



Direct marketing from producer to consumer in Dar Es Salaam, Tanzania

The Integration of Agriculture in Urban Policies

Key features of current definitions of ‘urban agriculture’ generally have downplayed a critical trait that makes urban agriculture to be urban. Urban agriculture is different from, and complementary to, rural agriculture in local food systems: urban agriculture is integrated into the urban economic and ecological system. Unless this dimension is enhanced and made operational, the concept will remain little useful on the scientific, technology and policy fronts.

Urban agriculture is seen as a dynamic concept that comprises a variety of farming systems, ranging from subsistence production and processing at household level to fully commercialised agriculture. Urban agriculture normally has a niche function in terms of time (transitory) and space (interstitial), as well as social (e.g. women and low income groups) and economic (e.g. financial crisis, food shortage) conditions.

ment, urban agriculture enhances food security, provides additional income and employment for poor and middle-income urban dwellers, and contributes to an ecologically sound urban environment.

Thus urban agriculture can have different purposes, which are by no means mutually exclusive and co-exist in a range of different combinations. For instance, poor families might be engaged in urban agriculture for several reasons. Whereas the woman may emphasise the importance of urban agriculture for subsistence, her husband might stress the additional income generating benefits of it. Meanwhile, urban planners may evaluate these activities on the basis of their

contribution to urban greening and microclimate development or to the re-use of urban organic wastes.

The diversity of urban agriculture is one of the main attributes, which contributes to its importance within a wide range of urban situations and for a diverse range of stakeholders.

OUTLINE OF A POLICY FRAMEWORK FOR URBAN AGRICULTURE

The fore mentioned variety of conditions, characteristics and purposes of urban agriculture, indicates the importance of a careful analysis of the specific context, and carefully designed interventions and policy meas-

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It has been observed that urban agriculture exists within heterogeneous resource utilisation situations, e.g. under conditions of scarce as well as abundant land and/or water resources. In terms of its contributions to develop-

This article is a shortened version of the article published in Bakker et al., 2000. It presents the policy options for facilitating and regulating the development of urban agriculture in Third World cities, as identified by the participants of the International Workshop on Urban Agriculture "Growing Cities, Growing Food – Urban Agriculture on the Policy Agenda", Havana, Cuba, October 1999.

ures for urban agriculture, based on participatory and multi-stakeholder diagnosis and planning processes. Interventions must be linked with specific development objectives, to which urban agriculture is expected to make a significant contribution. As with other public policy interventions, it is particularly important that the impact of these policies on different livelihood groups is taken into account.

In this section a range of potential policy options will be presented, which were identified by the participants as (potential) suitable policy responses to urban agriculture. It is clear that such recommendations are of a general nature and will have to be refined according to specific local conditions. The policy options are described in relation to the integration of urban agriculture in the following policy areas: urban land use policy; urban food security; health policy; environmental policy, and social development policy.

Land Use Policy

Access to land and water resources, as well as security of user rights and the level of the land rent, are crucial factors in the development of urban farming. Access to prime locations is fiercely disputed. Especially subsistence type of urban agriculture often takes place on lands where property rights are in dispute. In planning land use in city development, more often than not, land allocation for urban food producers is excluded from land use plans. The policy instruments identified by the participants to achieve the objective of integrating urban agriculture in land use planning fall in the following categories.

Removal of unsubstantiated legal restrictions

The first step that needs to be taken is to persuade urban planners to accept urban agriculture as a legitimate form of urban land use. Participants strongly felt that a review of existing policies and bylaws is necessary as a precondition for the removal of unsubstantiated legal restrictions on urban agriculture. Such a review should go hand in hand with the development of a number of measures to prevent encroachment on biologically sensitive areas, the use of drinking water for irrigation, or contamination of groundwater by high-external-input agriculture. Recognition of agriculture as a legitimate form of urban land use could be measured by indicators, such as the inclusion of urban agriculture activities in official statistics, in urban land use surveys and in the city land use data base. Instead of

formal ownership or permanent user rights, urban farmers could be supplied with short- or medium-term occupancy licences, which would give them some protection against coercion and would improve the chances of obtaining access to extension and credit services.

