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Establishing Urban Agriculture in Your Community: What You Need to Know Before You Get Your Hands Dirty

by

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What is Urban Agriculture?

Agriculture is increasingly a part of city landscapes throughout the world and the United States is no exception. Urban agriculture (UA) is evident in the North and South, and in both affluent as well as disadvantaged communities. It is found in small towns and large cities and in areas supported by a variety of economic activities. And, as urban populations increase across the world, the importance and prevalence of UA will continue to grow (Bourque, 1999; Mougeot, 1999). In light of the significant differences among UA initiatives, it is important to establish those characteristics that are common to all such projects regardless of geographic, socio-economic, and political context.

An inclusive and comprehensive definition of UA needs to address six key dimensions (Mougeot, 1999):

1. *Type of economic activities:* While most perceptions of UA include the production of a phase of agriculture, it is important to appreciate the processing, marketing and trade components of the industry.
2. *Type of agricultural production:* UA incorporates a range of agricultural productions in addition to food production. Non-food production enterprises include the cultivation of ornamental and agro-industrial plants and crops such as silk worms and tobacco, respectively. It is important to remember that UA is more than a local food system and can contribute to the urban economy in many ways.
3. *Location:* It is generally accepted that UA occurs 'in (within) and around' cities or urban areas; however, there is considerable debate regarding what constitutes 'in (within) and around' cities or urban areas.
4. *Type of area where UA is practiced:* Criteria regarding which areas are typified vary among sources. Location can relate to residence (on-plot or off-plot), development status of site (built-up versus open-space), modality of tenure of site (cession, lease, sharing, authorized or unauthorized – through personal agreement, customary law or commercial transaction) or the official land-use category of the sector where UA is practiced (residential, industrial, institutional, etc.).
5. *Product destination:* Most definitions include agricultural production for both self-consumption and trade. Both destinations are usually found in varying degrees by the producers or households studied. Recent economic research aimed at specific (export) market-oriented production and has helped to clarify the economic performance of UA and its comparative advantages over other supply sources at both the producer and consumer level.
6. *Production systems:* Few definitions clearly include or exclude specific types of production systems. Generally, research efforts have focused on individual/family micro, small and medium enterprises, as opposed to large, national or transnational undertakings. However, recent studies have focused on how the bigger production systems interact with smaller, market-oriented production systems units and those used purely for self-consumption.

Except for location, all of the dimensions above can be applied to rural agriculture. However, *UA is different from, and complementary to, rural agriculture in local food systems*. To clearly distinguish urban from rural agriculture, it is necessary to appreciate the role UA plays in local economies. The following definition reflects the dimensions discussed above as well as UA's integration into the local economic system:

UA is an industry located within (intra-urban) or on the fringe (peri-urban) of a town, a city or a metropolis, which grows or raises, processes and distributes a diversity of food and non-food products, (re-)using largely human and material resources, products and services found in and around that urban area, and in turn supplying human and material resources, products and services largely to that urban area (Mougeot, 2002, 10).

Why is Urban Agriculture Important?

UA is one of the more effective activities urban residents are undertaking in an effort to take control of food security, social injustices and environmental degradation in their communities. It has provided food, jobs, environmental enhancement, education, beautification, inspiration and hope (Brown and Jameton, 2000; Mougeot 1999). The convergence of many factors such as high unemployment, increased food prices, elimination of food subsidies, the devaluation and systematic elimination of other social safety nets combined with increased interest in food security and healthy eating habits has resulted in many local UA movements across the United States and other parts of the world (Allen, 2003; Brown and Jameton, 2000; Mougeot 1999).

UA fulfills multiple functions and provides multiple benefits. At its best, UA cleans up waste sites, educates youth and keeps them out of trouble, provides employment, gives utility and respect to elders, builds community, recycles kitchen and other urban 'wastes' and produces fresh nutritious food. Because virtually all of the other functions of UA can be fulfilled through other activities, however, producing food is perhaps the single most important benefit (Henn and Henning, 2002).

In the poorest urban communities, food security¹ is the bottom line on why UA is important. However, UA is only one way to solve food security issues and should be considered in a larger context. Organizing around UA may not always be the best way to address food-security issues, but organizing around food-security issues is one of the best ways to promote UA (Brown and Jameton, 2000; Campbell, 2004).

