Planning for Urban Agriculture: A Review of Tools and Strategies for Urban Planners

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SUMMARY

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Urban agriculture may potentially pose hazards and provide benefits to urban dwellers. Given the urban population growth world-wide, the phenomenon of urban agriculture as a food, income and employment generator is likely to increase.

Urban planners (especially in less-developed countries) need to find ways to capture the benefits and counter or prevent the potential problems of urban agriculture activities. Urban planners shape patterns of land use and the built environment in and around cities to manifest a desired future urban state, and to distribute public benefits to citizens. In recent years, traditional, often technical, approaches to planning and managing urban areas have been altered by such trends as increased public participation in community decision making. Urban planners in less-developed countries may experience additional challenges, lacking the resources, training or a supportive planning policy context to assist them in their jobs. Increasingly, planners are seeking alternate ways to achieve urban planning goals. The changing role and powers of urban planners have implications for how planners can facilitate or support urban agriculture. Identifying the tools and strategies available to urban planners to assist urban agriculture practice was the subject of this report.

Published and "grey literature" sources and a survey of 26 urban planning professionals from 18 cities around the world were used as a the basis for identifying key planning-related constraints facing urban farmers and for identifying responses to these constraints.

Land use issues, specifically availability of land, access to land and usability of land, are of particular concern to urban farmers. These issues are imposed or perpetuated by the urban planning policy context through a *lack of formal recognition* of urban agriculture in planning policy, through a *lack of awareness about the socio-economic and environmental role* of urban agriculture in cities, through a *lack of clear government responsibility* for the various aspects of urban agriculture, through *resistant attitudes or cultural norms* held by players in the land use planning process, and through a *lack of resources, technical and financial support* for urban farmers from the government. The survey responses indicated that urban development pressures are viewed as the greatest constraint facing urban farmers, while there was strong agreement that land access, availability and tenure problems were key problems. Urban planning professionals identified lack of credit and financing opportunities, and lack of technical support and programs posed major hurdles to urban farmers, over other suggestions such as lack of servicing and infrastructure.

Among the most frequently mentioned recommendations in the literature were **changes to land use planning policy** to recognize and support urban agriculture. Many of the cities surveyed have policy at some level that positively recognizes the practice of urban agriculture, although municipal level policy has not been adopted in all cities. Recognition in policy might take the form of land use zoning where agriculture is a primary or tertiary land use. Policy also serves as a means to counter the potential negative health and environmental effects of agricultural activities; surveyed cities identified restrictions to livestock keeping in residential areas, and to where in the

city farming can occur.

Additional suggestions for urban planners to help overcome the identified challenges and to assist urban farmers included: participating in **new, multi-disciplinary institutions responsible for all facets of urban agriculture** in a community, establishing **records of urban agriculture, and more generally of land use and land tenure in communities**, as a means of readily identifying opportunities for farmers to access or use land, and overcoming sometimes ingrained **attitudes against farming in cities held by various parties in the planning process.**

In general, it was found that urban planners have greater opportunities to "permit" rather than "support" urban agriculture, given the limitations of their role in community decision making. However, planners can use other, less formal, means to influence change, to forge alliances between different groups, to facilitate opportunities for urban farmers to overcome land-related hurdles.

Contents

CHAPTER ONE

Investigating How Urban Planners Can Facilitate Urban Agriculture

1.1 Introduction: The Phenomenon of Agriculture in Urban Areas

The United Nations predicts that by 2005, the world's number of urban dwellers will surpass rural dwellers, and by 2020 the urban population will be sixty percent of the global population (FAO 1998). These figures imply that urban planners and managers will find it difficult to keep pace with the rate of urban in-migration. A rapidly increasing urban population has implications for demand for food, potable water, shelter, transportation and health and recreation services, and will pose additional stress on natural and cultural resources. While urban planners and managers attempt to maintain orderly urban development and functioning, rapid population growth in cities can derail careful planning, and lead individuals to seek their own solutions.

Urban agriculture (UA) forms part of the survival strategy of urban dwellers all over the world, and has historically been integral to urban areas (Drakakis-Smith 1996, Mougeot 1994b). The importance and prevalence of UA will continue to grow as urban populations increase. Urban agriculture may be defined as "An industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city or metropolis, on land and water dispersed throughout the urban and peri-urban area." (Smit et al. 1996). However, many researchers and UA proponents define UA in different ways. Definitions vary by the location, type, scope and scale of activities included, and by the intended use of agricultural products. A comprehensive examination of the definitions used in the literature remains to be undertaken, although definitions of UA are being formalized and found in reference sources (e.g., Organisation for Economic Co-operation and Development (OECD), UN Macrothesaurus for Information Processing in the Field of Economic and Social Development, 5th edition, 1998). (See Appendix I for an overview and discussion of selected UA definitions).

Benefits and Constraints of Urban Agriculture for Planning Goals

Urban agriculture can both assist and hinder urban planners achieve planning goals, such as orderly and sustainable city form and function, urban environmental management, and community development. Much of the current literature emphasizes the socio-economic and environmental benefits of UA. The mutual benefits of urban agriculture and urban planning have been recognized and described by de Zeeuw et

al. (1998) and Smit et al. (1996), for example. While the literature is less inclined to describe the potential problems posed by UA, these have been ventured by some authors.

Socio-economic Impacts of UA

The socio-economic benefits of UA have been the most well-documented to date. UA can help alleviate such urban ills as poverty and hunger (Kyessi 1997). Control over food production at the household level provides people with some food security (Kyessi 1997), where the food is usually of better quality, lower cost, and more consistently accessible than purchased food (Dennery nd). Yeung (1985) observed that several Asian cities have managed to provide a high proportion of vegetables consumed in the cities through UA (e.g., Hong Kong produced 45%; Shanghai produced 76%, on 16% of cultivated land; Karachi produced 50%), while Maxwell (1994) recognized that statistics from Kampala, Uganda indicated that 70% of all poultry consumed in that city are produced through UA. Mougeot (1994b) reviewed encouraging data on the extended benefits that self-produced food can offer to the urban poor, such as a reduction of household expenses (also mentioned by Freeman 1991), and the nutritional advantages offered by self-produced food (e.g., the Makerere Institute of Social Research study, 1993, in Kampala, Uganda, linked children's nutrition and their household's practice of urban agriculture). However, Smit et al. (1996) review the potential negative-health impacts of UA, associated with the use of chemicals and poorly treated domestic wastes in urban farming, and the transmission of disease from livestock to humans.

The economic benefits of UA are often difficult to calculate, or are calculated in ways that make comparisons between cities or households difficult. Smit et al. (1996) offered examples of the contribution UA makes to the national or community economy, and household income and jobs; for example, Tanzania's 1988 census revealed that UA was the second largest employer in the district of Dar es Salaam, where 20% of working adults participate in the industry in some way. UA can contribute to savings at the household level (e.g., Egziabher (1994) observed that in Addis Ababa, self-grown vegetables allowed cooperative households to save 10-20% of their household income) or even provide or add to income if excess crops are sold. Dreschel et al. (1998) asserted that UA is a competitive economic activity, providing jobs for people with low mobility, few skills and little capital.

A community may become more beautiful or visually pleasant when derelict urban spaces are cultivated (Smit et al. 1996). Citizens may extend their proprietary feelings for a garden plot to caring for the health and aesthetics of the larger community. Cultivation of urban green spaces can offer facilities otherwise unavailable to the inner cities and also can reduce maintenance costs of parks (Hough 1995). UA can provide additional benefits that are less tangible, such as efficient use of idle urban resources (Kyessi 1997).

Environmental Impacts of UA

Environmental benefits of UA are often mentioned in the same breath as the potential environmental hazards (e.g., soil degradation, siltation of water courses), and authors are quick to note that these risks must be recognized and regulated, using standards established by organizations such as the Food and Agriculture Organization (FAO) or the World Health Organization (WHO) (Smit et al. 1996). Binns and Lynch (1998) considered the conflicting views about the negative and positive environmental effects of UA to be a central concern for UA proponents. UA conserve energy and water resources, and contributing to urban environmental sustainability. Urban household and other wastes can be reused by UA for fertilizer, and waste water for crop irrigation[1]. The reintegration of the waste stream with agricultural production has been recognized as a necessary precursor for environmentally sustainable urban communities (Meir 1997, Smit et al. 1996), as has the ability for cities to feed themselves (Gutman 1987). UA can be a non-polluting land use, and can efficiently use and reuse scarce land and water resources (Brock 1998, Dreschel et al. 1998), reduce transportation energy needs, and packaging waste (Aziz 1997, Garnett 1996).

Many urbanizing areas suffer from environmental degradation (Bartone et al. 1994). UA can contribute to environmental restoration of these areas, revegetate denuded areas and restore hydrologic regimes and conserve topsoil. Public-greening or tree-planting schemes using multi-purpose trees can meet both environmental and subsistence needs (Aipira 1995). IDRC recognizes the opportunities of UA to counter land degradation, and has funded projects such as "Land Restoration through Waste Management" in India, examining the use of fly ash and sewage

[1]Research on how UA can assist in community waste and water management are well-supported by International Development Research Centre (IDRC). Projects include "Community Based Solid Waste Management in Slums (Bombay, India)" and "Engineered Wetlands for Urban Water Management (Battambang, Cambodia)."

sludge to improve soil quality. However, if the benefits of environmental protection and restoration measures are not evident, there may be community backlash and resistance. Cropper (1996) described the need to use dual-benefit fruit trees in Port of Spain, Trinidad, to restore denuded hillsides. UA can contribute to environmental degradation, if not undertaken with precaution and monitoring, such as soil loss, hydrologic implications, and vegetation loss (REDEC-ENDA [1996]; Bowyer-Bower 1995), and may have unpleasant side effects, such as unpleasant smells (Brock 1998).

> *"Urban agriculture, without a doubt, is an activity that should be promoted and developed in order to provide food for home consumption, for urban residents with limited resources. As well, this kind of activity will allow us to reestablish contact with nature, something that has been lost in large urban centres. Respect for nature, on top of food production, will be one of the benefits of urban agriculture."*
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> *-Executive Director of Environmental Management and Protection, Secretariat of the Environment, Mexico D.F.*

Mekouar (1997) asserted that urban areas need to both increase nature in cities, and to pay attention to the impact of urban areas on the surrounding rural lands. To increase "nature in cities," natural areas within cities should be protected, enhanced and restored, and "rural activities," including farming and food production, should be introduced to urban areas (Mekouar 1997). Designating specific agricultural production areas in cities may be a way to ease pressure on natural areas (Smit et al. 1996).

1.2 Investigating Planning Constraints to UA

Given the community benefits that UA offers, it is somewhat surprising that the planning policy context (that is, the policy, legislation, organization of government and elected officials and government staff involved in planning communities) is so often accused of posing the greatest challenges to urban farmers (Maxwell and Armar-Klemesu 1998, Smit et al. 1996, Helmore and Ratta 1995), and that urban planning professionals lack information on how to cope with UA. A review of the specific constraints posed to UA by the planning policy context seemed timely.

This paper aims to explain how urban planners, managers and policy makers can facilitate or support UA, as well as how they may deliberately or unintentionally hinder UA. I sought to identify and

describe constraints to UA posed by the urban planning policy context, and to examine cases where these constraints have been overcome in cities of developed and less-developed countries (LDCs). Cities with particular success coping with these constraints were sought, with the hope that they might offer transferrable lessons to other communities.

Research Goal and Objectives

The primary goal of this research was to create a resource paper on how to incorporate urban agriculture into urban planning and management. It is intended to serve as a reference for urban planning professionals of less-developed countries (LDCs) on reasonable intervention options, documented experiences and available expertise on how to incorporate UA into urban planning and management. As well, urban farmers and supporters of urban agriculture (e.g., academics and NGOs) can learn more about the planning process, and discover how citizens can contribute to urban planning and management to improve opportunities for UA.

Two key questions directed this research:

1. What is the potential and actual role of urban planning policy and urban planners in promoting and facilitating urban agriculture?
2. What problems does the planning policy context pose for UA, and how can these be overcome?

To answer these questions, I attempted:

1. To describe the players and process of urban planning, as well as review the aims of urban planning and key tools and strategies commonly used to achieve planning aims by planners of developed and less-developed countries.

2. To identify the key constraints to urban farmers imposed or perpetuated by the urban planning policy context. As well, to develop a means to organize and categorize the identified constraining factors.

3. To present responses to the planning policy context that pose constraints to urban agriculture, with specific attention paid to cases that have been particularly successful in overcoming constraints.

4. To reflect on the implications of the planning opportunities and constraints for UA.

Research Methods

To gain an idea of the role of planners in the planning process, and to discover how the planning policy context can constrain UA, I reviewed published and unpublished literature, IDRC project files and web resources related to urban agriculture. I suggested ways in which the planning policy context is connected with problems faced by urban farmers. Designed based on these linkages, a questionnaire was used to survey urban planning professionals. Their responses confirmed and illustrated some of the constraints posed by the planning policy context, and added to the tools and strategies to overcome these constraints. Questions were asked about the practice of urban agriculture found in a city, the planning policy context, and perceptions of urban planners about the present and desired state of urban agriculture, and the different opportunities available to male and female farmers. A copy of the survey can be found in Appendix II.

Prospective cities, those in which UA occurs, were identified through a review of the literature. Members of the Support Group on Urban Agriculture (SGUA), a group of international organizations supporting urban agriculture research (including the IDRC)[2], suggested additional cities. Sixty-three candidate cities were identified in Asia, Africa, the Middle East, Europe, South America. Attempts were made to identify prospective government-employed urban planners, mostly at the municipal l (see Appendix III). Over fifty urban planning professionals were identified in forty-five of the sixty-three cities. Surve email, directly and through intermediate contacts, in January and February 1999.

Twenty-six surveys were returned from eighteen cities (see Appendix III for a list of participating cities, and Appendix respondents who agreed to be identified). It should be noted that the responses offered by planning professionals were sources, in all cases. Accordingly, responses should be considered the perspectives of these respondents on the circums *the best of their knowledge*. It should also be noted that not all survey respondents were urban planners; several planne survey to colleagues they thought could better respond to questions on urban agriculture. The respondents included ur urban planners employed as consultants or researchers on contract with municipal government, municipal engineers ar environment department staff at municipal and state levels, and politicians. In this document, the respondents collectiv planning professionals," as they have all some responsibility for the planning and management of urban areas. The too surveyed cities have been summarized in Table 6; these findings illustrate Chapters 3 and 4.

The identification and organization of the constraints posed to UA by the planning policy context led to the creation of cities according to the degree of support for UA they exhibit. This tool is presented in Chapter 3 as a preliminary basis recommended as a future research need in Chapter 5.

1.3 Overview of the Paper

This document is meant to highlight the challenges facing urban farmers, and to identify some options to respond to these challenges. However, the document cannot definitively prescribe best options for particular cities. Hopefully, urban planners who read this can gain some ideas from the methods used by other communities to deal with problems both posed by and constraining UA.

[2]Learn more about the SGUA by visiting the City Farmer website (http://www.cityfarmer.org)

An overview of what is urban planning and of what planners do is provided in Chapter 2. This helps clarify the abilities, responsibilities, and limits of urban planners, especially in less-developed countries. The problems facing urban agriculture posed by urban planning and urban planners are discussed in Chapter 3. In the same chapter, I offer a way to categorize cities according to the constraints they pose/degree of support they offer to urban farmers and urban farming. Responses to these constraints are discussed in Chapter 4. The responses offered were found both in the literature and identified by surveyed urban planning professionals. Finally, Chapter 5 summarizes the research, identifies future research needs, and reflects on future research directions for UA researchers and for Cities Feeding People. Throughout, where applicable, projects funded by the IDRC are identified, to illustrate current UA research and development of responses to UA challenges.

CHAPTER TWO

Overview of the Responsibilities and Limitations of Urban Planners

2.1 Introduction

Various researchers have identified urban planners, urban planning policy and the other elements of the planning policy context as posing serious problems for urban agriculture. "Planning reform" has been suggested as a solution to common problems faced by urban farmers (e.g., Binns and Lynch 1998). However, this suggestion is rather vague and may be based on misconceptions about the role urban planners have in envisioning and effecting community changes. Therefore, before discussing possible reforms to the planning policy context, I describe what urban planning is and what urban planners do, define the limits and opportunities of urban planners of developed and less-developed countries, and the common tools and strategies available to urban planners to achieve planning goals.

2.2 What is Urban Planning?

Urban planning is a government-administered process of determining how actions will shape the future, and of selecting and prescribing of the best course of action to arrive at desired goals for an urban area or to prevent new and solve existing urban problems (Bartone et al. 1994, Smith 1993, Hodge 1991). Urban planning has been described as a means to protect and redistribute public goods (e.g., land) and their benefits equitably and efficiently (Brennan 1994, Taylor and Williams 1982). While planning in some form occurs in almost all government departments, at federal, provincial and local levels, "urban planning" refers here to planning at the local level for cities or towns and their peri-urban periphery.

Physical urban planning and design originated with ancient cities. The social aspects of urban planning can be traced to early 19th century Europe, when industrialization raised concerns about public health (Hodge 1991). At this time, land-use controls were developed to segregate different land uses perceived as "incompatible." Over time, urban planning has virtually become synonymous with physical or land-use planning, or the design and regulation of the built environment (Hodge 1991). Urban planners shape patterns of growth to achieve sensible and attractive land-use patterns, locate public facilities, encourage industry to remain where it is or to expand, or fulfill environmental aims (Levy 1991). The needs and desires of each community dictate the locally-desirable pattern (Smith 1993).

Approaches to planning communities are changing. Planning has a tradition of rational decision making, or decision making based on methodically-assembled (often technical) knowledge, for large areas or long time frames (MacGregor 1995a, Hudson 1979). However, this kind of long-range, comprehensive planning is often unable to respond to the quickly-changing circumstances of rapidly urbanizing areas, and soon becomes outdated. Planning approaches are being experimented with that are more responsive and

flexible, that seek greater input and involvement from community members, and that are less linear or rigid in selecting appropriate future courses of action.[3] Focus has shifted to planning for shorter time periods, with more frequent reviews, placing less emphasis on physical, land-use planning in favour of greater policy orientation (Taylor and Williams 1982). Similarly, the role of the urban planner has changed from that of an expert, technical designer of the future form and function of a city, to that of a facilitator of community members articulating a community vision. As might be expected, the often intense public involvement, the consequent high emotional stakes, visible products, and potentially high financial consequences have changed planning from a technical exercise to a highly politicized activity (Levy 1991).