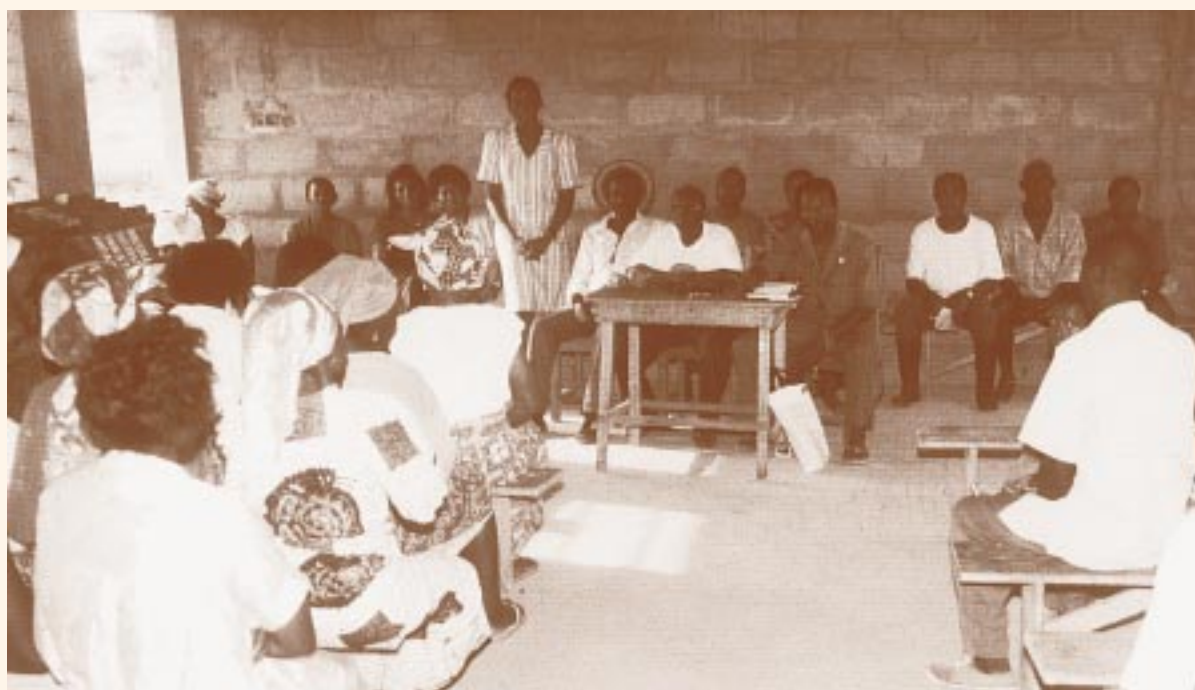
Example: Dar es Salaam has one of the most elaborate bodies of legislation on urban agriculture in Africa, and multi-stakeholder surveys and workshops have been organised to suggest priority improvements to both text and enforcement (Sawio 1998).

Integration of agriculture in urban development planning

A further means to improve access to land is the integration of agriculture in urban development planning. This can be achieved by the following measures:

- ❖ *The revision of actual urban zoning bylaws and the integration of urban agriculture in zonification plans* indicating in which zones urban agriculture is allowed, and other zones where certain types of farming will be prohibited due to special conditions. Peri-urban agricultural zones can be included in city development plans as part of "green belts or green corridors" in order to avoid uncontrolled development and destruction of soil. Buffer zones can be created and inner-city areas can be reserved by giving these areas to community groups, farmer co-operatives and/or unemployed people on a medium term lease for gardening and

Meeting with urban Farmers in Accra, Ghana



other agricultural purposes (purposive specific leaseholds). Such peri-urban and inner-city green belts could be given a community title to ensure that such open spaces remain in the public domain and under community control;

Examples: Colonial zoning bylaws have been revised to allow for specific production systems in specific zones in Kampala and Kumasi (Atukunda 1998; Abutiata 1995). Agriculture has been incorporated into urban expansion plans for Kinshasa, Dar es Salaam, Dakar, Bissau and Maputo (Mougeot 2000). Havana has exploited flexible zoning modalities (Cruz 1999). Green belts, including agriculture, are being created around Ho Chi Minh City in Vietnam and Shanghai in China (Pham Thuyet, et al. 1999).