Socio-economic Impacts of Urban Agriculture

The socio-economic benefits of UA are the most documented. UA can help alleviate urban poverty and hunger and increase the level of food security by controlling food production at a household level because the food is usually of better quality, lower cost and more consistently accessible than otherwise purchased food. Studies of UA have also shown encouraging data on the benefits that self-produced food can offer the urban poor (Adelman and Barton, 2002; Allen, 2003; Deelstra et al., 2001; United States Environmental Protection Agency [EPA], 2009a; Gardner, 1994; Kaufman and Bailkey, 2000;

¹ Food security refers to the availability of food and one's access to it. A household is considered food-secure when its occupants do not live in hunger or fear of starvation. Commonly, the concept of food security is defined as including both physical and economic access to food that meets people's dietary needs as well as their food preferences (World Health Organization, 2010).

Mouget, 1999). These benefits are financial as well as physical and include the reduction of household expenses and the nutritional advantages offered by self-produced food.

In addition, the beautification of neglected or vacant land by virtue of UA can lead citizens to extend their proprietary feelings for a garden plot to caring for the health and aesthetics of the larger community (Deelstra et al., 2001; EPA, 2009a). Cultivation of urban green spaces can offer facilities otherwise unavailable to the inner cities and also can reduce maintenance costs of parks. UA also provides benefits that are less tangible, such as increased social capital and community building (Bourque, 1999; Brown and Jameton, 2000; EPA, 2009a; Quon, 1999).

Environmental Impacts of Urban Agriculture

The environmental impacts of UA are varied. Responsible UA can be a non-polluting land use and can efficiently use and reuse scarce land and water resources (Adelman and Barton, 2002; Mougeot, 1999), reduce transportation energy needs, and packaging waste (Gardner, 1994; Quon, 1999). UA conserves energy and water resources and contributes to urban environmental sustainability. Urban household and other wastes can be reused by UA for fertilizer and waste water for crop irrigation. Both the reintegration of the waste stream with agricultural production (Adelman and Barton, 2002) and the ability of cities to feed themselves (Allen, 2003; Environmental Law Institute [ELI], 2002) has been recognized as a necessary foundation for environmentally sustainable urban communities.

Many urbanizing areas suffer from environmental degradation (Bartone et al, 1994). UA can contribute to the environmental restoration of these areas through revegetation, the restoration of hydrologic regimes and the conservation of topsoil. The potential for UA to counter land degradation is widely recognized. Domestic and international projects, such as 'Land Restoration through Waste Management' in India have received generous funding and are generating much positive attention for the benefits of UA (Bartone et al, 1994). When advocating the benefits of environmental protection and restoration, it is important to educate community residents about the results to avoid backlash and resistance.

It is important to note, however, that without appropriate precaution and monitoring, UA can contribute to environmental degradation. Reckless and negligent UA initiatives can have negative consequences such as soil loss, hydrologic implications, vegetation loss and unpleasant smells (Bartone et al, 1994). In fact, the environmental benefits of UA are often discussed in tandem with 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) (Bartone et al, 1994). Awareness of and attention to the conflicting views about the negative and positive environmental effects of UA should be a central concern for advocates and practitioners of UA.

General Obstacles to Urban Agriculture

For all of its acknowledged benefits, the practice of UA contains certain fundamental obstacles whether it is for-market or not-for-market purposes (Mougeot, 1999). However, due to the varying contexts in which UA is implemented, generalizing at too detailed a level undermines the improvisational nature of UA initiatives.

Obstacles to the general practice of UA fall into four broad categories (Mougeot, 1999):

1. site-related
2. government-related
3. procedure-related, and
4. perception-related

Site-Related Obstacles

Just as rural agriculture is affected by the physical attributes of the land on which it is practiced, so too is UA. In addition, the physical and political contexts of project sites themselves can present obstacles to establishing and operating successful ventures. Common site-related obstacles include, but are not limited to, site contamination, security and vandalism and lack of long-term site tenure.