Urban Planning in Less-Developed Countries

Cities in LDCs benefit from urban planning, especially on matters of land use and land reform (Menezes 1983). However, private interests with a stake in a *laissez-faire* approach to urban land management may resist planning regulation in LDCs (Taylor and Williams 1982). Land speculation is a rampant problem in LDC mega-cities, leading to discontinuous land-use patterns, and posing a major challenge to planners and policy makers (Brennan 1994).

Part of the difficulty facing urban planners in LDCs is that planning is based on the rational-comprehensive European tradition with its inherent shortcomings, introduced first by colonial imperialism, and reinforced most recently by the export of master planning in the 1950s and 60s (Khosla 1993, Kironde 1992,Taylor and Williams 1982). As well, urban planners of LDC cities must cope with often intense political change and social upheaval that has modified these planning legacies. In some cases, the master plan is retained, while in other cases urban planners are guided by piecemeal planning policy, mixed decrees and regulations, that are variably interpreted, applied and enforced. In most cases, urban planners lack the resources or authority to realize planning aims using traditional planning tools.

The role of the planner in LDC cities may be filled by other urban professionals, such as engineers or architects, who bring their profession's particular biases to the task of planning. Training for planners may not be available in every country, but training in other, often more-developed countries (usually the United States or Europe), poorly prepares LDC planners for the circumstances to which they return (Brennan 1994).

Consequently, planners in LDCs have had to make adjustments and to develop additional strategies apart from the traditional land-use controls to achieve planning goals. Below, I discuss the opportunities and limits of urban planners to achieve planning goals, especially to effect land-use change, noting where circumstances require different responses from planners of developed and less-developed countries.

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[3] Planners are becoming more aware of a need to reflect a more accurate model of decision making in planning (incremental planning or muddling through [e.g., Lindblom 1959]), a need to incorporate reflection and learning into planning and management (adaptive planning [e.g., Gunderson et al. 1995, Lee 1993, Holling 1977] and transactive planning [e.g., Friedmann 1993]), a need to take an integrated and system perspective when looking at urban problems (e.g., Dempster 1998), a need to increase community participation in planning (e.g., Innes 1996) and a need to consider the potentially different needs of men and women in planning the urban environment (e.g., Eichler 1995). Mandelbaum et al. (1996), Alexander (1992) and Hudson (1979) provide good overviews comparing the different kinds of planning approaches.

2.3 Opportunities and Limits of Urban Planners to Effect Land-Use Change

Understanding how planners' achieve broad planning goals helps explain planners' specific opportunities and limits to promote or facilitate UA. (See Table 1 for a summary of opportunities and limits of planners).

Opportunities

Input to the Municipal Plan and Planning Policy

Within the formal planning process, urban planners help design community master plans, draft planning policy, and use a variety of direct and indirect means to implement land-use change.

The primary role of the planner is to develop and administer the municipal plan (also known as the local plan, community plan or general plan). The municipal plan is "the official statement of a municipal legislative body which sets forth its major policies concerning desirable future physical development" in a community, usually including a unified physical design for the community, and demonstrating relationships between physical development policies and social and economic goals, directing short-term action to achieve long-term goals (Kent 1990). Planning policy specifies a course of action or rule of conduct to achieve the aims of the plan (Anderson 1995). Once adopted, policy commits a community to that particular course of action (Kent 1990).

The municipal plan provides a tangible expression of how to improve or guide a community, to avoid costly and undesirable mistakes (Smith 1993). Usually, a municipal plan guides private and public land use, community and individual health, public safety, circulation, services and facilities, fiscal health, economic goals, environmental protection, and redistributive goals (Levy 1991, Kent 1990). A plan may apply in scope to regions, communities, districts or individual sites, or cut across several scales of government and focus on a sector such as transportation or recreational open space. A municipal plan is intended to last for a 15-25 year lifespan, and is typically reviewed every 5-7 years or with a major shift in local government (Anderson 1995). The plan includes planning policy statements as well as detailed zoning and other maps, with associated by-laws (ordinances) and regulations listed in supplementary documents.

Not all cities have such centralized planning policy, neatly packaged as a municipal plan. A mix of policies, decrees, and regulations may be pasted together in an *ad hoc* way, depending on the community's history. Such a mix of policies may be subject to variable interpretation by different municipal staff or decision makers. Planners working under mixed policies may find it more difficult to locate policies or by-laws that explicitly permit or disallow particular land uses, or that clearly outline what activities are desired for the city. Nonetheless, communities usually use some form of "planning policy" to guide community land-use decisions.

Using Tools and Strategies to Realize Planning Goals

Planners implement the municipal plan using various planning tools, or "plan-implementing programs" (Anderson 1995), which "act as an *interface* between the policies of the plan and the aims of those who make decisions that transform the physical environment" (Hodge 1991:218). Planning tools may be **indirect** (carried out by the private sector, reviewed to accord with the plan, such as zoning, subdivision, tax policies), **direct** (undertaken by municipal authorities, actions accepted by legislators, such as budget control and land acquisition), or **institutional** (changes to an organization itself) (Hack 1988).

Because private land owners have certain rights in the use of their own land, **planners most often use indirect measures** to achieve a desired pattern of land use in areas predominated by private land, permitting some things and forbidding others (Levy 1991). The most common of these indirect tools are (Smith 1993, Levy 1991):

- land-use controls over private land, such as **zoning and zoning by-laws**, supported by **urban land databases and urban baseline studies**
- **environmental impact assessment**
- **public capital investment**
- **subdivision control**
- **economic tools**, such as tax incentives and exactions

Zoning and Zoning By-laws

Zoning is the dividing of a municipality, county, or country into districts and the regulating of land use within those districts. Typical zone divisions distinguish residential from commercial and from industrial land uses, regulating the placement, spacing and size of buildings to conserve and promote human health, safety and convenience (Anderson 1995, Smith 1993). Valid land uses for a zone are listed in the municipal plan (Hodge 1991).

Zoning may have positive or negative land-use effects. Zoning can prevent activities from disrupting adjacent properties (Anderson 1995), and allow activities to "perform their respective functions more effectively than when intermingled" (Hodge 1991: 221). However, zoning can and has been used to segregate land uses for individual rather than public benefit (Smith 1993). Zoning may be ineffective where the land-use patterns are established, or if applied too strenuously may result in a sterile environment (Levy 1991). Zoning is a regulatory mechanism; while zoning can prohibit undesirable activity, it may not be able to encourage desirable activity (Hack 1988). Zoning has been accused of being too rigid a land-use control mechanism, especially in areas of dynamic change, such as areas of rapid urbanization (Newman 1996, Menezes 1983).

However, these potential shortcomings do not mean that zoning as a mechanism for land-use control should be abandoned. More flexible zoning, especially zoning that allows planners to participate in or advise on individual developments, or that allows tradeoffs or concessions to be made with developers, or the "transfer" of "unused" development rights from one property to another, can provide zoning flexibility (Smith 1993, Levy 1991).

Zoning by-laws or ordinances are the statements upholding and supporting the zoning plan (Hodge 1991). By-laws are the equivalent of local legislation, and enforceable. By-laws can permit or restrict activities across zones; they are not necessarily spatially specific.

Zoning is a land-use control used in many LDC cities. However, the enforcement needed to uphold zoning plans may not be available in cities where resources are already constrained. Also, traditional land-use zones adopted from developed countries may not adequately represent the kinds of activities that occur in a city in an LDC.

Table 1
Opportunities and Limits of Land-Use Planners

Opportunities	Limits
Communities are usually guided by formal statements of "planning policy" that may take the form of a municipal plan. This serves as a public, transparent reference for community decisions.	Not all communities (especially in less-developed countries) have neatly organized, formal community planning policy. Instead, depending on their history, communities may be planned according to a **mix of policy, decrees, statements, all of which may be interpreted differently by different planners and politicians.**
Planners are key players in community planning process, involved in developing community land-use planning policy and implementing these policies.	**Politicians and the citizenry also have important roles to play** in the planning process, shaping policy, accepting policy, and offering resources and support to carry out and enforce planning policy.
Planners have a **variety of tools to implement planning policy**, including land-use zoning and zoning ordinances, reviews, capital investment, subdivision control and various economic instruments.	**Planners' means are often indirect**, where they try to regulate land-use patterns to achieve social and economic and environmental goals, by limiting what private land owners can do on their land. A lack of enforcement and monitoring may render planning policy ineffective.
Local land-use policy is developed at the local level.	**Higher levels of government and external forces** (such as those offering financial development assistance) can **override, dictate or influence local land-use policy**.
Planners can be **proactive in undeveloped areas.**	Planners can do **little to influence land use in built areas**, and the influence is limited to regulation of activities as opposed to encouragement and support of activities.

Urban Land Database and Urban Baseline Studies

Planners commonly conduct an array of studies, such as a land resource inventory (Levy 1991) and land tenure mapping, as a basis for municipal planning. Such assessments and records can facilitate property tax reforms (Farvacque-Vitkovic and Godin 1998) and help prevent the practice of land speculation (the purchase of land with the aim of selling it for a higher price) (Taylor and Williams 1982). However, studies conducted for planning often reflect the values and biases of planners about what information is important. For example, state of the environment reporting at the municipal level is a relatively recent phenomenon. Unless a particular land-use sector (such as agriculture) is identified as important, its study is not undertaken. As well, updating land use and land ownership records can be costly, and may not be possible where municipal resources are limited.

Environmental Impact Assessment

An environmental impact assessment (EIA) uses modeling or expert input to hypothesize about the impacts of development on the environment (Anderson 1995). For certain kinds of developments, an EIA may be required to receive development approval, from different levels of government and different departments. At the municipal level, development projects are not often subject to EIAs, but may be subject to review by an environmental or land-use committee of municipal council. The resources devoted by a community to environmental review and environmental planning can demonstrate the city's

environmental committment. However, in LDCs, EIAs and environmental planning may be a new idea (Bartone et al. 1994), and the institutions or expertise may not be available to undertake them.

Public Capital investment

Each community invests some of its resources in public facilities and infrastructure (such as sewer lines, water servicing, and roadways). The timing of the release and use of capital funds for these purposes can effectively control the pace of development in a community. As well, the location of these public investments can have a strong impact on land value, with impact on the economic feasibility of private development decisions (Levy 1991). The timing and location of physical improvements in a community can effectively manage growth (Hack 1988). However, in LDC cities, infrastructure development may not service areas where settlement has not been officially permitted by the city. This means that many neighbourhoods lack water or sanitary or storm sewerage, or have no garbage collection services. In these cases, infrastructure does not direct where settlement occurs, but the introduction of such infrastructure improves the quality of residents life, and can increase opportunities for particular kinds of land uses, like agriculture.

Subdivision control

A developer can profit by subdividing a large parcel of land into individual lots. The ability to oversee this sort of subdivision (subdivision control) allows the city to do many things: ensure that clear legal records are kept of land transfers, identify and describe a land parcel, impose minimum design standards and ensure a harmonious development pattern, require contribution to on- and off-site improvements (Levy 1991), ensure consideration of environmental issues, and prevent fraudulent real estate sales (Anderson 1995), and control land speculation (Brennan 1994). However, if land records are not kept, and general resources available to track land-use changes, it may be difficult to recognize and control where such subdivision occurs.

Economic Tools

Planners have various economic tools at their disposal to both regulate and provide incentives for land use. Economic instruments can supplement direct environmental regulations, and help raise revenues that can be applied to programs (Bartone et al. 1994). Exactions (charges to developers, in the form of money or land reserves for schools or park land) may be required when lands are subdivided (Anderson 1995, Smith 1993). On the other hand, some communities offer tax abatement in exchange for private actions that serve a public purpose. Hack (1988) offered example of complicated tax formulas being devised to allow agriculture to continue on the urban fringe, rather than being abandoned to speculators who would convert fields to urban uses. While property taxation is not exactly within the realm of planners and planning, such opportunities might be suggested by planners to achieve particular aims that are difficult to achieve in other ways.

Other Tools

While planners primarily use indirect, regulatory measures to develop a desirable land-use pattern in areas where urban land is mostly privately owned, direct and institutional measures, and informal tools merit some mention. **Direct tools**, especially the public acquisition of lands, is effective but costly to local government. Inevitably, government must acquire property for

particular land uses, such as to serve recreation or infrastructure needs. Considered and strategic acquisition of property may be the best way to effect desired land-use change. **Institutional measures** to achieve the aims of municipal planning policy might include the reorganization of municipal government staff, or the reallocation of human and other resources. The amalgamation of departments, or the institution of a land-use policy or environmental review committee, might be examples of this kind of institutional measure.

Planners have available a number of **other opportunities** to effect land-use change beyond the scope of their formal jurisdiction. These tools are most likely employed where traditional planning tools have little effect because of a lack of resources to enforce or follow-through, or a lack of authority. Planners have many opportunities to communicate with the public and to keep a close watch on both officially-sanctioned and illicit activities. Planners can witness the evolution and importance of these activities and to make policy recommendations or suggest that politicians channel resources to assist and control particular activities. Planners often come in contact with non-governmental organizations (NGOs), and through them may learn of the views and needs of citizens, and may communicate the needs and requirements of the city authorities. Informal negotiations and compromises can take place through unofficial channels. Planners are also 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.

Limits

Planners Are Not Decision Makers

Even though planners are key players in community land-use planning, others also have crucial roles. As Hodge (1991:220) noted: "[D]irect public planning decisions ultimately constitute only a small part of the output of decisions affecting land use." Planners conduct background studies, identify issues, evaluate alternatives and recommend particular land-use policies, but these policies are often shaped by vocal and interested community members, and the suggested policies are finally adopted by elected officials or community decision makers, not by planners. As Levy (1991:81) observed, "The planner's influence on events, then, stems from the capacity to articulate viewpoints and develop consensus and coalitions among those who do wield some power."

When particular land-use policy is formally adopted, its effectiveness depends on how well it is enforced or supported (Smith 1993). Government allocates resources to departments or to specific programs; the degree of support offered to enforce or support a policy may indicate its political legitimacy. The task of supporting or enforcing policy may not belong to the planning department, but may rest instead with other municipal departments, departments that may have conflicting stances on some issues (e.g., a resistance to UA).

Higher-Tier Government Policy and Legislation May Conflict with Local Planning Policy

Land-use planning at the local level may be influenced by the legislation and policy of higher levels of government, especially when local municipalities collectively form a regional planning unit with a higher tier government. Municipal governments may have to follow and incorporate ("have regard for") the policies and legislation of higher levels of government on issues such as natural environment conservation, human health, or transportation. While higher-tier policy and legislation can provide consistency in dealing with trans-boundary issues, particularly environmental issues, this imposed policy can affect how local communities deal with local issues (Levy 1991). Higher-level government departments that use their powers to override local policy

can frustrate local planners and politicians. Sometimes, responsibilities conflict, and it may be unclear which department's policies take precedence.

Built vs. Undeveloped Areas

Planners have greater influence shaping and directing land-use change in the undeveloped outskirts of a city, or abandoned and redeveloping areas of the inner city, than in the built and established areas. In developed areas, planners cannot radically change established zones, but can only regulate new or infill development, the subdivision of lots, and restrict and permit particular kinds of land uses. Even under zoning changes, land uses in built areas that predate the zone change can persist as "non-conforming land uses" until a change of land ownership or abandonment of the land. In undeveloped areas, planners have greater, proactive opportunities to designate permitted land uses, and can require that developments or proposed activities be individually reviewed to ensure they adhere to land-use plans. However, in LDC cities, this may be irrelevant, where plans may not accurately reflect *ad hoc*, illicit settlement in the city.

Urban Design Imposed by External Parties

In the case of cities receiving international development assistance, foreign investors and funding agencies may exert an influence on urban planning and management decisions (Greenhow 1994). The conditions of funding may focus more on short-term results than on long-term development of the urban management context. Farvacque-Vitkovic and Godin (1998) proposed that investment in urban planning, urban information generation, and land and financial management would complement such international urban development investments, ensuring a stable, persistent context for investments.

2.4 Implications of Urban Planning Limits and Opportunities for Urban Agriculture in Less-Developed Countries

The experiences of urban planners in developed and less-developed communities can differ widely, and in every community, planners will find different circumstances. However, common things can be observed about their role and the implications of their role for their ability to facilitate and support urban agriculture:

First, the urban planner has more regulatory than supportive and encouraging tools and strategies to effect land-use changes, and these tools are often indirect because of the large proportion of privately-owned land in communities. Therefore, a planner may be constrained from doing much more than creating wishful policy. While planners may be able to regulate UA activity and promote opportunities for UA, they may not be able to create new opportunities for UA.

Second, there is often a gap between creating and implementing planning objectives. Once planning policies are developed, they become the responsibility of others to uphold, or of others to provide resources for. Planners' municipal colleagues and politicians must support and uphold planning policy to effect the planned community vision. This is particularly challenging in LDC cities with often limited resources.

Third, planners tend to have more influence, and therefore can be proactive, in undeveloped areas than in built areas of a community. That being said, in LDCs urban settlement may be too rapid to

keep pace with planning and service provision. Areas marked as "undeveloped" in plans may in fact support *ad hoc* and illicit settlement. Therefore, LDC urban planners must react to rather than plan for this kind of settlement. Being a response by the urban poor to a lack of food or employment, UA is practised more in the built city centres, where the planner may have fewer opportunities to support or facilitate the activity.

The limits of formal planning, especially in LDCs, have led planners to develop "informal strategies" (additional activities, relationships and agreements) to achieve planning aims. The planner is well-positioned to express support for particular kinds of land uses, developments or activities and urge policy and program development to support these, as well as facilitate communication between citizens and politicians. Such informal influence should not be underrated when considering how planners facilitate and support UA specifically.

This review of urban planning and the role of urban planners has sought to demonstrate both opportunities and limits of planners in effecting general land-use change as background to understanding how urban planners can facilitate or hinder the specific land use of urban agriculture. What conclusions can be drawn from this review? Urban planners do have a role to play in permitting and encouraging particular land uses, such as urban agriculture. Urban planners often assist in or act as catalysts for policy development and the acceptance or rejection of land-use proposals, help resolve conflict and competition over land resources, and help determine appropriate locations for different activities. However, the final acceptance and rejection of a particular kind of land use or specific instances of the use in a community is influenced also by politicians (decision makers) at various government levels, municipal staff in other departments, external agencies, especially funding agencies, and the local citizenry.