Pretoria, South Africa, has incorporated urban agriculture into the management of its urban open spaces and set aside land for urban agriculture in designated sectors of the city.

❖ *Promotion of urban agriculture as a temporal use of vacant public and private lands.* An inventory of open spaces in cities will indicate where possibilities exist to permit urban agriculture as a temporal use

A sole reliance on food produced in rural areas is insufficient

of vacant public and of private lands.

Local government may lease vacant land/or derelict urban areas to neighbourhood groups or local micro enterprises for gardening and food production. They may also stimulate schools, hospitals and other private and public enterprises to do the same. Such measures, aside from creating more green areas in cities, may also help to prevent crime and the spread of diseases;

Examples: In the early 1980s, president Shagari of Nigeria gave permission that all vacant public lands within urban areas could be used for cultivation without charge. Cuba has been actively promoting the use of open unused urban spaces for agriculture. Organised groups have been assigned undeveloped public arable land for fixed periods of time in the cities of Harare and Gweru in Zimbabwe.

The governor of Jakarta issued a decree on the use of vacant land to mitigate the fallout of the Asian crisis for the laid off workers (Ning Purnomohadi, 2000)

Examples of tenure agreements between

urban producers and owners of private or semi-public estates with idle areas can be found in Lima (hospital grounds), Harare (golf club), Santiago de Chile (school yards), Dar es Salaam (university campus), and Port-au-Prince (church grounds) (Mougeot 2000).

❖ *Promotion of multifunctional land use and encouragement of community participation in the management of urban open spaces.* Under certain conditions food production may be combined with other urban functions such as recreation, water storage, nature conservation, firebreak zones and zones with high earthquake or flooding risk. Farmers may be encouraged (economic incentives, education) to participate in the management of such areas, which may reduce the public costs of managing these areas and will protect these areas against unofficial uses and informal re-zoning;

❖ *The inclusion of space for individual or community gardens in new public housing projects and private building schemes.* New housing development should plan for communal space for agricultural activities. In the case of the planned conversion of agricultural areas for other land uses, the urban farmers could be supplied with alternative lands (land swaps).

Example: Dar es Salaam has included urban agriculture as interim or permanent land use in public housing schemes (Mwalukasa 2000, Jacobi et al. 2000).

Food Security Policy

Analyses of current trends regarding urban food systems reveal that, in order to achieve food security for the urban poor, a sole reliance on food produced in rural areas is insufficient. It is necessary for cities to develop plans to enhance urban and peri-urban food production, and to diversify away from the present reliance on the highly capitalised and energy-consuming “supermarket” model, based on the external supply of food-stuffs (Dahlberg 1998). For example, in East Jakarta some 18% of total food consumption in low-income households was produced within the city proper. This was even found to be 60% in Kampala, and 50% in Nairobi (Maxwell 1995).

Studies summarised by Smit et al. (1996) indicate that nutritional self-reliance, in the sense of an urban area producing half or more of its nutritional requirements, is

possible in all but the harshest climates, after taking land and water needs into consideration.

Improved access of urban farmers to agricultural research, technical assistance and credit services

Overwhelmingly, access of urban farmers to agricultural extension services in most cities is very restricted. If it exists at all, it is directed at full-time commercial farmers mainly producing in peri-urban areas. Consequently, urban farming is often technically inefficient and ignores the potential human and environmental risks to a larger degree than in rural areas.

Recommendations on the design and implementation of extension services for urban agriculture include the following:

- ❖ The preparation of broader urban agriculture programmes (participatory problem analysis, developing institutional linkages and initial commitments, participatory project formulation, obtaining funding support of national government and/or international sources);
- ❖ Stimulation of participatory field research, oriented at development of technologies suitable for farming in confined spaces and with low risks for health and urban environment (ecological practices, space-intensive and water-saving technologies, health risk reducing practices, ...);
- Organisation of farmers study clubs that actively engage in the technology development and assessment process;
- ❖ Provision of training and technical advice to urban farmers, with a strong emphasis on ecological farming practices; ensuring provision of veterinary services; promotion of cost-sharing systems;
- ❖ Improvement of access of urban farmers (with an emphasis on women producers and the resource poor) to credit schemes for productive investments in farm infrastructure by revision of loan conditions and/or establishing micro-credit schemes for urban farmers.