Site Contamination

UA is commonly located on sites that may have been contaminated from past use. The toxicity of an urban site can be a significant obstacle to those forms of UA where food is grown in the soil. The underlying concern stems from the question of whether food produced on such land is safe to eat. The amount and type of contamination is unique to specific sites. While contamination levels may not be high enough to formally designate the property as a brownfield², knowledge of the area's past land uses can help urban farmers determine whether or not there are any potential health threats. For example, former commercial sites which may lie in close proximity to residential sections often have different combinations of residual contaminants due to many different uses. Automotive repair and refinishing shops leave behind metals and metal dust, solvents, paint and paint sludge, scrap metals, and waste oil, while dry cleaners leave spot removers and volatile organic compounds, such as chloroform (EPA, 2009b). It is important to note that while soil contamination is a serious contamination concern, toxic airborne particulates can make contact with produce above ground as well. Accordingly, it is good practice to perform testing to determine air quality as well as soil quality (Adelman and Barton, 2002; EPA, 2007a).

Despite government efforts to facilitate brownfield redevelopment, as well as the growing body of research developing techniques for effective site remediation, soil contamination can present too complicated and expensive an obstacle to permit UA on a particular site. Converting urban parcels into sites capable of food production can be costly, time consuming and legally complicated (Adelman and Barton, 2002; Henn and Henning, 2002). These expenses can prove especially off-putting to small community groups with limited time and money. To further complicate matters, there is no common understanding of standards for remediation. This puts UA practitioners in the position of having to distinguish on their own what they can control (such as the use of a safe growing medium, like raised beds) and what they cannot (state and local health and safety standards and regulations) EPA, 2007a; 2007b).

Security and Vandalism

Vandalism is an unfortunate reality that interferes with UA efforts. Many sites are community-oriented, requiring accessibility for a variety of individuals. Furthermore, most urban sites are fully

² Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off green spaces and working lands (EPA, 2010).

visible and have significant amounts of car and foot traffic both day and night. Thus, the opportunity for vandalism always exists, especially during the night. Common forms of vandalism include pilfering vegetables, trampling on plants, damaging or stealing signs identifying the project, and using the site to dispose of garbage, drug paraphernalia, and empty alcohol containers (Mougeot, 1999; Quon, 1999).

Lack of Long-term Site Tenure

A third site-related obstacle to UA is the difficulty individuals, groups or organizations managing projects have in securing tenure over property not owned outright. This is an especially common concern throughout the community gardening world (Monroe-Santos, 1998; Mougeot, 1999; Quon, 1999). This insecurity of tenure is often the reason community gardening is brought to the attention of the general public. For example, UA proponents protested the threatened loss of garden sites in New York City during the spring of 1998 when the Giuliani administration planned to auction off 112 community garden sites on city-owned property. The administration's motive was to gain revenue from the sale of these sites for development. Ultimately, all 112 sites were acquired by two open space land trusts, the New York Restoration Project, begun by entertainer Bette Midler, and the Trust for Public Land (ELI, 2002). While the outcome in this case was fortunate, largely due to the goodwill drummed up by celebrity advocates, many garden sites in New York and other urban areas still lack permanency.

The core of the tenure issue is that land used for urban food production is frequently owned by private entities or public agencies that view such land usage as temporary (Monroe-Santos, 1998). In some cases, advantageous leasing arrangements (such as rent payments of \$1 per year) are in place until arrangements are made to utilize these parcels more profitably, typically through development for other uses (Monroe-Santos, 1998).

Government-Related Obstacles

The social and political complexities of the urban environment mean that UA is affected by government control and regulation in different ways than conventional rural farming (Bourque, 1999; Mougeot, 1999). Governmental obstacles to UA activities are concentrated at the local level. Obstacles presented by state and federal governments are less direct. General disinterest regarding UA, however, is characteristic of all levels of government (Quon, 1999).

Local Government

Local government obstacles center around issues of policy and practicality (UA being a non-traditional land use), and attitude and ideology (whether UA represents the "highest and best" use of city land). Efforts by nonprofits to assume ownership or formal access to vacant city-owned parcels for UA represent those situations where this obstacle is likely to be evident (Quon, 1999).