Having discussed the planning process and the parties involved, acknowledging both the formal and informal strategies available to urban planners of developed and LDCs to achieve community land-use goals, we are ready to look at how the planning policy context poses specific problems for urban farmers, and how urban planners can address these problems.

CHAPTER THREE

Land Constraints to Urban Agriculture, and Planning Factors that Perpetuate Constraints

3.1 Introduction

Understanding how urban planners effect community land-use changes, it is possible to understand how urban planners can specifically facilitate and support UA. The practice of farming in cities faces both inadvertent or deliberately-imposed constraints, specifically related to land. These constraints can be linked directly or indirectly to planning and management interventions in urban and peri-urban areas, and consequently fall within the jurisdiction of urban planners and managers. The planning institution, policy framework and cultural norms and attitudes of planners, politicians and the public each can impose or perpetuate these constraints. The presence or absence of these factors can collectively be described as the "degree of support" a city offers UA.

3.2 Constraints to Urban Agriculture: Issues Pertaining to Land

While not all urban agriculture activities require land (for example, land may not be of primary concern for zero-grazing livestock-keeping, mushroom farming and food-processing activities), land is a crucial factor for many UA horticultural and cropping activities. Ellis and Sumberg (1998) observed:

> The existence, prevalence and growth, if it occurs, of food production in urban environments is seen as being predominantly about the use of space in densely settled locations... With the exception of small numbers of animals kept in buildings and backyard plots, land is the fundamental resource required for farming, and issues of zoning, access and tenure are seen as critical to the contributions it may be able to make to household food security and to the livelihood composition of the urban poor...(220).

Key issues for urban farmers are the availability of, access to, and usability of land.

Availability

In areas of rapid urbanization, undeveloped land for agricultural use may not be available or may be difficult to identify. Urbanization may displace farming activity (by replacing farming with more economically lucrative land uses), or prevent new farming from starting (by erecting buildings and structures that effectively preclude farming). Agriculture usually cannot provide the economic returns of industry or housing, and urban development pressures may compel or even force land holders to sell their urban plots (Aziz 1997). Land speculation may lead to the purchase of city lands, distorted land prices and strange development patterns (Menezes 1983). Displacement from central plots may mean that farmers must farm at a distance from their homes, markets and transportation routes. Because planning decisions, such as locating transportation routes or permitting land uses in particular areas, can influence the value of urban land (Tempesta and Thiene 1997), planners can influence the pattern of urbanization, and consequently, influence UA opportunities.

How much land is available for farming in a community may not be known. Traditional techniques for land description and classification, such as aerial photo interpretation, may underestimate or miscalculate available lands and the extent and prevalence of UA (Mougeot 1994a,b). Not knowing the ownership or tenure arrangement of properties, because of a lack of records or frequent change of hands, can further confuse of how much land is available for farming in a community, or how prevalent is the practice of UA.

A lack of available plots of land does not often dissuade urban farmers, especially where UA is officially illegal anyway. Urban farmers tend to be opportunistic, and find ways to use the smallest plots or strips of land and water in creative ways. This leads to farming on land originally set aside for other purposes (e.g., ditches, road verges, parks and buffers), or lands that are hazardous and therefore undevelopable (e.g., steep slopes, flood-prone, erosion-prone), or lands that have been abandoned or contaminated by past uses (de Zeeuw et al. 1998), sometimes without the farmer being aware of the hazard (Freeman 1991). Such opportunistic use of land can undermine community planning and lead to conflicts between competing users, environmental degradation, and unregulated production and processing that may be hazardous to consumers.

Accessibility

Some authors assert that land availability is less a problem than access to land, where access means "capable of being reached" by farmers. Access to land is one of the most, if not the most, significant constraint to urban farmers (Maxwell and Armar-Klemesu 1998, Tinker 1994). Access to land must be distinguished from availability of land; land may be available or present in a city but not accessible to farmers because of political or social constraints to its use or redistribution (Helmore and Ratta 1995).

Access may refer to the land itself, or to the use of the land. Land may be far from where farmers live, and public transportation and roads inconvenient or not available. Available land may be too costly for farmers to rent. Farmers may lack the social or political connections necessary to learn about or gain access to the plots that are available. Drakakis-Smith (1996) noted that the poor have a limited range of coping mechanisms in cities, especially newcomers lacking an extended network of support, and therefore have restricted access to land for food and fuel. Often farmers rely on a complex network of social and political connections to contend for available land (Drakakis-Smith 1996), which may in part explain why the UN University studies of UA in the 1980s discovered that people of all income levels and long-term residents are involved in UA (Smit 1996).

Inequitable land distribution systems, ingrained resistance to farming in cities, or planning policies and legislation that make UA an illegal land use can all prevent farmers' access to land (Zallé 1998). In some communities, discrimination based on gender may prevent equal access by women and men to land, credit or financing opportunities. There may be socio-cultural restrictions on who can own or use land, and different kinds of land tenures available. Land access may be further constrained by missing or inaccurate records of who uses or has the right to use particular plots.

Usability

The inherent qualities of a plot of land, and the facilities and services available to it, determine whether parcels of land that are otherwise both available and accessible can be used for farming. A plot's biophysical characteristics (soil, hydrology or microclimate), or physical dimensions (size,

shape, location) may make it unfit for agriculture. A plot may be available to farmers only for a short amount of time, therefore constraining what kinds of agricultural activities can occur on the site, and what technologies might be applicable to the site. Services, such as water for irrigation, and inputs or market facilities, transportation infrastructure both for export and for farmers' access are external factors that can determine a plot's usability (Lourenco-Lindell 1995, Lee-Smith and Lamba 1991). Agriculture in urban areas suffers greater ecological and economic pressures than rural agriculture, requiring more intensive and better controlled production to stay competitive and safe (Mougeot 1998). Without inputs or technology, farming small urban spaces may simply not be economical or worthwhile.

3.3 Planning Factors that Impose or Perpetuate Land Constraints

What is the role of the planning policy context and players in imposing or perpetuating these land-related impediments to UA? Guberman (1995) observed,

> Planners do not currently plan for urban land to be used for food production... Community-based projects such as gardens must be seen as viable alternatives to the current system that cannot ensure food quality, accessibility, or affordability. However, in order to develop effective and sustainable alternatives, there are a range of policies, plans and initiatives which federal departments, provincial ministries, and municipal governments must endorse and implement. (122)

Planners and the planning policy context can impose and perpetuate the identified land constraints in three main ways:

1. through the **institution of planning**, both the institutional structure (that is, the organization of and relationships between people who plan at local and regional levels of government) and the institutional capacity (resources and will) to effect changes;
2. through the **policy framework** (that is, the products of planning: legislation, planning policy and by-laws); and
3. through **cultural norms and attitudes** of the key players in the planning process: planners, decision makers, and the public.

Planning Institutions

The institution of planning collectively refers to the parties involved in planning communities, the way that responsibilities for planning are organized and divided, and the resources devoted to carrying out decisions. Below, I discuss how the organization and resources of the planning institution can contribute to these land constraints.

Responsibility for UA

Without an **agency or organization with specific responsibilities** to regulate, aid, support, monitor and facilitate research on UA, UA "falls between the cracks" of typical municipal sectorally-organized government, or is subject to confused and conflicting jurisdiction. Bartone et al. (1994:33) asserted the need for adequate governance ("where 'governance' refers to the exercise and sharing of power") and institutional capacity to carry out effective environmental

planning and management, and provide urban services, public education, and remain accountable to the public, an assertion that carries over to UA. However, many less-developed countries lack effective environmental planning or lack consensus on environmental goals and objectives and cannot overcome conflicting jurisdiction (Bartone et al. 1994).

Respondents from the survey of urban planning professionals illustrated the potential confused and conflicting responsibility for UA. In the surveyed cities, a wide range of participating agencies from different levels of government share responsibility for different stages of UA. Of the cities surveyed, most had 2 or more parties responsible for policy development, identifying appropriate locations, registering or permitting, or monitoring UA, or providing extension services for UA. The involved departments included:

- Local departments of local livestock and agriculture , planning, parks, health
- State departments of public welfare, agriculture, parks and gardens
- Federal departments of field and veterinary services, agriculture and environment
- NGOs

Commonly, it is the responsibility of urban planners to identify locations for UA, while local municipal councils are largely responsible for permitting urban agriculture activity. Monitoring was identified as largely under the purview of agriculture or health departments, although monitoring rarely occurs, and outreach or extension services are provided primarily by agriculture and veterinary departments. Respondents did not express concern about this disjointed responsibility for various aspects of UA; although "responsibility" was not a key constraint offered in the survey, neither did survey respondents volunteer this observation.

Regulating and Supporting UA

The ability of and opportunity of the planning institution to effect changes in communities collectively may be considered "institutional capacity." How supportive the institutional capacity is of UA may be measured by the human and other resources devoted to UA, for such things as enforcing policy (regulating UA) and providing programs and extension services (supporting UA).

Enforcing Policy

Urban farming activities may suffer from a presence of **prohibitive, or a lack of or inconsistent enforcement of supportive, land use or UA policies**. Where UA is illegal and this ban enforced, UA can suffer disruption and uncertainty. However, where UA is illegal but resources or staff to monitor policy infractions are lacking, UA may benefit from lax and haphazard enforcement (Helmore and Ratta 1995). In some cities, the rate of urban expansion is so rapid that land development occurs beyond the capacity of planners to track, let alone direct, changes. This lack of control may provide opportunities for illicit UA to flourish, but may also pose a threat to peri-urban agricultural areas that are sacrificed to haphazard settlement, such as in Dar es Salaam along transportation routes into the city (Sawio [1998]).

Inconsistent and inequitable enforcement may be as problematic as a lack of enforcement of land-use policy. Where some citizens cannot keep as many livestock as their neighbours, local resentments and a general lack of faith in planning policy can build (Sawio 1998). On the other hand, selective enforcement of prohibitive policy may benefit

urban farmers. In Bissau, Lourenco-Lindell (1995) found a tolerant official attitude toward UA (except for free grazing), in spite of legal bans. Khosla (1996) noted that city officials did not tend to prosecute UA offenders in Kampala, and the Ministry of Agriculture actually provides extension services. Tolerance of UA in the face of prohibitive policy has a strong link to the cultural norms and attitudes of the parties involved (discussed in section *Attitudes and Cultural Norms*).

Farmers' lack of awareness of or disregard for municipal by-laws or pertinent policy and legislation can make policy enforcement difficult. Farmers may be unaware of what by-laws are, or of those specifically pertaining to UA, especially if by-laws are relatively new or poorly advertised (Sawio [1998]). Farmers may be confused by policy and legislation that is not enforced consistently; when perceived as unfair and uncertain, it may be disregarded.

Keeping Land and Agricultural Records and Statistics

Land management in urban areas is hampered by a **lack of clear records of land ownership or land tenure** (Bartone et al. 1994). Such records can help planners distinguish clearly between public and private lands, determine property values and rents, and track who owns and who uses parcels of land. Without records, land transactions are difficult to control. In the cities surveyed, statistics about urban agriculture are rarely collected. Dar es Salaam and Kampala keep limited statistics and records; only in the peri-urban Ashanti region of Kumasi, Ghana, did one respondent claim that statistics are kept on agricultural economics, agriculture extension efforts, poultry, and of farmers associations and cooperatives. This lack of record-keeping implies that planners either have no access to information about UA in their community or do not use or seek out information on urban farming as a basis for developing planning policy.

Record-keeping may be complicated by different understandings of what is meant by ownership, tenure and use. Ideas of distinct land ownership, and use with compensation (e.g., rents paid), may be foreign concepts to people who reach agreements about land use based on first use and continued occupancy. Lourenco-Lindell (1995) described tension between two ways of recognizing land tenure in Bissau.

Providing Support, Services and Financing

The provision of information services, agricultural inputs, and programs that lead to agricultural demonstration projects, or in other capacities, to providing credit and loans to urban farmers are all further demonstrations of institutional capacity to encourage and promote UA. Many of the survey respondents identified an **absence of support, programs, services and financing and credit being offered to farmers** as key constraints to why UA does not occur or to why it is not more prevalent. Certainly, although planners may not be in a position to offer or fund or administer these services, they are in a position to identify the need for such services, and to rally support.

Policy Framework

The policy framework encompasses planning policies, legislation and regulations that guide or direct land-use planning and management. Maxwell and Armar-Klemesu (1998) asserted that the legal and regulatory framework of the city, along with access to land, poses the most significant

constraint to urban agriculture. The main policy problems are that UA is either ignored and not addressed, or deemed illegal in land-use policy.

Form of the Policy Framework

In some communities, planning decisions may not be based on formal comprehensive planning policy. Planning decisions may be guided by a **mix of customary land tenure practices**, assorted written and unwritten rules and decrees, combined with more formal policy statements. Planning decisions are further complicated when planners are given the **discretion to interpret this mix of references in different ways**. Consequently, even where by-laws or and other dictums do not explicitly disallow UA, they may be interpreted in this way. This variable and uncertain way of making land-use decisions makes it difficult for urban farmers and urban agriculture supporters to know how best to promote UA within the existing policy framework.

Content of the Policy Framework

A community's regulatory and legal policy framework can support urban agriculture to different degrees, ranging from full endorsement to prohibition. Some authors question the need for UA-specific policy at all. Ellis and Sumberg (1998) outlined their fears about potential abuse of formal and specialized policies for UA, urging instead that UA find a place under existing agricultural, land-use or environmental policy. However, while acknowledging that such fears may be well-founded, Lee-Smith (1998) replied that they may be addressed by ensuring UA policy is permissive, and specifies objectives, such as equity entitlements to food and other urban area resources. She observed, "The job of policy is to set up or adapt institutions to its citizens' needs, and not to try to make people and their institutions conform to a state blueprint which is anyway looking more and more out of date" (Lee-Smith 1998:13).

A key policy problem may be that **UA is simply not recognized or named as a land-use activity**. Even studies of the informal economy of developing countries have dismissed UA as a short-term, interim activity, undertaken temporarily as a survival measure. Because of this perception, UA has not been acknowledged as a valid urban land use, or has been perceived as a non-essential or recreational activity (Frojmovic 1996). Without baseline understanding of the state of urban agriculture, misconceptions about its socio-economic importance will persist (Lee-Smith 1998, Helmore and Ratta 1995, Lee-Smith and Lamba 1991). Consequently, UA may simply not be addressed either positively or negatively in urban planning policy (Sawio 1998), with implications when scarce community resources are divided (e.g., water during a drought may not be allocated to a "recreational" activity), and when the unregulated activity causes environmental or other damage (Dennery Nd). Without recognition, UA remains a marginalized and disorderly activity.

In other cases, UA may be recognized, but viewed negatively, and consequently may be suppressed or discouraged by formal land-use planning mechanisms. If considered illegal, UA is subject to disruption and dislocation, perpetuating uncertainty and insecurity among urban farmers. UA may be unrecognized in community land-use zoning, or suppressed or discouraged by restrictive by-laws that explicitly disallow particular agricultural activities in all or some parts of the city or effectively disallow them through other restrictions (e.g., by not permitting structures to house livestock) (Smit et al. 1996). Policies may differ for different types of agricultural activities, often reflecting strongly held cultural perceptions or biases.

However, planners have not-unjustified concerns about formally permitting UA under city planning policy. Lado (1990) observed that planners in Kenya were fearful of the impact of permitting urban agriculture, especially combined with pressures of urban growth; relaxation of zoning regulation was feared to lead to a complete disintegration of orderly planning. Nonetheless, if unaddressed in planning, UA will imminently conflict with other land uses.

Attitudes and Cultural Norms

The perceptions about agriculture held by planners, decision makers and citizens, all players in the community planning process, can support or discourage UA. Agriculture continues to be **perceived by planners, policy makers and some citizens as appropriate in rural, not urban areas** (Mekouar 1997, Binns and Lynch 1998). UA may be viewed as a "backwards" activity, one that gives a community an "unprogressive" air, detracting from the "prosperity" that comes of industrialization (Tinker 1998, REDEC-ENDA [1996], Aipira 1995, Helmore and Ratta 1995). Agriculture and urbanization have been seen as necessarily conflicting, where "any non-built use of land is seen as temporary" (Smit et al. 1996).

Urban Planners and Politicians

Such ideas about what is appropriate or desirable for the urban area may be instilled early in the training of urban planners (Greenhow 1994). These ideas can determine what land uses get recognized in land-use plans, and whether resources are available to support particular activities (Smit et al. 1996, Tinker 1994). Greenhow (1994) observed that development organizations such as the World Bank may perpetuate ideas of "urban efficiency," encouraging those projects they invest in to decrease the size of residential lots and increase residential density, preventing room for household gardens.

The question was posed to survey respondents whether they believe UA is appropriate in their city. Most of the urban planning and management professionals agreed that UA is appropriate. The reasons they cited most often were that UA provides income and employment. Respondents noted that UA can improve the economy of the community, improve qualities of life (such as beautifying the community, or providing recreational activities), and protect the environment or manage hazard or derelict lands. Several respondents noted that there is a great deal of land in peri-urban areas available for agricultural use. That UA might degrade the environment, or merit regulation to prevent other nuisances was mentioned by only a few respondents. Surprisingly, few respondents noted the role of UA in providing household food or nutrition. Perhaps because the respondents are responsible for urban planning and management, the community-wide benefits or urban planning and management benefits were more often identified. Those four respondents who stated they did not believe UA is appropriate in their cities did not provide specific reasons for their resistance, although in one case, the impression was given that UA was no longer appropriate as the community moved towards becoming a major financial centre.

Farming and Non-farming Public

The attitudes of community residents can go far in influencing attitudes of politicians and government staff (Bartone et al. 1994), if citizens are informed about issues and participate in community planning and decision making. However, the opinions held by citizens on the merits of UA, and on how it should be practiced, vary widely. Public attitudes and culturally-rooted preferences may play their own role in hindering or favouring UA. Sawio [1998] uncovered deeply-rooted cultural biases for and against particular kinds of UA. For example, livestock-

keeping may be closely associated with religious or spiritual beliefs, leading to resistance to the keeping of some animals or the increased keeping of others. As well, there may be social stigma attached to the practice of farming, or perception of farming as gender specific (e.g., women's work) (Smit et al. 1996). Planners need to understand the preferences and perceptions of the people both practicing UA and affected by UA as a first step in changing attitudes.