Examples: In Bissau, where municipal urban regulations do not oppose urban agriculture (except roaming cattle), the federal government with UNDP initiated a Green Belt Project which in the early 1990s benefited over 2000 cultivators, mostly women, in 14 urban districts (David & Moustier 1993).

In Dar es Salaam, the Urban Vegetable Promotion Project (Ministry of



Youth
in Lima,
Peru with
small
gardens
at school

Agriculture and Co-operatives and GTZ) is strengthening urban producers' self help capacity as well as the capacity of the governmental extension structure to deliver services to urban farmers (technical advice, organisational support, access to loans and investment in infrastructure) (Jacobi et al. Kiango 2000).

In Vientiane City the Peri-urban Vegetable project (Hat Dokkeo Agricultural Station with EU) is assisting the urban vegetable growers (Bhounkhong et al.1999).

Improved systems for input supply and product distribution

Local governments may facilitate the local marketing of fresh urban grown food, by:

- ❖ Organising forums to discuss marketing and post-harvest problems with urban farmers and identify potential solutions;
 - ❖ Authorising farmer markets, food-box schemes, consumer supported agriculture (CSA) and other forms of direct selling of fresh agricultural produce from urban and peri-urban producers to local consumers (under conditions of safe-food handling requirements and control of product quality) and promotion of the development of infrastructure for communal and direct marketing of urban and peri-urban produced food.
- Promotion of the supply of natural fertil-

isers, bio-pesticides, soil amendments and quality seeds to urban farmers, can be done by:

- ❖ Providing incentives (e.g. tax reduction) for enterprises that produce ecological friendly inputs.
- ❖ Facilitating the creation of a network of local stores (private or co-operative) and /or the transport of organic materials and manure from the source to crop farmers.

Promotion of small scale enterprises linked with urban agriculture, i.e., input suppliers (compost production, plant nurseries, vermiculture, local seed production, fodder distribution) and enterprises for processing and marketing of locally produced food (processing, packaging, street vending, local markets, transport) can be done by:

- ❖ Provision of start-up licences to starting micro-entrepreneurs;
- ❖ Provision of technical and management assistance to small enterprises;
- ❖ Support to the creation of local infrastructure for small scale food preservation and storage facilities (i.e., canning, bottling, pickling, drying, smoking).

Examples: In Ghana, the Ministry of Food and Agriculture has introduced peri-urban milk collection to encourage peri-urban dairying in the Accra-Tema municipality (NRI, 1995). Brasilia D.F. is further-

ing the integration of small scale food production with local food processing and marketing (de Carvalho 1999).

Health Policy

One of the drawbacks of urban agriculture is the potential negative health effect. For an overview see Birkley and Kock (1998) or Flynn (1999). For example, cultivated areas in cities may attract rodents, mosquito breeding in puddles of rainwater, irrigation tanks and wells, that may lead to malaria or dengue. Certain diseases can also be transmitted to humans by livestock kept in close proximity to them, or related to aquaculture if proper precautions are not taken (trichinosis, cysticercosis). Inadequate handling of agrochemicals and urban wastes may lead to health problems among urban farmers.

Crops produced in soils polluted by local industry, irrigated with polluted irrigation water, or produced close to main roads, can be contaminated with heavy metals (lead, cadmium, etc.). Crops irrigated with urban waste-water can contain bacteria. Furthermore, heavy use of agro-chemicals may lead to contamination of crops and groundwater with pesticide residues and nitrates.

City authorities will have to develop and implement policies that minimise health risks without compromising the food security needs of the urban poor and recognise the existence of urban agriculture as more than just a temporary crisis phenomena.

Based on examples in many cities around the world, participants proposed the following measures to ensure safe agricultural production in urban areas.

Creating awareness among farmers of health risks associated with urban agriculture

Health risks associated with urban farming can be reduced substantially if farmers are well aware of these risks and know how to prevent them.