UA projects can be complicated by conflicts among the different objectives of various municipal agencies having some control over the use and dispensation of vacant land. For example, the designation of vacant properties in many cities is commonly influenced by representatives from multiple departments and agencies. An application to use a vacant land parcel for open space or community gardening may be considered appropriate by one agency and inappropriate by another. Additionally, nonprofits seeking title to city-owned surplus property could face numerous additional points of contact regarding the application. Even after an application is approved, property transfers can take years to complete (Quon, 1999). Such inefficient management of vacant land in

cities with high inventories of unused properties, along with the lack of a comprehensive vision of vacant land reuse, can present very real obstacles to UA.

The general lack of support within city government represents another political obstacle for UA. This could be the result of a narrow understanding of UA and its benefits, the perception of a limited constituency for UA or simply a focus on other civic priorities (Bourque, 1999; Mougeot, 1999; Quon, 1999). UA is typically disregarded when city officials are searching for viable economic opportunities. Factors such as these lead to a widespread and less-favorable attitude among city government officials about food production as an appropriate use of potentially valuable land. It is this atmosphere in which public campaigns to save threatened community garden and UA sites are played out. Fortunately, such attitudes towards UA are not always consistent throughout local government. Support often exists within city agencies providing social services or promoting environmental objectives or even among legislators who are environmentally conscious or concerned with food security issues.

Federal and State Government

A similar lack of support for UA exists within higher levels of government (Bourque, 1999; Quon, 1999). Similarly, these views often reflect a negative or uninformed perception of UA based on the entrenched view of agriculture as a rural activity. At the federal level, there is little financial support for UA. It comes primarily from the Department of Agriculture's Community Food Projects program which is appreciated in concept but is believed to have too small a budget to adequately meet the needs it seeks to address. In FY 2000, for example, the program received only \$2.5 million out of the \$120 million allocated to USDA's Initiative for Future Agriculture and Food Systems. Proponents of UA who support the community building possibilities of UA also note the lack of direct support from the Department of Housing and Urban Development except in certain cases that allows UA projects to be eligible for Community Development Block Grant (CDBG) funds through city agencies. Other potential sources of federal support, such as the U. S. Environmental Protection Agency or the Department of Health and Human Services, rarely deliver any significant financial resources (Quon, 1999).

The perception of agriculture as a rural, not urban, activity is also common within state government (Heimlich and Anderson, 2001). In some states, there are signs of decreased investment in programs supportive of UA. Municipal budget cutbacks have severely limited the role of county extension agencies. Similar budget reductions have strained the support that academic institutions are able to offer UA programs.

Procedure-Related Obstacles

UA operations are difficult to initiate and maintain once established. A number of procedural obstacles exist for UA practitioners (Mougeot, 1999; Quon, 1999). Most of these obstacles apply to all forms of UA while others apply only to the extension of UA into for-profit endeavors. Specific procedural obstacles will differ among projects, depending on context and circumstance. This reinforces the improvisational nature of UA and serves as a warning against generalizing at too detailed a level.

Inadequate Financial Resources

Many procedural obstacles reflect the lack of financial resources for UA. In fact, the lack of a steady and consistent stream of outside funding may be the single biggest procedural obstacle to the continued advancement of UA. It is a common characteristic of these activities that they are run on

very limited budgets. Although a community garden can be successful on a shoestring budget with help from volunteers and in-kind material donations, a limited budget can be an obvious deterrent to a market-based operation with greater expenses and less expectation of covering these costs through product sales. The 1999 University of California study of entrepreneurial community garden projects found that, on average, only between one-quarter to one-third of total project expenses were earned back through market sales (Feenstra et al. 1998).

Many UA projects have successfully utilized grant funding. The most frequent source of grants is local government (though federal Community Development Block Grants, for example) with the federal government also being a common funder (through the USDA Community Food Projects program and the Job Training Partnership Act, among other sources) (Feenstra et al. 1998). Grants from local foundations, small donations from individuals and fundraising events are also common sources of outside support.