The attitudes of urban farmers themselves may exacerbate potential conflicts with urban managers and planners. **Farmers who disregard policies and by-laws regulating UA** can perpetuate perceptions that UA is practised by unlawful people and is an undesirable urban land use. A representative of the Department of Housing and Community Services, Harare, Zimbabwe, noted that urban farmers may cause mischief on lands that they temporarily occupy, by removing survey pegs during land preparation and by delaying development on these plots (REDEC-ENDA [1996]). The Bangkok Deputy Director General of Policy and Planning Department viewed that the greatest problems for UA in that city were a lack of farmer education and lack of awareness of environmental issues; he expressed skepticism about citizen initiatives for UA being "sporadic and unsustainable." However, for urban farmers to change their behaviours and to change others' perceptions of them, they need to be offered rational choices with the economic and ecological benefits of short- and long-term decisions clearly presented (Honghai 1992). Margiotta (1997) concurred, citing that to halt peri-urban forest clearing for pasturage and illegal agriculture in Panama, the alternatives offered to farmers must be equally profitable.

Table 2
Key Constraints to UA Selected by Survey Respondents

Constraint	n=25
Lack of accessible land	5
Lack of available land	6
Urban development pressures	16
Lack of secure tenure on land	5
Lack of acknowledgement of urban agriculture in planning policy	7
Lack of official support in city planning policy	4
Lack of by-laws to support urban agriculture	2
Presence of by-laws that prohibit or discourage urban agriculture	3
Lack of will or support for UA among politicians	0
Lack of will or support for UA among government staff	3
Lack of means or resources to enforce or regulate urban agriculture	1
Ineffective or inconsistent means to enforce or regulate urban agriculture	3
Lack of programs or technical support services for urban agriculture	8
Lack of credit or financing opportunities	9
Lack of services (e.g., water supply)	3
Lack of infrastructure (e.g., markets, transportation routes)	3
Lack of information and education among practitioners	5
Other: Lack of knowledge of environment	1

3.4 Key Constraints Perceived by Survey Respondents

Survey respondents were asked their opinion about the most significant constraints facing urban farmers. They were offered a list of options, and asked to select the three most significant constraints, in no particular order, from a list of seventeen options (see Table 2). One respondent did not offer any suggestion,

while two offered too few suggestions and two checked too many responses. Nonetheless, the results from this question are worth reviewing, as they highlight the kinds of responses that were most frequently chosen.

The general option of "urban development pressures" was selected the most often, over the proffered underlying causes of urbanization, by 16 of 25 respondents. That respondents also cast votes for other associated complaints of lack of access (5 votes), lack of availability (6) and lack of secure tenure (5) on land indicate that land-related issues are generally considered significant constraints to urban farming.
This lends support to the hypothesis that land-related issues and their increasing threat from rapid urbanization are a key concern for urban farmers, at least from the perspective of urban planning professionals.

The second most frequently selected option was the lack of credit or financing opportunities for farmers, which 9 of 25 respondents selected as a key constraint. Lack of programs and technical support services received 8 votes, and a lack of acknowledgement of UA in planning policy received 7 votes. Five selected a lack of information and education among practitioners as a key constraint.

The identification of a greater need for credit or financing, and technical support and information, more frequently than a need for other kinds of support (e.g., services and infrastructure) might be interpreted as a general perception that farmers need greater opportunities to assist themselves than formal assistance programs.

Likewise, responses indicated that regulation and intervention and political attitudes are less of a problem than land opportunities for UA. None of the respondents felt that politicians' will or lack of support posed a constraint for UA, either because the politicians of their respective city are supportive, or that their attitudes and support are not important. This may be linked to the generally enabling and encouraging political atmosphere toward UA of these cities.

When asked how these constraints might affect women and men differently, most declared no difference between men and women farmers. However, it was observed that women tend to have a more difficult time than men in securing loans and credit. This was attributed both to their inability to raise collateral for a loan, or more generally because of a social resistance to giving women access to labour, capital and land. As well, women's access to land is a key problem. Women may end up in a different role in urban farming enterprises, such as being traders rather than farmers.

3.5 Synthesis of Planning-Factors: Categorizing City Support for UA

Drakakis-Smith (1997) suggested that the links between UA and urban planning need to be conceptualized, or made apparent, and that more thought needs to be given about the role of UA in sustainable communities. I offer here a way to link the urban planning constraints and implications for the level of support that a city offers for UA. Determining this "level of support" is proposed for two reasons: 1) to assist community managers and planners in understanding constraints to UA in their own city, and 2) to assist in research on planning and UA, by providing researchers with a common way to talk about cities in terms of UA. As was noted above, to improve circumstances

for UA one needs to understand why it occurs, and how prevalent it is, as well as the political, social, and economic conditions helping or hindering it. Categorizing cities in this way can highlight relationships between city planning and government and UA activities. As well, categorizing cities can allow comparison to be made of the relative support cities offer to urban farming. Such comparisons can draw attention to approaches used by other cities to combat similar problems, and help city administrators and planners set goals for improving UA conditions.

Determining more consistently where a community fits in this categorization would require closer examination of specific factors. Developing a more detailed means of evaluating cities has been identified as a future research need in Chapter 5.

Explanation of the Categories

I propose five categories of support a city can offer to UA: Enabling, Permissive, Neutral, Discouraging and Prohibitive. Each category is described below. These categories are qualitatively assessed by the presence or absence of institutional, policy and attitudinal responses. The categories may be considered points along a continuum rather than discrete intervals. Circumstances may vary over time, requiring periodic reassessment of the degree of support for UA offered by a city. Some cities may have radically different levels of support for different kinds of UA activities (e.g., livestock vs. horticulture).

Enabling

Enabling circumstances provide tangible institutional and policy support and encouragement for UA, with or without restrictions or regulations. A governmental department, agency or committee is responsible for the positive encouragement or facilitation of UA. There is political will to encourage UA in the community, and the resources to follow through. The planning policy framework clearly recognizes UA, names and defines the activity as a legitimate and desirable land use. By-laws clearly outline those restrictions applicable to UA, and reasons for the restrictions. Distinct zones for agriculture may be designated, or agriculture may be permitted under other zones. Incentives may be offered to encourage land owners to permit UA. Incentives or land-use control mechanisms may be instituted to require land developers to design new neighbourhoods or lots to include gardens. Politicians, planners and citizens agree that UA has an appropriate place in the community. In general, planning institutions, policy framework and stakeholders support UA, and combine to provide the context and atmosphere to actively encourage and promote the practice.

Permissive

Permissive circumstances for UA support UA in principle, and allow it to occur without posing impediments. UA is positively recognized in the policy framework, and generally accepted. However, the institutional organization and institutional capacity are not available to actively support or encourage UA; resources to facilitate UA are not available. Permissive circumstances occur where UA is permitted or even favoured in the policy framework but where resources to promote the practice are lacking, or where UA is not explicitly permitted but where by-laws and policies are not enforced and by default UA is left unchecked. In these circumstances, UA is generally agreed to be an activity that has, grudgingly or not, a place in the community.

Neutral

Neutral circumstances for UA occur where there is a lack of (formal) acknowledgement of UA, whether positive or negative. There is a lack of discussion about the activity, and a lack of action in response to the practice either positively or negatively. Under these circumstances, UA is ignored.

Discouraging

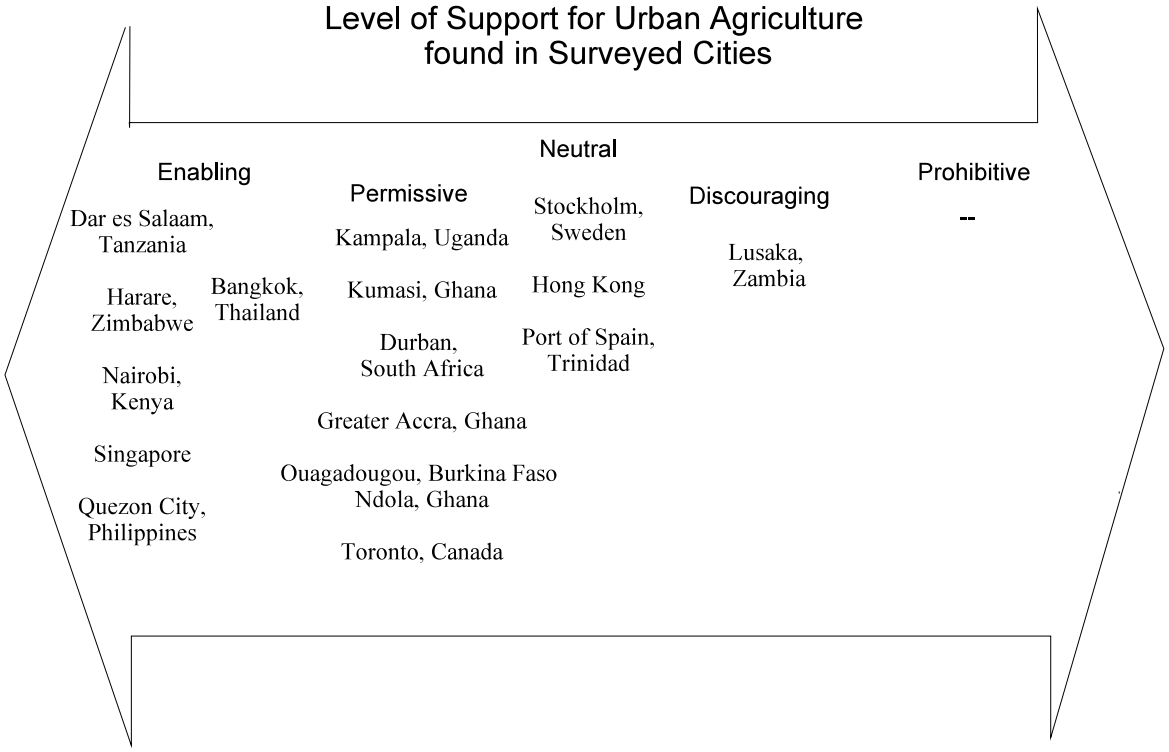
Discouraging circumstances for UA acknowledge UA but view the practice in a negative light. This position may or may not be explicit in the policy frameork; the prohibition of other activities or simply the failure to name UA activities in any zone may mean it is illegal. However, UA persists either because responsibility for stopping or disrupting UA is unclear, or because the activity is officially illegal but the authorities lack the resources or organization to address the practice. In these circumstances, the citizenry may be supportive of UA, but the politicians and/or the planners likely are not.

Prohibitive

Prohibitive circumstances for UA again presuppose that UA is acknowledged but viewed in a negative light. Prohibitive circumstances differ from discouraging circumstances in having the means and will to act to stop or disrupt UA activities. The policy framework clearly identifies UA activities as illegal, and clearly outlines the repercussions for those engaging in UA (e.g., fines). The enforcement of prohibitions may be *ad hoc* or consistent (e.g., slashing crops, dismantling sheds), but likely occur with the support and will of politicians and government staff. There may be an agency, department or committee with explicit responsibilities to discourage and enforce prohibitions of UA.

Survey respondents were asked to characterize their community's support for UA roughly corresponding to these categories. These responses, as well as my interpretation of the additional survey responses, led to the categorization of the surveyed cities in Figure 1. Most of the cities have planning policy contexts that permit, or encourage, UA. The cities identified as "enabling" demonstrate both official acknowledgement of UA and have some degree of formal support in policy or land-use zoning. These include Dar es Salaam, Nairobi, Harare, Singapore and Quezon City. Of the cities considered "permissive", some of these, like Bangkok, Durban, Toronto, Greater Accra, Mexico are moving towards a positive, enabling stance on UA, supporting demonstrations of and programmes for UA, and even identifying zones for UA, but lacking formalized support. Other cities are considered permissive because local authorities support the resistance to prohibitive policy, by failing to enforce it, such as Ndola, and Ouagadougou.

Several cities fall into the "neutral" category, for various reasons. Port of Spain permits UA activities, although while livestock keeping is prohibited, crops are generally ignored. Ministry of Agriculture appears to have a large role in providing extension services and the Ministry of Health in enforcing livestock restrictions. Stockholm has been listed as neutral, because of a lack of programs or tools and strategies offered by the city, according to the municipal staff respondent from that city, although other sources (e.g., Greenhow 1994) have identified the presence of allotment and leisure gardens, and the strong role of the City in supporting and regulating UA. In Hong Kong, the state of UA is somewhat unclear, because while agriculture is practiced and permitted only in "rural" parts of the city, no policy or legislation pertains to UA at present. Information from the Planning Department was corrected by the Agriculture and Fisheries



Department, indicating perhaps the Planning Department staff's lack of familiarity with UA issues in that city.

While none of the surveyed cities presented impediments to UA strong enough to merit them being considered prohibitive, Lusaka can be considered "discouraging" of UA. Lusaka officially permits no UA activity, even under other land-use zones. However, local politicians express support for sustainable community development, which may permit a change of support for UA in future. The marked skew of the surveyed cities towards the supportive or encouraging end of the spectrum is not surprising, considering that these cities were selected to be included in the survey based on the known presence of UA.

3.6 Summary: Need for Changes to the Planning Policy Context

This chapter described elements of the planning policy context that impose or perpetuate the land-related constraints to UA. These factors are associated with the institution and policies of local community planning, and the attitudes and preconceptions about the urban area held by various parties. In any community, the combination of these factors will result in different levels of support for UA. A way was offered to categorize the level of support for UA shown by cities. A more detailed means of evaluating cities for their level of support for UA could be helpful both to government staff and decision makers seeking to improve opportunities for UA in their communities, and to UA researchers.

Planners shape or guide land use to create desirable land-use patterns, but UA is not always explicitly included in this pattern. At best, urban agricultural activity has been tolerated; at worst, it has been suppressed through regulation and land-use controls. However, times are changing. There is a widespread and growing assertion that UA cannot simply be ignored any longer. Khosla (1996) noted that in Kampala residents are shaping their community to include UA, in spite of the official bans against the practice. Mbiba (1994:188) observed, "Uncontrolled urban cultivation is likely to be on the increase even in the face of prohibitive measures, thus leaving accomodative approaches as the only option for managing this phenomenon."

UA will become increasingly prevalent with increased urban in-migration and the consequent problems of hunger and poverty. Because UA occurs in the urban area, and because many of the problems faced by urban farmers relate to land and land use, urban planning professionals have a key role to play in overcoming those problems as much as they are able using formal and informal tools and mechanisms. Planners are faced with the choice of creating local and regional policy that regulates urban agriculture, or policy that regulates *and promotes* urban agriculture; using policy to suppress UA is not a choice; it will only meet with dismal failure (Smit 1996). Lado (1990) asserted that planning can be the vehicle for peaceful and successful integration of UA into other, even competing, forms of land use, without the fear that this will lead to abandonment of orderly land-use planning and development. Frojmovic (1996:1) observed: "Ultimately, the vibrancy and health of urban agriculture depends on the level of active support from municipalities." Planners must balance planned intentions for the city, and the survival of the urban poor (Mougeot 1998), while recognizing the shortcomings of municipal authorities in effecting change (Ellis and Sumberg 1998).

The next chapter will present possible responses to the planning-related constraints offered in the UA literature and by practicing urban planners, and discuss who may be in the best position to implement these responses.

CHAPTER FOUR

Responding to Constraints to Urban Agriculture

4.1 Introduction

The previous chapter described planning-related land constraints to UA, and reflected on how the planning institution, the policy framework, and attitudes and cultural norms of planners and of citizens and politicians influence and perpetuate these constraints. How can these constraints be overcome? The UA literature offers some responses, and the urban planning professionals surveyed described tools and strategies that have been implemented or tried in their cities. These responses are discussed below, when changes are suggested for the planning institution, the planning policy framework, and means are suggested to address attitudes and cultural norms of stakeholders. (See Table 6 for a summary of tools and strategies claimed by survey respondents for their cities, and Table 5 for the identified problems and proposed responses).

4.2 Responses to Improve Opportunities for Urban Agriculture

Changing the Organization and Resources of the Planning Institution

A lack of responsibility for UA, and consequent ignoring or suppression of UA in planning policy and resource allocation were identified as key problems posed by the planning institutions. Possible responses to these constraints include: allocating responsibility for or clarifying jurisdiction over UA, increasing resources allocated to UA and having the mechanisms to distribute these resources, enforcing policy measures, and establishing clear records about the state of UA.

Allocating Specific Responsibility for UA

A lack of clear governmental responsibility for UA may lead to conflicting UA policies administered by different government departments. The creation of a department, agency or committee with clearly-defined responsibilities for UA (Nelliah 1999; Smit et al. 1996), or the clear sharing of responsibilities between departments (Mekouar 1997) has been proposed to resolve such conflicts. An existing municipal, or inter-governmental committee that reviews land-use matters, for example, may play this role as well, if UA is adopted as a specific additional mandate.

The responsible body would ideally include **representation from different levels of government** with interest in the practice or implications of UA, including but not limited to departments of health, agriculture, public works, planning, and environment. The presence of **representatives from non-governmental organizations** would provide balance and an opportunity for community involvement in UA management. Currently, where government fails to recognize and support UA, non-governmental agencies have taken on this role, coordinating UA activities, developing policy, developing a regulatory framework and building urban management capacity, providing advisory services and technical and logistical assistance (Drechsel 1998). The experience of NGOs would make them valuable candidates for such responsible agencies.

An agency responsible for UA should, or should coordinate others, to undertake a variety of tasks. Opportunities for UA need to be identified and access facilitated. Assistance and support (e.g., through providing credit) for urban farmers needs to be offered. UA needs to be monitored and regulated, and research conducted (Drakakis-Smith 1996). Responsibilities for these different stages or aspects of UA need to be clearly allocated, and undertaken or overseen by the responsible body for UA.

Of the surveyed cities, only two have centralized single agencies responsible for most UA activities. Singapore confines UA to commercial farmers, who must practice within designated Agrotechnology Parks. The Urban Renewal Authority and the Primary Productivity Department are responsible for all aspects of UA. Bangkok, Thailand will soon create a "Department of Urban Management," which will take over all responsibilities for UA and other urban environmental management functions.