The following measures can be taken:

- ❖ Education of farmers on the proper choice of crops (in relation to degree of soil and water contamination and distance to roads and industry);
- ❖ Periodic testing of soil and water quality in the urban production areas; definition of norms regarding types of crops

that are allowed on soils with specified levels of contamination (especially heavy metals); prohibition of all food production in severely polluted areas;

- ❖ Define zoning restrictions for certain types of crops, e.g. no leafy vegetables near main roads;
- ❖ Introduce crop production in containers using substrates;
- ❖ Require proper handling of the products (e.g. washing or scraping of products in areas with air pollution) and secure hygienic conditions for local food processing and street food vending;
- ❖ Require proper siting of animal housing and adoption of hygienic and veterinary measures through provision of monitoring and vaccination services.

Examples: In Bulgaria the agricultural extension service has mobile units to execute on the spot tests on levels of contamination of agricultural produce (Yoveva et al. 2000).

Promotion of Ecological Farming Methods and Prevention of Accumulation of Manure and Crop Residues by Promotion of On-Farm Composting and Recycling

Depending on the local consumption, organic farming should be promoted. Here the following measures may be taken:

- ❖ Promote farmer training and farmer-to-farmer exchange on ecological farming practices like non-chemical pest and disease management, ecological soil fertility management, soil and water conservation;

❖ Stimulate the introduction of quality standards for compost and bio-fertilisers (nutrients, health standards) in order to make these products more reliable and more attractive in comparison to industrial fertilisers;

- ❖ Stimulate the establishment of “green labels” for ecologically grown urban and safe food;
- ❖ Provide support to local initiatives for direct marketing of ecologically grown food;
- ❖ Regulations for the use of chemical fertiliser and pesticides in urban areas.

Examples: The developments in Havana show the potential of comprehensive regulations in promoting organic production (Gonzalez Novo & Murphy 2000, Rosset & Benjamin 1994).

Environmental Policy

A large part of city garbage is organic, but it is often simply dumped or illegally burned. Waste water and sewage sludge contain nutrients that are of high value in agriculture. Urban agriculture can help to reduce environmental pollution by recycling solid and liquid waste in the process of agricultural production.

Urban agriculture also plays a role in greening the city as a result of urban forestry and gardening (Konijnendijk 1999). It helps to capture CO₂ and dust and to improve the micro-climate (McPherson 1994), to reduce erosion and flood damage (Braatz 1993, Chimbowu 1993), to decrease urban heating

(Deelstra 1999), to break the wind and reduce noise (Carter 1993), and to maintain biodiversity (Rees 1997).

Aside to these advantages, urban agriculture may also have some detrimental effects on the urban environment. Local water sources may become polluted if overly high amounts of chemical fertilisers and pesticides are used, or excessive use is made of nitrate-rich manure, like chicken or pig manure on crops (Rabinovitch & Schmetzer 1997). Urban livestock that is not integrated into horticulture or forestry systems can harm the environment through the accumulation of animal wastes. Non-farming neighbours may complain of visual untidiness, dust, smell and noise created by the urban farms.

The following measures may be applied in order to enhance the positive environmental impacts of urban agriculture and to prevent negative effects on the urban environment.

Promotion of safe re-use of urban organic wastes and wastewater by urban farmers

Measures worth considering were identified to be:

- ❖ Promotion of the establishment of low cost facilities for “close to source “ collection and sorting of organic waste;
- ❖ Promotion of compost or biogas production through the stimulation of applied research on composting and digesting technologies;

Examples: Many examples exist of collection and composting of organic materials for re-use in urban agriculture. See Lardinois (1998) for an international overview.

- ❖ Encourage investments in systems for rainwater collection and storage and for small-scale water saving irrigation systems (e.g. drip irrigation) in order to reduce the demand for treated water;
- ❖ Stimulation of applied research in waste water re-use;
- ❖ Introduction of preferential prices for wastewater treated to secondary level for irrigation and fully treated potable water;
- ❖ Farmer education on proper handling of waste and wastewater.

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Examples: Several cities use treated or untreated wastewater to irrigate woodlands, orchards, pastures, grain crops, and for production of fish in treatment ponds. Untreated sewage sludge, mixed with fly ash, is applied in Orissa to non-edible trees and grasses as a good soil amendment. Examples come from Mexico City, Palestine Gaza Strip (Abdelwahed 1994)

In Lima (Moscoso 1999) a sequence of settlement ponds allows effluents of a higher quality to be safely applied at each step for a better/higher use (from woodland irrigation to fish farming). In Dakar, a treatment system combining different low-cost technologies is being developed to deliver irrigation water that meets the quality and quantity needs of market vegetables (Niang 1999).