Working in this atmosphere, many UA project managers have become adept at combining funding from several sources. Although piecing together financial support may appear to bypass the obstacle of limited funding, large amounts of time and energy are required to identify grant sources and submit proposals. Thus, project self-sufficiency is a common objective of entrepreneurial UA (Kaufman and Bailkey, 2000). Few sources of public funding specifically designed to include UA are available. Those that do exist, such as the USDA Community Food Projects program, are not focused solely on UA. The increasing popularity and occurrence of UA, however, suggests that there will be greater financial support from the federal government in the future (Kaufman and Bailkey, 2000).

The Need to Recruit and Retain Qualified Staff

A critical need of UA organizations is to find and retain qualified staff to manage the time- and labor-intensive projects. Moreover, in the case of low-income communities, staff members need to communicate and work effectively with residents at very basic levels of training and supervision. Such positions require specialized knowledge and experience; however, those willing to work UA projects are typically low-paid and often young with little previous growing experience. Although they may make up for this lack of experience with energy and enthusiasm, they are susceptible to the pressures of community-based work, including long hours, multiple responsibilities, and the stresses of fundraising (Mougeot, 1999).

Inadequate Time

Better performance in UA ideally comes with experience. The time frame of a start-up grant or the course of a fixed-term arrangement for the use of a particular parcel is often not enough time for project managers to get the operation underway (Kaufman and Bailkey, 2000; Mougeot, 1999). Consequently, projects involving staff and neighborhood workers with little experience can experience unsteady beginnings.

Small-scale Projects

Managing projects at a scale large enough to justify the investment in time and expense is often a concern (Gardner, 1994; Mougeot, 1999). UA is often located on small, residential-sized plots in the inner city. While its benefits can be attained in small garden patches, making for-market UA ventures successful may require a certain level of size and scale for which there are no commonly-accepted standards. Land availability in targeted neighborhoods can also be challenging.

Coordinating a Project across Scattered Sites

This is a potential problem in residential neighborhoods where vacant parcels form a “missing teeth” pattern, meaning a mixture of buildings and vacant lots along the same block (Mougeot, 1999). The land available for an UA operation in such an area may be forced to split itself across multiple sites. Even if the total area is adequate for the project’s intentions, fragmenting an UA project could result in managing each site separately. This can lead to certain inefficiencies, such as having to transport equipment from site to site versus duplicating equipment, arranging separate water provisions or spending work time commuting from site to site.

Conflicts among Partners

Organizations undertaking UA sometimes find it necessary to partner with other groups to access land and obtain technical and financial support. Regardless of the context of the particular UA project, all partnerships are uncertain in the long run because the agendas and objectives of the different partners may differ and are subject to change (Kaufman and Bailkey, 2000; Mougeot, 1999).

Lack of Sound Business Planning

Both non-market and for-market UA projects require strategic planning (Kaufman and Bailkey, 2000; Mougeot, 1999). Anticipating future events and establishing appropriate contingencies can be especially challenging. Entrepreneurial UA ventures, in particular, are small businesses like any other. If a young organization lacks a sound business plan, including careful estimates of expected costs and revenues, the project may not be tenable in the long-term. These demands require special skills which not all project managers can be expected to have.

High Start-up Costs

Initial operating costs can present difficulties for practitioners of UA, especially individual urban farmers and nonprofit organizations that have scarce resources (Gardner, 1994; Mougeot, 1999). Significant start-up investments may be needed for such activities as site preparation and environmental remediation, greenhouse construction and acquiring and installing kitchen and other processing equipment.

Losing Touch with Project Objectives

The investment in time, money and effort of UA requires a focus on certain clearly defined objectives (Kaufman and Bailkey, 2000; Mougeot, 1999). It also means that, on occasion, the challenges of pursuing one objective may compromise the achievement of another. Social agendas can be compromised by competing financial objectives.

Perception-Related Obstacles

It is clear that many of the obstacles described so far are based upon uninformed or negative perceptions of UA. Although community gardens are not new to cities, the basic idea of city farming by for-profit or non-profit organizations is a novel one when compared to more conventional land uses. In addition, the image of working the soil is, for better or worse, loaded with cultural meaning (Mougeot, 1999). This, in turn, affects people’s perceptions of the validity and worth of UA.