Providing Resources for Programs and Enforcement

The planning institution demonstrates its capacity to support UA by **providing programs or pilot projects, and providing extension services for farmers** (Aipira 1995, Khosla 1993) in the form of inputs of seed or tools or technical advice (Guberman 1995), assisting farmers gain temporary access to land through the use of permitting agreements (e.g., in Kenya where temporary occupation licenses are issued by the government) (Lado 1990), or facilitating the transfer and conversion of land use in areas inappropriate for UA (e.g., environmentally fragile land) (Sawio 1998). In Panama, the problem of deforestation because of agriculture was met by government-organized projects to manage, conserve and restore resources, and to finance the intensification and modernization of agriculture. Peri-urban plots supporting high-value horticulture, floriculture and aquaculture near consumer markets were offered as options to rural and peri-urban forest plots, with the benefits of reducing forest soil degradation pressures and reducing city pollution (waste) (Margiotta 1997). The government could also **restore polluted or degraded sites, to increase land resources available to farmers** (Mlozi et al. 1992).

Lee-Smith (1998) urged consideration of how **access to resources can differ by men and women** when designing ways to distribute resources and services, especially where there are ingrained gender division of labour, and a history of gender inequity.

According to survey respondents, many of the cities surveyed provide technical support to farmers through their local or state Department of Agriculture or Veterinary Services, although often only on request. Toronto, Durban, Kampala and Dar es Salaam provide additional support to farmers, offering agricultural inputs or programs that promote UA.

Using Policy and Demonstrations for Urban Design

Urban planners can **incorporate UA into landscape and urban design serving other primary purposes**, such as aesthetic purposes (e.g., use fruit-producing trees as ornamental or street trees) and can encourage this practice on private land in planning policy. Demonstrations of how UA can be incorporated in this way should be offered in the green spaces and parks of the city. While in many cities, respondents identified support for agriculture programs, especially through schools, only in three cities are

development controls used to require the provision of space for agriculture at the site or neighbourhood levels.

Financing through Credit and Loans

Government or planning institutions can **offer assistance to farmers in the form of grants, loans or credit**, such as in Dar es Salaam, Bangkok and Kampala. The potential for UA to improve the social and financial independence of women appears to be recognized in Kampala, where female urban farmers are given priority for loans and credit, and in Dar es Salaam, where additional opportunities for funding are offered to women farmers under the Ministry of Community Development, Women and Children Affairs. Sawio (1998) noted that Dar es Salaam offers insurance coverage for farming activities, and reasonable water rates, that provide additional economic incentives and security for farmers.

Collecting Baseline Data Planning and Landbanking

It was noted in the previous chapter that often little is known about UA in communities, and studies of UA are rarely undertaken by urban planners. Without information about the role of UA in the economic and social life of a community, it is difficult to prepare policy about it, to regulate or promote it, or monitor it. Information about UA in a city is needed to monitor UA changes and develop planning policy.

While planners may conduct land-use studies as a basis for planning policy, "urban agriculture" as a category of land use is rarely investigated. Distinguishing agricultural use as an urban land use in the studies would help planners gain an accurate picture of activities in urban and peri-urban areas. Investigations might include determining what kinds of agricultural activities are practiced in the community, where, by whom (e.g., age, gender, income level) and why. Disaggregating the kinds of activities that comprise agricultural activity (e.g., distinguishing livestock-keeping from crop production, or from flower-growing) can be helpful, to develop separate policies for different activities, if desired.

As well, having basic information about the land resources of a community can be useful to promote and regulate UA (Mlozi 1992). Capacity assessment (determining the arability and productivity of land) and environmental sensitivity assessment (determining the response land will have to particular activities) can help planners decide which parcels of land among those available and accessible can provide satisfactory return for energy and resource inputs, or will not be damaged by agricultural activities. Because planners have less ability to effect change in the already-developed parts of a community, and because urban agriculture often occurs in these same areas (close to urban farmers), planners may be best able to assist UA only when land is abandoned or redeveloped. Having the means to readily identify such opportunities for temporary agricultural use, through **updated land data bases, allows planners to better assist prospective farmers**. Such land inventories can assist a city to identify available lands to add to a public landbank, for example (SINA 1998, Menezes 1983). In cases where land tenure may be complex, a land tenure description agreeable to all parties may need to be devised. Lourenco-Lindell (1995) recommended a programme to legalize traditional rights to land in Bissau, based on consensus and participation of farmers.

Land use and land resource databases need to be created or updated, recording such things as land ownership, tenure and land use at the individual lot level (Sawio 1998, Brennan

1994). Computer-assisted tools, such as a geographic information system (GIS), can facilitate tracking land transactions and ownership. Representing land uses and land ownership as maps rather than simply as data can help planners recognize and direct patterns that might not otherwise be apparent. The IDRC has supported projects with a database and UA mapping component, such as in Santiago, in the Dominican Republic, where GIS was used to map land use and land availability, and in Gweru, Zimbabwe, where a GIS was used to locate and analyze the arability of urban lands.

Enforcing Policy and Providing Incentives

Enforcement of UA policy, by-laws and zoning restrictions is an important demonstration of the planning institutional capacity. Without enforcement by department or agency staff on behalf of planners, planning policy is ineffective. Inconsistent enforcement of restrictive policies can lead to farmers becoming distrustful and disillusioned with the planning process. The failure to enforce negative UA policies and by-laws may actually benefit urban farmers, although this may lead to *ad hoc* agricultural activities that may eventually conflict with planning intents.

However, in cases where a higher-tier government department imposes prohibitive UA policy and legislation on a municipality in spite of strong opposition, failure to enforce this policy may be the only means to express discontent. In both Ndola, Zambia, and Ouagagougou, Burkina Faso, survey respondents observed local politicians support UA and demonstrate their support by not enforcing federal policy and legislation prohibiting UA. As Mougeot (1998:19) observed, "Colonial bylaws and international standards are often unenforceable or inappropriate to local conditions. The interpretation and application of laws and norms have had to compromise with survival options available to the growing urban poor."

> *"In urban areas, no authority is given [for urban agriculture] but people still practice farming in defiance of the law. ...Council officials have been in the forefront pushing for the change in federal law to pave the way for urban farming. In recent years council authority have stopped enforcing the laws..."*
>
> *-Agriculture Coordinator, NGO (CARE-CULP), Ndola, Zambia*

The responsibility to enforce UA policies and legislation was not a question asked of the surveyed respondents. However, in a question about responsibility, a Harare city planner volunteered that city council has the responsibility to enforce local policy and by-laws pertaining to UA. Various of the cities have a permitting system for UA. Bangkok requires permits for various "obnoxious" agricultural activities, that are listed with the city, and will establish a new Department of Urban Environment to provide extension services and monitor UA. Kampala and Dar es Salaam require city issued-permits for UA activities.

It is worth inquiring about other means to effect UA policy, either through enforcement or through incentives. Alternate, community-based monitoring and peer-enforcement of regulations to UA might be options.

Monitoring

Having trained staff and accepted mechanisms to monitor progress on planning policy may be considered part of the planning institution's capacity to achieve its goals (Guberman 1995). Accordingly, monitoring land-use changes and opportunities can play an important role in assessing the progress on policies related to UA. Such things as the role of UA in income generation or food supply of households, and the impact of UA on environmental quality and health of the community are worthy of monitoring. Maxwell and Atakunda (IDRC-funded project 1993) recommended project monitoring, especially to discover the environmental impacts of UA. However, monitoring is undertaken in only a few of the cities surveyed. In those cities claiming to monitor UA, monitoring is the usually the responsibility of the federal or state Ministry of Agriculture (Kumasi, Dar es Salaam, Hong Kong, Nairobi) or the Ministry of Public Health (Greater Accra); in only two cases was the municipality identified as partially or fully responsible for monitoring UA (Harare, Dar es Salaam). Bangkok will establish a special (municipal) Department of Urban Environment, that will be responsible for extension and monitoring of UA.

Changing the Policy Framework

Changes to the policy framework, or the legislation, policies, zoning, by-laws that guide and regulate particular land-use activities can benefit UA (Smit et al. 1996). Incorporating UA into land-use planning policy to achieve sustainability requires some creativity (REDEC [1996]). Planners need to adopt and promote as desirable a land-use pattern that minimizes transport demands, saves energy, and protects green space (Sawio 1998).

Recognizing and Supporting UA in Policy

Many authors support changing or removing policies and legislation that restrict or discourage urban agriculture, and urge the creation of policies and legislation that directly or indirectly improve conditions for urban agriculture (e.g., through statements supporting urban sustainability and alleviating the effects of poverty) (de Zeeuw et al. 1998, Mekouar 1997, Margiotta 1997). REDEC-ENDA Zimbabwe (IDRC project 93-0024) recommended that Harare adopt enabling legislation at the local and national levels, as well as a management framework to ensure the persistence of land tenure arrangements and to provide extension services and farmer access to credit. UA policy is often recommended to be incorporated under agricultural or land-use policy (Ellis and Sumberg 1998), although environmental protection policy can also promote urban sustainability and urban agriculture (Bartone et al. 1998). UA might also be encouraged through more general municipal planning policy, such as those that support

Box 1
IDRC-Funded Projects Supporting UA Policy Development

In Jordan, the Department of Statistics is developing policy to support UA, appropriate for the local and national levels.

In South Africa, a project has been supported, entitled "Municipal Policy Review Re: Urban Agriculture."

In West Africa, a subregional seminar was funded to analyse food production and distribution systems, and to determine useful interventions by government and the private sector.

In Fortaleza, Brazil, research has culminated in the elaboration and negotiation of a metropolitan program for UA: "Upscaling Urban Agriculture: From Experiments to Program."

A review of Best Practices for UA is being undertaken in Latin America, that will document the constraints and opportunities of nine cities for UA, and include a workshop to facilitate formal interaction between UA experts and local officials.

alternative uses of urban spaces or assert support for urban design and management practices where possible, such as promoting zero-maintenance vegetation on road verges or steep slopes for non-food UA (Sawio 1998). While UA policy changes cannot be prescribed for every community, in general they should be guided by the tradition, structures and priorities of each community (Aipira 1995), and be reasonably enforceable (Ellis and Sumberg 1998). The IDRC is supporting several communities develop and implement policy interventions to support UA (see Box 1).

Policy will not change without increased recognition and acknowledgment of UA by city authorities (Sawio 1998, Smit et al. 1996). Planners need to recognize the importance of the informal economy to the survival of urban inhabitants (Kyessi 1997). In Africa, Khosla (1993) urged revising the current planning paradigm that rejects UA, when UA and other illegal activities form a real and persistent part of the average African's life. Being recognized and addressed in policy and regulation would offer UA legitimacy, and leads to eligibility for services such as water, or recycling/waste management (Kyessi 1997). Local planning policies need to recognize and take a position on UA, and recognize the ability of UA to contribute to urban planning goals.

Recognition of UA in policy begins with distinguishing UA as a land use distinct from other urban activities. **An indication that UA has been officially recognized is if it is defined in planning policy documents**. While several of the cities surveyed claim to recognize UA in policy documents, few of the cities support an official definition of UA. The exceptions are Dar es Salaam, Hong Kong and Greater Accra, and Nairobi (although for the latter the definition was not provided) (see Table 3).

Table 3
Definitions of UA in Policy of Selected Cities

Dar es Salaam	"Urban farming means the carrying out of plant and animal husbandry activities within statutory township boundaries." UA is well noted in local policy and by-laws, provincial, federal legislation.
Hong Kong	"Any land used for arable and/or pastoral purposes including horticulture, mariculture, fruit growing, seed growing, market gardens, nursery grounds, dairy farming, the breeding and keeping of living stock, grazing land, meadow land, fish ponds, paddy fields and the use of land for growing shrubs or trees where that use is ancillary to the predominant arable or pastoral use." UA definition found in official plan policy statements (Appendix)
Greater Accra	"Farming and livestock keeping within the municipal boundary," while peri-urban farming is the same activities but in areas immediately surrounding the city, in areas where the city has an impact on land values, land use, property rights, and where proximity to urban markets and demand drive changes in production. UA is mentioned in official plan policy statements and by-laws, and annual reports of the Ministry of Agriculture, Provincial and Federal Food and Agriculture Ministries

Favourable Zoning

UA is often not identified and therefore not permitted under traditional zoning classifications. **Because zoning is the most common land-use control used by planners, and offers land-use legitimacy and permanency, this is an obvious target for UA policy reformers** (Guberman 1995). UA could be **permitted under traditional zone classifications** (for example, added as a permitted activity in open or green spaces) (Guberman 1995, Greenhow 1994) **or permitted under new zone categories** explicitly dedicated to agricultural use (de Zeeuw et al 1998, Ellis and Sumberg 1998, Sawio 1998, Guberman 1995, Greenhow 1994, Khosla 1993). Mixed-use zoning or the permitting of commonly separated land uses within the same zone may prove another means of including UA in residential, institutional and commercial zones (Sawio 1998).

Several of the surveyed cities either have created special agricultural zones, or permit agriculture under other zones. Durban has not designated a specific zone for UA, but permits UA on an individual basis in any zone. Kampala allows UA in almost any zone, while Bangkok allows UA to occur in parks and open spaces. Toronto and Nairobi are examples of cities that have created distinct agricultural zones or market garden zones, while Harare, Greater Accra and Dar es Salaam have both distinct agricultural zones and permit agriculture in almost all other zones.

Regulation through By-laws

By-laws are used to uphold land-use zoning designations and non-location-specific policies. Therefore, by-laws that allow UA, while specifying restrictions, are commonly suggested as a means to permit and control UA by local government (Dennery Nd, Sawio 1998). Such by-laws need to specify which UA activities are permitted and which are not (Sawio 1998), as well as placing other restrictions on location, timing and extent of activities. By-laws that impede and prevent UA should be replaced with permissive by-laws and broad zoning (Ellis and Sumberg 1998), that legalize UA (Guberman 1995, Khosla 1993), with some regulation.

The surveyed urban planning professionals identified various means of bounding UA through regulatory by-laws. Some respondents cited restrictions pertaining to particular activities, especially the keeping of animals. Other restrictions pertain to the location of activities. Prohibitions may be designed to counter environmental or health risks. (See Table 4)

Table 4
Restrictions to UA Found in Surveyed Cities
(source: IDRC survey of urban planning professionals, 1999)

Activity	Timing	Location	Planning Restrictions	Environmental and Health Effects
Dar es Salaam prohibits the grazing of animals within the city, requires permits for all animal keeping, and restricts numbers of cattle kept **Stockholm** requires permits for any animals kept **Greater Accra** has restrictions on the numbers of livestock **Bangkok** has a list of about 100 activities that are deemed "obnoxious" and thus require permits, and prohibits the use of human waste as fertilizer. **Kumasi** does not permit keeping animals and poultry in residential neighbourhoods. **Quezon City** disallows keeping animals in high density areas.	**Ouagadougou** does not officially permit UA, but still has a specific prohibition against UA during the rainy season, especially of tall-growing crops.	**Kampala** restricts where the permitted growing of trees and flowers may occur **Harare** prohibits UA activities within 30m of the centre of rivers or streams and hilltops, to prevent degradation and siltation **Greater Accra** prohibits farming along ceremonial streets **Ndola** permits most activities within the peri-urban areas, but restricts farming in urban areas. **Singapore** restricts UA to government run Agrotechnology parks, farmed commercially.	**Lusaka** regulates lot and building dimensions to effectively prevent the erection of livestock sheds **Nairobi** recognizes a minimum lot size for agricultural use, smaller than which UA is considered "subsistence agriculture"	**Durban** authorities may reject applications for practicing agriculture on areas considered environmentally sensitive. **Port of Spain, Toronto,and Durban** cite public health concerns, and the Public Health Department restricts livestock-keeping and product-processing outside of designated areas **Greater Accra** public health authorities prohibit drain water being used for irrigation **Lusaka** makes use of Public Health Act, prohibiting particular structures or ways of animal-rearing that can affect health.

Regional Involvement

Local communities may be obliged to adhere to policies and legislation imposed by a higher tier of government. The opportunities offered by such a top-down policy for UA have been recognized by some UA proponents. Aziz (1997) recommended couching community land-use planning for UA at the regional level. Such a regional plan would examine the agricultural needs and abilities of several urban areas as well as the rural area between them, coordinating the conversion of land, identifying best agricultural land and controlling other uses. National or state level government departments (e.g., agriculture or health) can assert a great deal of influence over local agricultural activities. National or state policy and legislation can exert definitive authority over local land-use decisions, requiring local authorities to provide urban farmers with opportunities and prospects to farm in cities (ATLAS 1995). Of the surveyed cities, Durban's UA is administered by a provincial Kwazulu-Natal Department of Agriculture more than by local policy. In Singapore, a city state, municipal and national administration is effectively the same, so consistent and comprehensive policy is not difficult to achieve. In many cities, a federal or regional/state department of health, agriculture or environment has some role in UA. In Bangkok, a top-down approach from the Minister of Agriculture was viewed as the only means to achieve sustainable UA activity.

Changing Attitudes and Responding to Cultural Biases

Deeply-held cultural norms and ingrained attitudes may be at the root of resistance to UA, and therefore, unless altered can pose persistent challenges to urban farmers. Attitudes unsupportive of UA held by any of the three players in the planning process (the public, politicians and planners) can pose potential challenges to UA. Interestingly, as was noted in the previous chapter, surveyed urban planning professionals did not perceive that attitudes held by politicians (or by planners and the public) are a significant constraint to UA. Consequently, the surveys garnered few suggestions for overcoming this constraint, namely means to educate and alter attitudes held by these groups. Among the tools listed to facilitate and support UA activities, it was asked whether the city offers programs and demonstrations of UA, but that was the only kind of "educational" tool that was asked about.

Education of the Public on Urban Agriculture Benefits

The attitudes and values both of citizens who participate or do not participate in UA can influence planning-constraints to UA. This is especially true in cities where elected decision makers are influenced by the views of their constituents. Although the public may perceive UA as having a negative impact on property value or personal comfort and safety, these fears may be overcome if the benefits of UA are highlighted to them. Sawio's research in Dar es Salaam sought to discover those **UA practices perceived to be most or least harmful by citizens**. He considered this information useful to alert urban planners and managers to those **UA controls most likely to receive cooperation** by concurring with peoples' ideas, or in highlighting to planners and managers the misconceptions or gaps in education about potential UA effects (e.g., no awareness of harm of open grazing of cattle)(Sawio [1998]).

