes, outputs and implementation. To be successful in this respect, the following urban planning principles should be implemented:

- pursue holistic-oriented values through the integration of community needs, and social, environmental and economic values in land-use planning;
 - develop and maintain cooperative working relationships during land-use planning initiation, decision-making and subsequent implementation;
 - rationally formulate land-use planning guidelines before the process starts, which helps to create awareness among actors, as well as during the review of outputs;
 - involve smallholder farmers to determine their needs through participatory planning methods and training; and
 - ensure access to resource and tenure security for the urban poor.
- Create community involvement and partnership among different stakeholders. This sounds easy but is the most challenging element because it requires consultation, dialogue and community organization, as well as the creation of new institutions, such as farmers' organizations or allotment associations (Drescher, 2001).
 - Strengthen institutional arrangements.
 - Harmonize policy and legislation arrangements.
 - Enhance the city's economy and budget allocation.
 - Develop and maintain information databases that can be accessed by different stakeholders and planning institutions.
 - Raise awareness and exchange information among developers.
 - Generate political commitment and support.
 - Include urban agriculture in town, municipal, city and national land development programmes.
 - Use technology in wastewater treatment and conduct environmental impact assessments for industries.

Conclusions

This chapter has investigated how land-use planning and urban agriculture can be integrated in order to improve urban land governance in African cities, using Dar es Salaam (Tanzania) as a case example.

The general situation in SSA shows that urban agriculture is often regarded as a misplaced rural enterprise that should not be located in the city; but awareness of its contribution to food security, employment, poverty reduction and sustainable city development is increasing. The efforts of local authorities can be observed in a number of African cities, including Dar es Salaam.

Rapid urbanization in SSA results in unguided land development, poor enforcement of policies and regulations, the inability to replace outdated policies inherited from the colonial period and inadequate community involvement in spatial land-use planning processes. This uncontrolled situation increases urban poverty, food insecurity and unemployment in African cities. The implications generated by these factors suggest that weak urban land

governance is not the only cause; rather, the weakness of planning institutions to realize and to adapt to the new challenges has also had serious impacts.

It is likely that, for the foreseeable future, urban agriculture will grow at the same pace or faster than population growth in cities. It will thus remain an inevitable reality, attracting more participants as they seek to cope with the rapidly changing social, economic and environmental conditions of expanding cities. Recognition of urban agriculture-based livelihoods is required in all land-use planning processes and structures, including in decision-making, preparation, implementation and monitoring. This can be achieved through (but not limited to) settlement upgrading, institutional collaborations, adopting participatory urban planning approaches, decentralizing roles to the local level and creating platforms for dialogue. Moreover, strengthening smallholder organizations through institutionalization and giving them a voice in the political dialogue is crucial. Other key actions are to implement effective treatment of wastewater for farming, granting long-term tenure security, improving accessibility and adopting flexible planning standards.

Urban planners and policy-makers have little choice but to ensconce themselves and consolidate the emerging form of urban agriculture as a land-use practice for sustainable urban land development. If urban agriculture is not guided and properly institutionalized, then the negative effects, in the long run, will undermine the livelihoods of the urban poor and damage environmental quality. Thus, there is an urgent need to guide the processes and to strengthen institutional structures and linkages in land-use planning, as well as to adopt participatory approaches that involve affected stakeholders in improving urban land governance.

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