The Ministry of Agriculture usually lack a political mandate for urban agriculture

In Cochabamba, Bolivia, peri-urban farmers pay for treated effluent with freshwater from their land holdings, which is distributed to the city. See also the international overview in Edwards & Pullin (1990).

Social Development

During the Havana workshop, the importance of urban agriculture for social development was stressed. Urban farming can provide people with a useful activity, enhances social cohesion in neighbourhoods and brings people together. Degraded derelict land can be transformed in green community or allotment gardens, and contribute to feelings of higher self-esteem or safety in lower class neighbourhoods. Urban forestry and agriculture (perennials) can contribute to cleaning contaminated soils.

In Brasil, urban agriculture is promoted by the city authorities to facilitate the social integration of recent immigrants in the socio-economic fabric of the city by creating access to municipal land, credit and technical advice (Bakker et al, 2000). Garnett (1996) describes the positive impact on women's social well being in a community gardening project in Bradford, North England. Creative ways to bring local government NGOs and community-based organisations (CBOs)

together are also being tried in Cagayan de Oro (Potutan et al. 2000).

Examples of the community impact of urban agriculture are found in the case studies for Sofia, London, Havana and various cities in Canada and the USA (Yoveva et al. 2000, Garnett 2000, Gonzalez Novo & Murphy 2000, Moskow 1995 and Koc et al. 1999).

As urban agriculture has the potential to enhance social development within communities, policy measures may be considered which can further enhance these benefits. More specific policies might include:

Inclusion of urban agriculture in urban regeneration projects and Local Agenda 21 activities:

- ❖ Linking urban agriculture with educational and community development activities related to urban agriculture;
- ❖ Allowing for communal ownership of land in stead of exclusively private ownership;
- ❖ Facilitation of direct marketing schemes and local exchange systems bringing local producers and consumers together.

CREATING AN ENABLING POLICY ENVIRONMENT

The participants of the Havana workshop recommended a series of activities oriented at the creation of an enabling policy environment for the development of urban agriculture at local and national level.

Historically urban agriculture does not have an institutional home. Organisations like a Ministry of Agriculture usually lack a political mandate for urban agriculture. Urban agriculture projects are rarely integrated in overall urban planning. Generally there is little co-ordination between NGOs and municipal agencies, and urban farmers are often not organised. Hence, stakeholders in urban agriculture lack channels to voice their needs and lack the power to participate in policy preparation and city planning processes.

To improve the situation, the following measures were recommended:

- ❖ The organisation of *on site meetings and policy seminars* in order to raise

awareness among national and city administrators, planners and NGOs and to provide them with reliable data and positive examples ("best practices"), and to develop a broad, systems oriented perspective on urban agriculture;

- ❖ The selection of a *national lead agency on urban agriculture* and the establishment of an *interdepartmental working group at national level*. Due to the cross-sectoral nature of urban agriculture, it often lacks an institutional home. The national lead agency will stimulate development of an appropriate legal framework for urban agriculture, facilitate the creation of a national urban agriculture programme with local pilot projects, and support local initiatives for the integration of urban agriculture in city planning and urban development policies.

- ❖ The establishment of a *database on urban agriculture* with information on successful policies and projects, appropriate technologies for urban agriculture, effective and participatory planning and research methodologies, available expertise.

- ❖ The setting up of *city inter-agency committees on urban agriculture* and the establishment of *stakeholder platforms* for dialogue and consensus building at city and neighbourhood levels.

- ❖ Promotion of *participatory, site specific and interdisciplinary field research on urban agriculture* with a strong policy and action orientation.

- ❖ Stimulation of *documentation and exchange of experiences* at local, national and regional level through networks, workshops, exchange visits, newsletters, etc.

- ❖ Providing *assistance to processes of self-organisation* of urban farmers (e.g. producers' organisations, marketing co-operatives, machinery pools).

- ❖ *Facilitating networking and dialogue* between groups and organisations of urban farmers and with consumer organisations, community-based organisations (CBOs), non-governmental organisations (NGOs), environmentally conscious commercial firms, and Local Agenda 21 groups.