There are various ways that such perceptions might be changed. In many communities, international and local non-governmental organizations (NGOs) may have greater resources, trust and influence over the local population than the local government. These **NGOs may be the most effective means** to effect land-use change in a community. UA education may benefit from being **linked to other education campaigns about urban issues** (e.g., health, nutrition, education, environmental awareness) (Sawio 1998). In Nairobi, agricultural issues are taught as a subject in elementary school, offering an opportunity to instill the environmental implications and alternatives of UA at a young age in prospective urban farmers.

Public Involvement in the Planning Process

Urban farmers who view planners and politicians as enemies, and policies and by-laws as something to be flouted, may benefit from education of a different kind. While they may have good reason to feel angry or distrustful of planners and politicians, **farmers need to learn about legal ways to assert their interests in political arena and participate in policy-making**, where possible (Sawio [1998]). Ling (1988: 304) observed that in both developed and developing countries, participation by the public is essential in achieving the objective of meeting peoples' needs, and that the "test of a planning and development policy is its effectiveness at grass roots level." As a whole, community members need to become involved in urban issues, and to change from being passive beneficiaries of the benefits of urban management, to becoming custodians and creators of attractive urban benefits, such as urban forests (Aipira 1995). Increased public participation in the

planning process can help to focus attention on UA in planning policy (de Zeeuw et al 1998). Because women often predominate in UA, planners need to **pay particular attention to the needs of women on matters that pertain to UA** (Khosla 1993).

Accordingly, urban farmers need to become **well-versed in their local planning process and UA policy and legislation**, and in the views of politicians. They need to learn to assert their interests in terms that are persuasive to politicians (REDEC-ENDA [1996]). To improve the perception of UA, farmers need to avoid degradation and pollution of land and water, and avoid other ecologically and socially undesirable effects (ATLAS 1995). By forming groups or cooperatives, urban farmers can gain a stronger political voice (REDEC-ENDA [1996], Mlozi 1992), and a greater ability to influence the attitudes of politicians (Sawio 1998, Smit et al. 1996). Dennery (nd: 14-15) observed that in Kibera, Nairobi, groups smaller than 25 members may not receive formal recognition of the Ministry of Culture and Social Services, and consequently miss opportunities to gain recognition and support. In Quezon City, women can join "Rural Improvement Clubs" that give them benefits of training in food processing and trades. In a district of Kumasi, Ghana, it was noted that the 31st December Women's Movement organization has gained grants and credit for urban agriculture.

Education of Politicians on Urban Agriculture Benefits to Communities

Politicians hold the most sway in community decision making, including the acceptance of UA-related planning policy and associated by-laws, and at other levels, of legislation. Therefore, the attitudes and values of politicians can have a strong influence on the official acceptance of UA in a community, and overcoming land-related UA constraints (Smit et al. 1996:236). **Information campaigns, employing various media**, seminars and training, and written material, can be used to alter both the negative attitudes to or misunderstandings of the public and politicians about urban agriculture. Sawio (IDRC-funded project, 1995) urged the influencing of urban environmental policy in Dar es Salaam, Tanzania and identified the need to create a multi-party action plan in conjunction with the Sustainable Dar es Salaam Project.

Because economic arguments may be most persuasive to some critics, efforts should be made to **quantify benefits of UA to communities in monetary terms** (Mekouar 1997, REDEC-ENDA [1996]). Bartone et al. (1994) suggested such quantified comparisons of different land-use pattern options, and modelling the effects of different land-use planning policy, although such comparisons are difficult, costly, and the methods of comparison questionable. Involving municipal staff in research, as advisors or contributors, can be a means to influence their ideas and attitudes about UA.

Education of Planners on Urban Alternatives

Planners themselves may have deeply-held beliefs about the appropriateness of UA in the urban area, and resist acknowledging the benefits of UA to solve many social and economic problems, such as eradicating poverty (Kyessi 1997, Kironde 1992). Brennan (1994) urged western planners and western-educated planners to adapt their knowledge and practices to developing country contexts, and to **abandon preconceived ideas about what are urban problems**. Urban planning should be used to fulfill the real needs and economic strategies of citizens, including UA (Khosla 1993). Planners of developing

countries should **critically reevaluate eurocentric value judgements**, and take guidance from local citizens themselves, working together to find locally-accepted solutions and standards (Kironde 1992). As well, planners need to change their approaches to dealing with urban problems, and alter how they assess measures to meet problems.

Perhaps the underlying and more long-lived shift to gain longer-term support for UA is to increase the practice of environmental planning, for cities to accept UA as integral to environmental sustainability (Brock 1998, Sawio 1998, Dahlberg 1994). These land-use patterns would minimize transportation, saving energy and protecting green space (Sawio 1998), and reduce excessive resource consumption (Brock 1998). As an example, a neighbourhood where the water supply that does not extend to every household might be viewed not as a problem, but as an opportunity to decrease water consumption and encourage cooperative use of a limited supply (Kironde 1992). Newman (1996) urged **a rediscovery of mixed land uses**, while Sawio (1998) urged **greater use of vertical development to free more land**. The Fundación de la Naturaleza y el Hombre, a Cuban NGO (in association with the UA division of the Cuban Ministry of Agriculture, and other government agencies), has been funded by the IDRC to investigate how UA might be incorporated into the society and the economy for the long-term, to improve the urban environment and rehabilitate park spaces, by extending the State's original support for UA as an emergency response.

It may be that alternate conceptions of urban areas will only be embraced by a new generation of urban planners. Mbiba (1998) observed that in Zimbabwe, younger planners are prevailing over their seniors to improve circumstances for UA. This acceptance may come through **greater exposure to varied ideas in training**, and as issues of environmental sustainability gain widerspread acceptance.

Summary

What responses can be used to overcome land constraints that the planning policy context poses to urban farmers? They may be summarized as

- clarifying responsibilities for UA, and ensuring that there is coherent and unconflicting government policy regarding it
- reworking and creating policy to recognize and permit UA, as well as removing policy that prohibits UA
- providing support, material, technical services, and financial support, or linking the available services with those in need
- overcoming negative perceptions (justified and unjustified) about UA held by the various players in the planning process, altering these through a combination of targeted and persuasive education, demonstration and participation
- overcoming traditional ideas about what is a city, and what are appropriate activities in a city, and addressing the real needs of community members

4.3 The Roles to Effect these Changes

As was described in Chapter 2, planners have some, but not complete, influence over land-use decisions. Changes to the planning policy context to address land-related constraints need to be adopted not only by urban planners, but also by professional planning associations, politicians, NGOs, and researchers and academics.

Urban Planners

Urban planners can most significantly facilitate UA in a city by seeking to alter urban land-use planning policy to recognize, permit and favour UA. Legalizing UA at the local level, through recognizing and accepting UA in urban planning policy, gives farmers and their practice legitimacy and stability. Only in this context can more formal programs and services be offered to urban farmers.

Planners can promote a favourable community disposition towards a land use such as urban agriculture. They can do this by clarifying the present, actual role of UA in the social and economic life of a community, and promoting its potential positive benefits for the community, if regulated properly.

As well, planners are well-positioned to assist farmers, and the NGOs who support them, with information on land-use and zoning changes, impending developments, and assist them in using the planning process to voice their concerns about the state of agriculture in cities. This liaison and informing role is well-suited to planners, who encounter colleagues from other departments, politicians and the citizenry on a daily basis and have an understanding of the most pressing concerns of all these players. MacGregor (1995b) notes the unique position planners have to encourage and speed community-led projects, and act as a mediator in land-use conflicts. As well, the planner is well-positioned to present alternate visions of our communities, and to change how we think about urban areas.

Planning Professional Associations

Changing planners' attitudes and perceptions inhibiting UA can be assisted by professional planning associations. These associations provide avenues to quickly distribute information to planners, and often take positions on urban issues in their "statement of values". These positions often reflect a majority of the association members, and may assist individual planners to develop their own position on particular issues. As well, such associations often play a role in the training of new planners, certifying planning programs and establishing requirements for planners to gain professional status. UA proponents would be greatly assisted by planning associations acknowledging and promoting adjusted municipal legislation to favour UA (Greenhow 1994).

Politicians

Politicians ultimately accept or reject long- and short-term changes to community land-use changes. They accept or reject policy, and allocate resources to departments and programs. Without the support of politicians, urban farmers would find it difficult to practice agriculture, even if other supports are in place. Politicians best serve urban farmers by accepting proposed land-use planning policy that recognizes UA, and by providing institutional and resource support to farmers.

Other Municipal Staff

Municipal staff from departments other than the planning department can assist urban farmers by ensuring that the policies and programs suggested by planners and politicians are followed through, supported and enforced.

Urban Farmers and Non-Governmental Organization Supporters of Urban Agriculture

Urban farmers and their supporters need to become aware of opportunities for public input to the urban planning process, and use these to their best advantage to further opportunities for UA. NGOs, especially international NGOs, can lend legitimacy to UA (e.g., Local Agenda 21 Program [Greenhow 1994]). NGOs have various important roles to fill, including the role of monitoring the government's support for UA and identifying ways that it might be increased, acting as a spokesperson on behalf of urban farmers or assisting farmers to organize themselves to promote their interests on the municipal and federal stages. IDRC supported research in Kenya ("Resource Allocation Choices in Urban Agriculture (Kenya)") recognized the important role that NGOs have as a liaison between producers and the national government of that country. The United Kingdom has the National Federation of City Farms, a support and development organization, that facilitates planning approvals, funding and connects farmers with experts (Hough 1995).

Urban Agriculture Researchers

UA researchers can assist urban farmers by continuing to take an interest in the practice of UA to describe the kinds of activities they find in communities, as well as conceptualize and explain why and how it occurs. Their research findings should be disseminated in many ways, in many forms, to reach all players of the planning process, especially decision makers. More critical and synthetic reviews of the research and continued balanced reporting would be useful additions to the existing body of knowledge.

4.4 Conclusions

The specific methods each community uses to amend its own planning institutions and policy framework cannot be prescribed. Each community must assess the kinds of impediments faced by urban farmers from the institutions of planning, the policy framework and cultural norms and attitudes, and incorporate whatever combination of responses to these factors that may be appropriate. Likewise, there is no real way to prescribe particular strategies or tools for sympathetic planners to work from inside the institution, as each planner finds him or herself in a different institutional organization, with a different history and planning process, facing different kinds of attitudes, values and cultural norms, with different degrees of support from colleagues, politicians and the public. However, recognizing the range of options, and learning about the experiences and successes of other communities can provide an important basis for making decisions about what might be the best course of action, and how best to change the planning policy context to improve opportunities for UA.

Table 5
Planning Factors Perpetuating UA Constraints, and Responses

Factor			Response
Planning Institution	Organization	The organization or structure of the parties involved in planning at the local, regional and federal levels can have a direct effect on UA. For example, if responsibility and jurisdiction for UA belongs to no agency, or is shared among different parties, contradictory or unsupportive policy may result.	Create a transjurisdictional, transsectoral committee, agency or department on UA, or add the responsibility for UA to an existing committee that deals with LUP or environmental issues.
		Lack of farmer representation in planning and a lack of political representation in community decision making results in a low-profile for UA on the community agenda.	Increase public participation in planning policy development. In general, this provides a forum for farmers, and groups, to have a political voice. This may require that urban farmers formally organize to have a stronger political voice. Do not overlook the role of NGOs in coordinating activities, ensuring political openness and a reflective voice.
	Institutional Capacity	Having the ability to enforce existing land-use policy, whether supportive of or resistant to UA, can influence how seriously such policy is taken. If policy is not enforced, UA may intrude into areas with environmental and health consequences. However, the non-enforcement of negative policy, whether deliberately or due to lack of resources and labour, may be the only way that UA can persist under extremely negative policy conditions.	Use a permitting system to regulate UA, where permits are awarded to those who follow regulations and permit fees could be reinvested in services and facilities (water sources, market areas). Use incentives as well as regulatory instruments, such as property tax rebates. Provide programs, outreach services and other services (expertise, financial) and inputs at a low or subsidized cost. Ensure follow-through of by-laws.
		Unclear or confused land ownership and land tenure can pose a hindrance to effective land-use planning, and especially hinder attempts made to facilitate UA on urban lands.	Create the means to formalize and track land ownership and tenure, in the form of a land database, assisted by a land registration system. Exert control by requiring sudivision approval for undeveloped areas. A land database would be facilitated by a GIS or other computerized system. Monitor UA in the community, and continually assess UA in light of planning goals; establish a UA baseline of information to understand the real role of UA in citizen's lives and why UA occurs.
Policy Framework	Form	In some communities, planning decisions are based on an untransparent mix of policies, decrees, and interpretation of these. It may be difficult for UA proponents to know what the rules of the planning game are, and may face difficulties when obscure policy or custom is interpreted to not favour UA.	Formalize and simplify the mix of policies and the basis for decision making, or make the basis for decisions more transparent.
	Content	Planning policy may recognize and support, or suppress UA. The position of a community on UA can be explicitly or indirectly expressed, or implied, in planning policy documents, interpreted by the planner.	Recognize and acknowledge, and legalize, UA as an activity in planning policy. Take a clear position on the degree of support that the community will show for UA, and its role in meeting other urban goals. Define UA. Create supportive policy statements; remove from policy those statements that prohibit UA
		UA may have no place in land-use zones; without being explicitly permitted in one or more zones, UA may by default be an illegal land use.	Create specific agricultural zones, or permit UA under other zoning categories; make use of mixed land-use zoning, with caveats, to provide more opportunities for UA.

		Planning by-laws can directly or indirectly prohibit UA; often by-laws and associated regulations are used to control the design and use of space and individual lots. For example, prohibiting the erection of a structure in particular zones may indirectly preclude the sheltering of livestock or the securing of materials and tools on site.	Critically evaluate implications by-laws have on UA activities. Create permissive by-laws. Rescind by-laws that prevent UA from occurring, either directly targeted at UA or less directly.
		Higher tiers of government policy (regional, state or national levels) can be imposed on local administration and either undermine local initiatives for UA, or require that local governments adopt policies consistent with other communities.	Influence local communities' negative position on UA through national, state or regional governments' agricultural, land use, health policy. Ignore policies imposed that are negative to UA, and seek their revision.
Attitudes, cultural norms	Public	Some urban dwellers may not appreciate that their neighbourhoods support agriculture, especially on public or common lands. There are different levels of tolerance of particular types of UA activities; for example, horticulture may be tolerated, whereas animal keeping may not be. This may be based in religious beliefs or cultural norms.	Increase involvement of all community members in urban issues, from being passive beneficiaries of urban managers to custodians and creators. Discover particular intolerances and reasons for intolerance of UA, and come to common agreement on accepting particular land uses. Improve education about UA in schools, and tacked onto other information campaigns about urban issues.
		Farmers may not respect planning policies, either through lack of awareness, or deliberately, especially if the policies and associated regulations and by-laws are not consistently enforced.	Consistently and equitably enforce UA by-laws. Involve urban farmers and UA supporters in urban decision making, through opportunities in the planning process. Educate citizens about the planning process and by-laws, explaining short and long term benefits and costs of altered actions. Farmers cannot be expected to make "irrational" behaviour changes.
	Planners	Planners have been trained to consider particular activities as appropriate in the urban area, and often these do not include UA.	Rethink what are appropriate land uses and activities in urban areas. Reconceptualize urban "problems" and see opportunities; this can be assisted by local perspective, unmarred by eurocentric and westernized perspective. Create plans that seek environmentally sustainability.
	Politicians/ Policy Makers	Politicians may also hold views about what are appropriate or desirable activities in the urban area, especially if they are seeking to shed a "backwards" image to attract economic development. They are often swayed by the prevailing public views, being accountable to their constituents. However, there are opportunities for power to overcome planning policy. Decision makers who abuse their power to flaunt UA restrictions can add to public distrust.	Sway elected decision makers with public opinion; have NGOs and other UA supporters monitor the community stance on UA, and exert pressure on politicians. Present arguments for UA to politicans in economic or comparative cost/benefit terms. Clearly link UA and community goals in information and education campaigns.

	Provides positive Policy	Ignores negative policy	Creates distinct UA zone	Permits UA under other zones	Has permitting or regulation system	Facilitates access to land	Provides incentives	Provides inputs	Provides technical services	Provides infra-structure	Provides opportunities for loans and credit	Facilitates programs	Supports demon-strations	Provides develop-ment control	Politicians express support in principle	Other options
Nairobi, Kenya			✓						✓			✓ k.				
Durban, South Africa	✓a.							✓	✓		✓	✓	✓		✓	
Greater Accra, Ghana	✓ b.	✓		✓											✓	
Kumasi, Ghana	✓ c.			✓ f.		✓	✓		✓	✓		✓ k., l.			✓	
Kampala, Uganda	✓ c.			✓	✓			✓		✓	✓ i.	✓	✓		✓	
Harare, Zimbabwe	✓		✓	✓	✓						✓	✓			✓	
Dar es Salaam, Tanzania	✓ c.		✓	✓	✓	✓		✓	✓		✓ j.	✓	✓	✓ m., n.	✓	o.
Bankok, Thailand			✓		✓		✓	✓	✓	✓	✓	✓	✓	✓ m., n.	✓	
Singapore	✓		✓ g.		✓				✓		✓	✓	✓			
Quezon City, Philippines	✓ d.		✓	✓	✓	✓	✓	✓	✓ h.	✓	✓	✓ k.	✓	✓ m.	✓	
Mexico City	✓ e.		✓	✓												
Toronto, Canada			✓								✓	✓			✓	
Stockholm, Sweden	Not applicable; UA is not promoted or facilitated.															
Port of Spain, Trinidad																
Hong Kong																
Ndola, Zambia	Not applicable; UA is not promoted or facilitated. (NGO support active in UA).															
Lusaka, Zambia	Not applicable; UA is not promoted or facilitated. (But support in principle expressed by politicians)															
Ouagadougou, Burkina Faso	Not applicable; UA is not promoted or facilitated. (But support in principle expressed by politicians, and negative policy and legislation ignored)															

a. Provincial policy, provincial agency
b. Federal policy encourages UA
c. Local and federal/regional
d. Implicit recognition at local level
e. Federal/regional policy
f. Only permitted in urban periphery
g. Commercial Agrotechnology Parks
h. Women can join Rural Improvement Clubs (for training)
i. Women are given priority
j. Only so far as farming is bankable project; women are further offered credit under the Ministry of Community Development
k. Schools
l. Youth in Agriculture Programme
m. Site level
n. Neighbourhood level
o. Other institutions (CBOs, NGOs) involved in UA development

Table 6: Tools and Strategies Used to Facilitate and Promote UA in Surveyed Cities
(source: IDRC survey of urban planning professionals in listed cities, 1999)

CHAPTER FIVE

Implications of the Review of Planning for Urban Agriculture, and Future Research Directions

5.1 Summary of the Research

Urban agriculture is inevitably linked to urban planning and management. Making cities pleasant, liveable places, where resources and the necessities of life are accessible to all citizens, are issues of concern to urban planning professionals. Because urban planners realize these aims through environmental control and the development of desirable land-use patterns, they can influence the availability, accessibility and usability of land (all key issues for UA). Conversely, that UA can provide solutions to some urban planning goals is becoming better recognized. The UA tide is on the rise, and cannot be forced back. Because of its inevitability, UA must be addressed by urban land-use planners and managers.

This paper strove to take a realistic look at the opportunities and limits of planners to effect land-use change, noting the particular opportunities and limits of LDC urban planners. Because some authors have vaguely stated a need for "planning reform," it was thought advisable to describe in more precise terms what exactly is the role of the urban planner in urban management and decision making. Urban planning is a political process, involving disparate interests. Planners, especially LDC planners, do not, as has been implied, have the power or jurisdiction to suggest radical land-use changes in cities, especially not in those areas where land uses are established. Politicians, colleagues in other municipal departments and at other levels of government, external funding agencies, and members of the public all share influence in shaping urban form and function.

However, there are opportunities for urban planners sympathetic to UA to help create circumstances that are more permissive for UA, and to identify and facilitate access and use of land resources. Traditionally, urban planners have based planning policy recommendations on studies of the urban geography, demographics, land use and economy. If UA is identified as a sector worthy of study, it can gain greater attention and response in policy and receive more resources. Land usable for UA may be identified through linking land data sets with available services and facilities. Identifying or freeing land that is available and accessible may be assisted by clarifying and formalizing land use and land tenure arrangements, or redistributing available lots to those in most need. Informally, planners can assist farmers and NGO supporters by alerting them to urban land developments or alterations, or land availability, and promoting communication between land owners and urban farmers. However, planners can make the strongest formal contribution through policy reform, and through presenting new ideas about the urban area and appropriate urban activities, and overcoming their own biases against UA.

A literature review and surveys of urban planners revealled many factors that impose or perpetuate the land-related constraints to UA. Key among these are a lack of formal recognition

and positive reinforcement for UA in local planning policy, and a general lack of awareness about the state of UA in communities. As well, often no single agency or organization has responsibility for UA activities. Rather, responsibility is shared by different departments with different agendas. A lack of statistics and record keeping about UA means that little is known about this prevalent phenomenon.

Many of the suggested responses are simply reactions to the perceived shortcomings and gaps in the existing planning policy context. However, there are many research opportunities to investigate ways to improve circumstances for UA.

5.2 Research Needs

As is often the case, research leads to the uncovering of other research needs. Because UA as an area of critical examination is still in its early stages, synthesizing existing knowledge about UA and developing concepts and theories to describe and explain UA are needed. As well, much remains to be done to distill this information to practical solutions for policy makers, urban planners, urban farmers and their supporters, to ensure that UA develops appropriate and timely technological and political support.

Empirical Studies of Urban Agriculture

There is continued need to better understand the state of UA in a community, as a basis for effective policy and to change negative attitudes. Information is needed about the role of UA in the social and economy lives of urban residents. Communities can benefit from the exchange or introduction of economical and simple land assessment techniques and technologies (e.g., Desktop GIS or computer-assisted design programs). Models for landscape assessment, rapid environmental appraisal, and methods of incorporating local knowledge into landscape assessments should be developed and shared among communities to assist in collecting and analyzing information on land resources and on UA practices.

Syntheses of Existing Research

The level of research has reached a point where there needs to be more synthesis and theory-building of research on UA. IDRC has supported and encouraged this sort of reflective examination, for example supporting the development of four overview papers for Habitat 94 held in Edmonton, Canada (944040) that reviewed recent changes in official recognition, regulation and promotion of UA, and the role of planners. Critical analyses of the research that has been undertaken, and the implications to describe, predict and guide policy and action on UA, need to continue.

Evaluation of Community Support

The current responses to UA, and the policies and institutions in place to cope with the challenges of UA, need to be understood. An evaluative and conceptual tool to assess the UA capacity of a community was proposed in Chapter 3. An expanded and more detailed version of this would help communities reflect on and improve the opportunities they can provide to urban

farmers. This kind of tool could be a useful research contribution to assist both municipal staff in practical facilitation of UA, and to assist researchers communicate information about the institutional and governmental constraints to UA in different cities.

Evaluation of Policy Measures
Much can be learned about how best to amend or create policy that facilitates and supports UA from those communities that have already created UA-specific planning policy. The circumstances leading to the creation of such supportive policy examined in detail, and examples of the wording and presentation of effective planning policy could provide invaluable guidance to other communities. The long-term success of these policies and their effect would be useful, as well. UA suffers from being a recent discipline of study, having the guidance of few long-term examinations.

Mechanisms to Alter Negative Attitudes
Because altering attitudes and perceptions of UA is crucial to the success and adoption of supportive UA policy, it would be useful to investigate what are the most effective means of shifting ideas about UA. Other disciplines may have advice to offer about communication and perception. Theory and techniques from sociology, philosophy and psychology may be of great assistance to UA proponents facing attitudinal resistance. Models of ways to alter participants' perceptions from other disciplines could be assembled for use by UA proponents and sympathetic planners.

Research Directions for Cities Feeding People, IDRC
This research has contributed to one of three key research areas identified by Cities Feeding People (CFP); the development of tools that support policy development to enhance low-income farming. Much still needs to be done to examine the specific circumstances of individual communities, and consider how best the planning and other policy contexts that affect UA can be altered to improve opportunities for UA. CFP funds community-specific research, often including baseline data-collection on UA as well as policy or technology development. This basic data collected must continue, since in many communities lack this kind of data.

However, CFP is also in a position to conduct longer-term, comparative studies of particular communities, to monitor how effective are some of the changes recommended and implemented. CFP is in a position to continue to support syntheses of research, and contribute to global development of UA theory and facilitating research dissemination through workshops and conferences and publications. CFP's recognition and funding of research on planning policy and policy makers recognizes that UA has a role in more general urban environmental management, and in improving the social and economic and environmental lives of urban dwellers.

APPENDIX I

Urban Agriculture Definitions

Introduction

Many different definitions of urban agriculture have been offered in the growing literature of UA, food policy and sustainable urban development. A systematic review of the definitions and the adoption of common terminology would assist researchers in collecting, analyzing and presenting information and comparing results of different research efforts. As well, communities that wish to include a definition of UA for their own community can benefit from a critical examination of existing definitions, and examples of those definitions adopted by other communties.

For this research paper, survey respondents were offered a definition of UA. The definition provided was: "An industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city or metropolis, on land and water dispersed throughout the urban and peri-urban area" (Smit et al. 1996). Smit et al. (1996)'s original definition further added: "...applying intensive production methods, using and reusing natural resources and urban wastes, to yield a diversity of crops and livestock" (3).

Urban Agriculture: Food, Jobs and Sustainable Cities has been described as the definitive or authoritative text to date on UA, and accordingly several authors have adopted the definition of UA provided by its authors (e.g., Cropper 1996). Recently, the Organisation for Economic Co-operation and Development (OECD-UN) Macrothesaurus for Information Processing in the Field of Economic and Social Development (5th edition, 1998) has offered another definition of urban agriculture: "Production of food and nonfood plant and tree crops, and animal husbandry, both within and fringing urban areas." Formally defining previously undefined set of activities in such reference texts assists the debate on how to define UA, and consequently what frames acceptable research on UA. As there is not yet consensus on an appropriate definition for UA, it is worth comparing definitions proposed by different researchers and authors.

Deconstructing UA Definitions

Definitions for UA were offered by almost all sources that mentioned UA (see Table 7), and these definitions do share many of the same elements. First, all definitions identified those activities considered as UA activities. Some definitions simply broadly encompassed all "agricultural activities." All definitions implicitly or explicitly included the growing of food for human and animal consumption, although fewer definitions mentioned harvesting of wild fruit or vegetables, or fishing (e.g., Drescher 1998). Many definitions encompassed non-food production activities, either generally (e.g.,OECD 1998, Mougeot 1998, 1994b, Frojmovic 1996), or specifically, such as fuel and forestry production (e.g., de Zeeuw et al. 1998). Less frequently mentioned were other activities, such as processing and marketing (e.g., Rees 1997, Mougeot 1998, Forester (nd), de Zeeuw et al. 1998).

To varying degrees, definitions included the location where UA occurs. UA is found in urban areas, and often extends to the the peri-urban area or urban fringe. However, the boundaries "urban" or "peri-urban"

areas were not always provided. Some definitions were vague, stating that agriculture occurs "in or near the urban area" (AGUILA , de Zeeuw et al. 1998, Mougeot 1998, Rees 1997, Sawio 1997, Frojmovic 1996, Lourenco-Lindell 1995). Other definitions specified a mappable, administrative boundary, such as the municipal limits (Maxwell and Armar-Klemesu 1998:7). In still others, the boundary was more qualitative and flexible, such as the "peri-urban" area being defined as where land values are influenced by proximity to urban areas, and where urban markets influence agricultural production (Maxwell and Armar-Klemesu 1998:7). Binns and Lynch (1998) observed that peri-urban areas are hard to define, and urged that a "process-based" definition (based on the extent of influence of urban areas on their surroundings) might be desirable.

Some definitions by their wording presupposed UA as illegal. As part of a study of Harare, the researchers of REDEC-ENDA Zimbabwe [1996] worked on the assumption that UA is "an informal activity as most practitioners do not follow legal procedures in acquiring land" (1). Mbiba (1991) also characterized UA as an illegal activity, defining UA as occuring "in urban zones which urban managers have reserved or designated for uses other than agriculture (75)" and even more baldly defined UA as occuring "on land which is administratively and legally zoned for urban uses" (1994:190). Mwangi and Foeken (1996:170) noted that UA is "usually an activity unplanned and uncontrolled by the state." Aldington (1997: 43) observed that UA includes "farming and related activities that take place within the purview of urban authorities...[where urban authorities are] the panoply of laws and regulations regarding land use and tenurial rights, use of water, the environment, etc, that have been established and are operated by urban or municipal authorities."

Finally, the actual or potential reasons why UA is undertaken sometimes formed part of the definition. Some definitions recognized UA as providing food for consumption (Smit et al. 1996, Drescher 1998) or sale (de Zeeuw et al. 1998), employment and income (Mwangi and Foeken 1996, AGUILA (on-line), and urban waste management and resource conservation (Smit et al. 1996, de Zeeuw et al. 1998, and AGUILA (on-line)). Drakakis-Smith (1990:103) asserted the need to distinguish between subsistence farming (production for home consumption) and market-economy production of food when discussing UA.

Summary

Tinker (1994:xi) declared that "The next logical step for urban studies of food production requires standardization of definitions and design so that quantitative data can be collected and compared." The review of various definitions offered by the literature of UA points to a number of important elements that should be present in a useful definition for UA. Although a definition for research will differ from a community planning definition (where the latter may serve to exclude particular activities by definition, while the former should seek to encompass any and all activities that form part of UA), elements of the definition might include:

Location: The definition should specify the location in which UA can occur, and provide clear criteria about how to identify the urban or peri-urban area.

Activities: The definition should specify the types of activities included under UA (e.g., food production or non-food production, and more specifically, production of plants vs. animals, and gathering vs. production)

Landownership, Legality: The definition should specify whether it includes legal (vs. illegal) agricultural activities, agriculture on both private and public land, and for private or public use and consumption.

Stage: The definition should specify the stages of production that are included (e.g., growth and harvesting of products, or also processing, marketing and distribution)

Scale: The definition may specify the scale of activities included (e.g., maximum and minimum size of area encompassed by activity)

Table 7:Definitions of Urban Agriculture

Definition	Source
UA is "farming and related activities that take place within the purview of urban authorities...[where urban authorities are] the panoply of laws and regulations regarding land use and tenurial rights, use of water, the environment, etc, [sic] that have been established and are operated by urban or municipal authorities. Urban agriculture takes place within certain boundaries which may extend quite far from an urban centre, while peri-urban agriculture takes place beyond that often geographically precise boundary, although its own outer boundary may be less well defined." (43)	Aldington, Tim. (1997) "Urban and Peri-urban Agriculture: Some Thoughts on the Issue." Pp. 43-44. In Land Reform, Land Settlement and Cooperatives, 1997/2. Paolo Groppo (ed.). FAO. +124pp.
"Urban agriculture is defined as the procurement of food products through crops, animal husbandry, forestry and aquaculture within urban zones and in fringe areas, for improving the nutrition of population groups, generating employment and income for individuals or groups of individuals, assisting environmental sanitation through recycling waste waters and solid wastes."	AGUILA (Red Agricultura Urbana Investigaciones Latinoamerica) (URL: http://www.idrc.ca/cfp/aguila_e.html#News!)
(from Smit et al. 1996) "Urban agriculture has been defined as '...an industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city or metropolis, on land and water dispersed throughout the urban and peri-urban area, applying intensive production methods, using and reusing natural resources and urban wastes, to yield a diversity of crops and livestock.'" (1)	Cropper, John. (1996) "Revegetating Residential Squatter and other Marginal Communities on the Slopes of Trinidad's East-West Corridor." UWI Workshop on Urbanisation and Urban Policy in the Caribbean. Unpublished paper.+9pp.
Def: "Urban agriculture refers to producing food and fuel within city or town areas directly for the urban market (including street vending and home consumption). The products are usually processed and marketed by the producers and their close associates. It includes: crop and animal production on roadsides, along railroads, in backyards, on rooftops, within utility rights of way, in vacant lots of industrial estates, on the grounds of schools, prisons and other institutions, etc.; aquaculture in tanks, ponds and rivers; orchards and vineyards; trees in streets and backyards, on steep slopes and along rivers; and the recycling and use of urban organic wastes (waste water and solid waste) as resources, i.e. converting open-loop "disposal" systems in closed-loop "re-use" systems."(1)	de Zeeuw, Henk, Marielle Dubbeling and Ann Waters-Bayer. (1998) " Integrating Agriculture into Urban Planning and Action: Some Options for Cities." [Paper based on two presentations]+10pp.
"Research and planning in urban agriculture requires interdisciplinarity. The term 'urban microfarming' is used here to reflect this need for a comprehensive understanding of agricultural landuse in cities. It encompasses urban crop production, homegardening, horticulture (both vegetables and fruits) and livestock keeping. Also the gathering of wild fruits and vegetables is a strategy of urban people to achieve greater food security." (3).	Drescher, Axel W. (1998) "Urban Microfarming in Southern Africa- Opportunities and Constraints." +8pp. Background documents for a Conference: "Productive Open Space Management, International Conference" held at Technikon Pretoria, Pretoria, South Africa, 3-5 March 1998.
"The domain of interest in this paper is the production of food in urban and peri-urban areas of towns and cities in developing countries...Food in this context is taken to mean grains, vegetables, fruit, meat, milk and fish." (214)	Ellis, Frank and James Sumberg. (1998) "Food Production, Urban Areas and Policy Responses." World Development 26 (2):213-225.
"Urban Agriculture: any and all enterprises, commercial and non-commercial, related to the production, distribution, sale or other consumption of agricultural and horticultural produce or commodities in a metropolitan/major urban centre."	Forster, Tobias Edmund. (nd) "The Role of the Living Landscape as an Element of Sustainability in Asian Cities During the 21st Century." City Farmer. (URL: http://www.cityfarmer.org/Asiancities.html#asian)
"...the procurement of food and non-food products through cultivation, animal husbandry, forestry and aquaculture within and/or on the fringe of urban areas." (1)	Frojmovic, Michel. (1996) Urban Agriculture in Canada: A Survey of Municipal Initiatives in Canada and Abroad. CFP Report 16. +24pp.
As a footnote, the author identifies UA as "Urban agriculture or food growing encompasses the production of all manner of foodstuffs, including fruit and vegetable growing, livestock rearing and beekeeping, at all levels from commercial horticulture to community projects to small scale hobby gardening." (307)	Garnett, Tara. (1996) "Farming in the City: The Potential of Urban Agriculture." The Ecologist 26(6): 299-307. (Nov-Dec 1996).
"...urban cultivation is understood as agricultural activities undertaken within the urban area or its surroundings, by people living within the city's administrative boundaries." (2)	Lourenco-Lindell, Ilda. (1995) "Food for the Poor, Food for the City: The Role of Urban Agriculture in Bissau." Paper presented at the workshop on the Social and Environmental Implicaitons of Urban Agriculture, University of Zimbabwe, Harare, 30-31 August 1995. Unpublished manuscript, +15pp.

"farming or livestock keeping within the municipal boundaries" (7) Peri-urban agriculture: "the same activities in the area immediately surrounding the city in areas where the presence of the city has an impact on land values, land use, property rights, and where proximity to the urban market and urban demand drive changes in agricultural production." (7)	Maxwell, Daniel and Margaret Armar-Klemesu. (1998) "Urban Agriculture: Introduction and Review of Literature." Unpublished paper. + 13pp.
"Urban agriculture is the growing of food crops in urban zones, which urban managers have reserved or designated for uses other than agriculture." (75)	Mbiba, Beacon. (1991) "Classification and Description of Urban Agriculture in Harare." Development Southern Africa 12(1): 75-86 February 1991.
"Urban agriculture in this paper refers to the production of crops on land which is administratively and legally zoned for urban uses. This activity is undertaken within the built up zones or at the periphery of urban areas, i.e., land likely to be re-zoned from rural agriculture to urban land- the peri-urban areas." (190)	Mbiba, Beacon. (1994) "Institutional Responses to Uncontrolled Urban Cultivation in Harare: Prohibitive or Accomodative?" Environment and Urbanization 6(1):188-202 April 1994.
"...the growing or raising, processing and distributing of food and other products through the intensive plant cultivation and animal husbandry in (intra-urban) and around (peri-urban) cities..." (18)	Mougeot, Luc. (1998) "Farming Inside and Around Cities." Urban Age 5 (3):18-21.
"...the growth of food and nonfood plant and tree crops and the raising of livestock (cattle, fowl, fish, and so forth), both within (intra-) and on the fringe of (peri-) urban areas." (1)	Mougeot, Luc. (1994b) Urban Food Production: Evolution, Official Support and Significance. CFP Report 8.
UA refers to "l'agriculture localisée dans la ville et sa périphérie pour laquelle il existe une alternative entre usage agricole et urbain non agricole des ressources." (1) (Agriculture localized in the city [boundaries] and its periphery for which there exists an alternative between agricultural and non agricultural use of the resources)	Moustier, Paule. (1998) "La Complémentarité entre Agriculture Urbaine et Agriculture Rurale." Presentation at a workshop hosted by the IDRC, entitled "La Contribution de l'agriculture urbaine à la sécurité alimentaire en Afrique." Unpublished, and provisional manuscript, as noted by the author. +9pp.
"...any farming technique in an urban environment (Maxwell and Zziwa 1992b)... usually an activity unplanned and uncontrolled by the state. Apart from farming in backyards (mainly by those with some unused land space on their compounds) and farming in (former) rural areas which became part of the urban area due to the expansion of the city boundaries (Memon & Lee-Smith (1993) term these "urban farmers" as traditional landowners or farmers), it involves food production on idle and/or reserved land as a mode of survival by many low income urban people." (170)	Mwangi, Alice M. and Dick Foeken. (1996) "Urban Agriculture, Food Security and Nutrition in Low Income Areas in Nairobi." African Urban Quarterly 11(2-3): 170-179.
" For purposes of this paper, urban agriculture is food production occurring within the confines of cities. This production takes place in backyards, rooftops, community vegetable and fruit gardens, and unused or public spaces. It includes commercial operations producing food in greenhouses and other spaces, but is more often small-scale and scattered around the city. "This narrow definition deliberately excludes important aspects of urban agriculture, such as forestry, fisheries, and the specific circumstances of peri-urban agriculture, which is frequently a more intensive variety of rural agriculture. While important, these agricultural activities have their own distinctive characteristics and adequate discussion of them is beyond the scope of this report."	Nugent, Rachel A. (1997) "The Significance of Urban Agriculture." City Farmer (URL: http://www.cityfarmer.org/racheldraft.html#racheldraft)
"Production of food and nonfood plant and tree crops, and animal husbandry, both within and fringing urban areas."	(OECD) Organisation for Economic Co-operation and Development, UN (1998) OECD Macrothesaurus for Information Processing in the Field of Economic and Social Development, 5th edition. Paris: OECD.
"Urban agriculture includes any activity associated with growing crops and some forms of livestock in or very near cities for local consumption, either by the producers themselves or by others when the food is marketed."	Rees, William E. (1997) "Why Urban Agriculture?" Notes for the IDRC Development Forum on Cities Feeding People: A Growth Industry, Vancouver BC, 20 May 1997. City Farmer website (URL:http://www.cityfarmer.org/rees.html#rees)

"For the purposes of this study, urban agriculture has been defined as the production of crops and livestock by urban households for consumption and the urban market. It is an informal activity as most practitioners do not follow legal procedures in acquiring land." (1)	(REDEC-ENDA) Research, Development and Consultancy Division- Environment and Development Activities, Zimbabwe. [1996] Urban Agriculture in Harare: Results and Recommendations of a household survey conducted in Harare. Harare:REDEC- ENDA. +106pp.
"...the carrying out of farming activities in the built-up areas where open space is available, as well as keeping livestock (dairy cattle, goats, sheep, pigs and fowl) in the built-up and peri-urban areas." (4)	Sawio, Camillus J. (1998) Managing Urban Agriculture in Dar es Salaam. CFP Report 20. +40pp, maps.

APPENDIX II

Survey

Cities Feeding People
Programs Branch, IDRC
PO Box 8500
Ottawa, CANADA
K1G 3H9

[date]

Dear [name of respondent]:

RE: SURVEY OF URBAN PLANNERS ON THE TOPIC OF URBAN AGRICULTURE

I am an intern researcher with the Cities Feeding People Programme (CFP), at the International Development Research Centre (IDRC), in Ottawa, Canada, examining planning issues related to urban agriculture (also known as urban farming, and encompassing the urban and peri-urban area).

Urban agriculture has been defined as an industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city or metropolis, on land and water dispersed throughout the urban and peri-urban area. While IDRC recognizes multiple benefits of urban agriculture to producers and consumers, certain practices may pose health and other risks to city dwellers, and problems to urban and peri-urban planners and managers. The opportunities and limitations of urban agriculture point to the need for the involvement of urban planners (a term including town, city and regional planners as well as planners concerned with the peri-urban area), to ensure that urban agriculture can be best incorporated into city form and function. To date, there has been a lack of documentation about the role of planners in the growing phenomenon of farming in cities.

For this reason I hope that you will participate, as a member of the planning profession and as a representative of your city's administration, in a world-wide survey I am conducting. I ask that you will contribute your knowledge of UA in the city you work for, commenting on:

- Section A:.the official perception of urban agriculture, identifying legislation and policy documents that mention urban agriculture
- Sections B and C: mechanisms and responsibilities for locating, guiding and regulating urban agriculture
- Sections D and E: key constraints for male and female farmers, and strategies to meet these constraints
- Section F: needs and priorities for future action, and the role of the planner

The survey may appear lengthy, but many questions are short answer, allowing you to select from answers provided. However, please allow approximately 30 minutes to complete the survey. You are encouraged to consult with your colleagues on any of the responses.

Your responses, and those of your professional colleagues in other cities, will form a central part of a CFP report to be published by IDRC on its website and in print in April, 1999. Care will be taken to maintain the confidentiality of your responses, if you so indicate. We will provide you with a draft version of the report and an opportunity to comment prior to its publication.

Please complete by email, or print the following pages, complete and fax or send by post by **January 29th, 1999**, to:

Soonya Quon
International Development Research Centre
Cities Feeding People, Programs Branch, 11th Floor
PO Box 8500
Ottawa, CANADA K1G 3H9

fax: (1 613)567-7749
email: SQuon@idrc.ca

For selected cities, I will follow up this survey with a telephone call during the first three weeks of January, and at that time you will have a chance to elaborate on any of your responses. If you have questions or require clarification about the survey itself, please feel free to contact me by telephone: (1 613)236-6163 ext.2613; by fax: (1 613)567-7749; or by email: SQuon@idrc.ca .

Thank-you in advance for your participation.

Yours sincerely,

Soonya Quon, MES
Intern,Cities Feeding People, International Development Research Centre

SURVEY ON URBAN PLANNING AND URBAN AGRICULTURE
Commissioned by the International Development Research Centre, Ottawa, Canada

USE OF INFORMATION AND CONFIDENTIALITY
My response to this survey constitutes consent to the use by the International Development Research Centre (IDRC) of the information set out below, and I acknowledge and agree that IDRC may publish my responses either as statistical data or in narrative form, provided that publication of such responses in connection with my name, job title or job description, shall not occur without my further authorization.

Therefore:

I authorize_____ I do not authorize_____
(Please initial your choice)

IDRC to present the responses and opinions expressed below in association with my name, job title or job description, in a report to be published by IDRC on its website and in print.

Signature:_____ Date:_____

PART I: PERSONAL INFORMATION

Name (please print):

Male_____ Female_____

Age _____ 18-30 years
_____ 31-40
_____ 41-50
_____ 51-60
_____ 61+

Began present job in 19_____

Job Title:

Government department, agency or organization:
If a government employee, what level of government?
City:
Region:
Country:

[Optional] Professional associations you belong to, if any:

The name of the city, municipality or region that is the subject of this survey:
Please specify the boundaries of the area you will refer to (e.g., city boundaries, municipal boundaries, regional municipal boundaries):

PART II: SURVEY ON URBAN PLANNING AND URBAN AGRICULTURE

SECTION A: RECOGNIZING AND PERMITTING URBAN AGRICULTURE OR FARMING

1. Which, if any, of the following **agricultural activities are officially allowed** in your city?
(Check as many as apply)

____Do not know

____No agricultural activities are officially permitted in this city

____Growing vegetables and fruit
____Growing other crops for human or animal consumption
____Growing trees
____Growing flowers or ornamental plants
____Keeping small animals (e.g., rabbits, guinea pigs, chickens)
____Keeping large animals (e.g., goats, cows)
____Growing fish or seafood
____Production of other things (specify)_____

____Using waste water for irrigation
____Using household solid waste as fertilizer
____Using human waste as fertilizer

____Processing of city-grown products
____Marketing and distributing city-grown products
____Other activities_____

2. Name **any restrictions or conditions** that apply to the activities above (e.g., location of activity, participants in activity)

3. Is urban agriculture **mentioned** (either positively or negatively)
in the official documents of your city? Yes No Do not know

Is urban agriculture **defined** in any of these documents? Yes No Do not know
If yes, please state or attach a copy of the most widely-used definition.

In which documents is urban agriculture mentioned?
____ Official plan policy statements
____ District plan policy statements (if applicable)
____ By-laws
____ Provincial legislation or policy
Please name the responsible department or ministry_____
____ Federal legislation
Please name the responsible department or ministry_____

____ Other _____

4. How would you **describe the official response** in your city to urban agriculture?
(Please check only ONE of the following)

____Do not know

Urban agriculture is:
____Supported and encouraged, but regulated ____Ignored
____Encouraged in policy, with few restrictions
____Permitted in policy, but with few support mechanisms

____Discouraged in policy, with few enforcement mechanisms
____Prohibited
____Enforced
____Not enforced
____Other _____

Please explain your choice (e.g., policy or legislation confirms this position, elected officials have expressed these views).

5. Do you think that the practice of agriculture is **appropriate** in your city? Yes No Do not know
Please explain.

6. Which, if any, agricultural activities **do you think should be permitted**, that are not presently permitted in your city?
____No additional activities should be permitted

____Growing vegetables and fruit
____Growing other crops for human or animal consumption
____Growing trees
____Growing flowers or ornamental plants
____Keeping small animals (e.g., rabbits, guinea pigs, chickens)
____Keeping large animals (e.g., goats, cows)
____Growing fish or seafood
____Production of other things (specify)_____
____Using waste water for irrigation
____Using household solid waste as fertilizer
____Using human waste as fertilizer

____Processing of city-grown products
____Marketing and distributing city-grown products
____Other activities_____

SECTION B: LOCATING URBAN AGRICULTURE ACTIVITIES

7. **Where** may urban agriculture activities officially occur in your city? (Check as many as apply)

____Not applicable, urban agriculture is not permitted

____Private residential property
____Public parks or open space
____Roadsides
____Utility and other rights-of-way
____Ditches
____Schools and institutional property
____Industrial or commercial property
____Other _____

8. Are there **areas where you think agriculture should or should not be allowed**? Yes No Do not know
Explain.

9. In your city's official plan policies, is urban agriculture recognized as a **land use category that is distinct** from other land uses? Yes No Do not know

If no, is urban agriculture permitted under a different (broader) land use category? Yes No Do not know

Which land use category(ies) or zone(s)? (check as many as apply)
____Residential (specify)_____
____Commercial (specify)_____
____Industrial
____Institutional
____Park/Open Space
____Other _____

SECTION C: RESPONSIBILITY FOR CONTROL, REGULATION AND GUIDANCE OF URBAN AGRICULTURE

10. Is any **government department or agency responsible** for urban agriculture control, regulation or guidance? Yes No Do not know

If yes, please **name the department(s), agency(ies) and describe the responsibility(ies)**

Formulating policy or legislation pertaining to urban agriculture:

Identifying where agriculture may occur in the city:

Registering or permitting urban agriculture activity:

Providing extension services, advice, technical support to producers:

Monitoring urban agriculture activity:

Other:

SECTION D: KEY CONSTRAINTS TO URBAN AGRICULTURE

11. What do you consider to be **the THREE most significant constraints or barriers to urban agriculture** in your city? (Please check ONLY THREE answers, in no particular order).

____Lack of accessible land
____Lack of available land
____Urban development pressures
____Lack of secure tenure on land
____Lack of acknowledgement of urban agriculture in planning policy
____Lack of official support in city planning policy
____Lack of by-laws to support urban agriculture
____Presence of by-laws that prohibit or discourage urban agriculture
____Lack of will or support for UA among politicians
____Lack of will or support for UA among government staff
____Lack of means or resources to enforce or regulate urban agriculture
____Ineffective or inconsistent means to enforce or regulate urban agriculture
____Lack of programs or technical support services for urban agriculture
____Lack of credit or financing opportunities
____Lack of services (e.g., water supply)
____Lack of infrastructure (e.g., markets, transportation routes)
____Lack of information and education among practitioners
____Other _____

12. Are constraints different for male and female farmers? Explain.

SECTION E: TOOLS AND STRATEGIES TO MEET CONSTRAINTS

13. What are the **means used to promote or facilitate urban agriculture** in your city? (Check as many as apply):
____Not applicable; urban agriculture is not promoted or facilitated
____Do not know

The city:
____Explicitly recognizes and names urban agriculture as an activity that occurs, in city plan policies and by-laws
____Implicitly acknowledges urban agriculture in city plan policies and by-laws
____Ignores policies and by-laws prohibiting urban agriculture
____Identifies distinct zones where agriculture is the primary land use
____Identifies zones where agriculture is an accepted, if not the primary, land use

____Federal or regional policies on land use exist that recognize and promote urban agriculture for its own merits or as a contributor to other aims
____Federal or regional legislation does not prohibit/does encourage urban agriculture
____Local politicians express support for urban agriculture
____Local politicians express support for sustainable development at the community level
____Issues permits, or in some other way regulates agriculture
If yes, are opportunities different for male and female farmers? Yes NoDo not know
Explain.

____Facilitates urban producers' access to available lands
____Provides incentives (e.g., property tax benefits for lands on which agriculture is practised)
____Provides seeds, tools or other resources
____Provides services and infrastructure (e.g., water supply, market stalls)
____Provides technical support or advice
If yes, are different approaches used to support male and female farmers? Yes No Do not know
Explain.

____Provides operating grants or credit to practitioners

If yes, are grants or credit available under different conditions
for male and female farmers? Yes No Do not know
Explain.

____Organizes urban agriculture programs (e.g., school gardens, youth programs)
If yes, are there restrictions to who may participate? Yes No Do not know
Explain.

____Demonstrates urban agriculture techniques through pilot projects
____Requires new developments to include space for farming on site level
____Requires new developments to include space for farming on neighbourhood level
____Other techniques or strategies?_____

SECTION F: NEEDS AND PRIORITIES FOR FUTURE ACTION

14. What are the **next steps or priorities for action** to respond to urban agriculture in your city?

15. Does your city keep **records or statistics** of urban agriculture activities? Yes No Do not know
If yes, what kind of records? (Please provide or attach available statistics about urban agriculture in your city.)

16. Finally, have you any **other thoughts or comments** about urban agriculture in your city, and the role of urban and regional planners or other city staff in facilitating or discouraging urban agriculture?

Thank-you for your participation.

Contact Information [Optional]
[NOTE: This information will not be included in an appendix to the report where you have requested confidentiality above.]

Please provide your contact information in full:

Name:

Job Title:

Organization, Department or Agency:

Work Address:

Work Phone:

Home Phone (optional):

Fax:

E-mail:

APPENDIX III

Case Cities, and Sources Used to Identify Survey Candidates

Sixty-*three* cities were identified as prospective case cities; eventually, survey respondents were identified for only forty-five of these cities, and 16 cities offered a survey response.

Surveyed cities

1. Dar es Salaam, Tanzania
2. Kampala, Uganda
3. Nairobi, Kenya
4. Harare, Zimbabwe
5. Durban, South Africa
6. Lusaka, Zambia
7. Ndola, Zambia
8. Kumasi, Ghana
9. Greater Accra, Ghana
10. Ouagadougou, Burkina Faso
11. Hong Kong
12. Bangkok, Thailand
13. Quezon City, Philippines
14. Singapore
15. Mexico City, Mexico
16. Port of Spain, Trinidad
17. Stockholm, Sweden
18. Toronto, Canada

Additional cities sent survey, but no response or failed transmission

19. Bamako, Mali
20. Dakar, Senegal
21. Kathmandu, Nepal
22. Hanoi, Vietnam
23. Kuala Lumpur, Malaysia
24. Calcutta, India
25. Chennai, India
26. Hubli and Dharwad, India
27. Delhi and Varanasi, India
28. Amman, Jordan
29. Lima, Peru
30. Sao Paulo, Brazil

31. Rio de Janeiro, Brazil
32. Porto Alegre, Brazil
33. Santiago, Chile
34. Havana, Cuba
35. Sofia, Bulgaria
36. Paris, France
37. St. Petersburg, Russia
38. Amsterdam, Netherlands
39. Seattle, United States
40. San Francisco, United States
41. Newark, United States
42. Philadelphia, United States
43. Sarasota, United States
44. Vancouver, Canada
45. Montreal, Canada

Additional cities originally identified as prospective
46. Bissau,Guinea-Bissau
47. Maseru, Lesotho
48. Gaberone, Botswana
49. Cotonou, Benin
50. Abidjan, Ivory Coast
51. Shanghai, PRChina
52. Jakarta, Indonesia
53. Bombay, India
54. Gaza
55. Dubai, United Arab Emirates
56. Beirut, Lebanon
57. Cairo, Egypt
58. Damascus, Syria
59. Buenos Aires, Argentina
60. Berlin, Germany
61. Sheffield, England
62. Lisbon, Portugal
63. Moscow, Russia

Sources used to Identify Survey Respondents:

Support Group for Urban Agriculture (SGUA) members

Canadian Consulates

ETC-Netherlands data base of UA researchers

IDRC Sidekick contact list

Canadian Urban Institute, Toronto, Canada

International Council of Local Environmental Initiatives (ICLEI), Toronto, Canada

CFP Report 26: Gender Resources for Urban Agriculture Research: Methodology, Directory and Annotated Bibiliography (1998, Alice Hovorka)

Other contacts from CFP Report Series

Workshop on Urban Agriculture, Ouagadougou, Burkina Faso, 15-18 June, 1997, participant list

APPENDIX IV

Contact Information

Survey Respondents who Authorized Identification:

Mr. Christian Adu-Nti
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Directeur de l'Analyse et des Statistiques urbaines
Ministère du Infrastructure, de l'Habitat et de l'Urbanisme
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Head, Technology Development and Services Branch
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