A significant group of obstacles involve negative perceptions toward cultivating food within cities. Concerns for the safety of produce grown on previously developed and vacant lots are often expressed

(Brown and Jameton, 2000). Perceived low economic payback of urban food production relative to the costs involved is another common argument against UA (Deelstra et al., 2001; Gardner, 1994).

A more widespread negative perception is simply that agriculture does not belong in the city. Food production is seen principally as a rural activity, not an urban concern (Heimlich and Anderson, 2001; Mougeot, 1999). This was mentioned previously as a significant reason for the lack of governmental support for UA. Some who favor programs to grow more food locally and regionally advocate for more supportive governmental action to create stronger and more direct linkages between farmers and urban consumers. They point to the perception of many that farming is an inappropriate use of city land.

A Special Set of Obstacles: The Limited Presence of Community Development Corporations in Urban Agriculture

Recent studies show that many community development practitioners lack a basic interest in UA as a non-traditional Community Development Corporations (CDC) activity (Adelman and Barton, 2002; Deelstra et al., 2001; ELI, 2002; Quon, 1999). However, UA's economic development potential for CDCs deserves more investigation.

Community development organizations tend to be conservative when setting their agendas (ELI, 2002). They avoid activities seen as risky and focus on what has proven to be successful for them, such as affordable housing and small business development. Even those CDC representatives more open to the potential of UA are still wary of investing any of a CDC's limited resources in an untested and unknown activity.

Disinterest within Conventional Community Development

A simple lack of interest is the major obstacle to the involvement of community development organizations with UA (Adelman and Barton, 2002). Affordable housing, along with job creation and training, youth programming and the provision of social services remain their primary development activities. Food concerns are generally addressed through efforts at re-establishing supermarkets in central city neighborhoods. A successful new supermarket allows community development organizations to simultaneously accomplish multiple community development goals, such as physical improvement of an area, job creation, increased availability of fresh and affordable food and keeping neighborhood resources within the neighborhood.

The effort involved in physically developing an urban site is difficult under any circumstances, so returns on the effort should match the expenditure of effort. The historical experience of community development has fostered a general mindset that values projects which improve the community physically, economically and socially (Adelman and Barton, 2002). And while UA can also enhance a neighborhood in these areas, it is difficult to imagine it having the same impact as physical construction. Familiarity and success with affordable housing and other economic development initiatives, such as new supermarkets, has effectively established a working template for CDCs.

Lack of Interest by the Community

Community-based organizations claim to be sensitive to the wishes of its constituents. Thus, buy-in from community residents is a critical component of their success (Adelman and Barton, 2002; Deelstra et al., 2001). Unless CDC staff hear of a legitimate desire from neighborhood residents or from

members of its governing board to invest its limited resources in UA, it is unlikely to do so for fear of appearing unresponsive to community needs. The many benefits of UA, then, do not necessarily result in an automatic endorsement of urban farming as an activity worth doing, especially if it is felt that a neighborhood's needs for jobs or more and better housing are more important.

Limited Capacity to Practice Urban Agriculture

A third obstacle is the perception among neighborhood nonprofits that they lack the practical knowledge and capability to successfully undertake UA. Again, this relates to a lack of direct experience with a non-traditional development activity. The concept of internal capacity, defined as the extent to which an organization is able to achieve its objectives, is important in studies of CDC effectiveness (ELI, 2002; Robertson, 1999). A responsible development organization wants to be able to do what it promises the community it will do. UA, even in its simpler forms, represents a special set of methodologies and techniques learned directly through experiences that such organizations cannot typically claim.

Low Economic Return

An emphasis on the bottom line among community development organizations leads to their concern that the benefits of UA will not outweigh its costs. Again, contemporary CDCs expect new projects to deliver the same profits as those associated with housing or commercial development. This is not to say that CDCs ignore the "soft," less quantifiable benefits of community development, such as empowerment and neighborhood pride. However, the driving issue behind any combination of UA with community development is whether the economic value of city farming is as satisfactory to the initiating organization (and its financial supporters) as its social value may be to the community (Adelman and Barton, 2002).

Research into the economic returns of for-profit UA concludes that most operations produce only modest revenues, even when subsidized (Gardner, 1994; Feenstra et al., 1999). The 1999 University of California study of entrepreneurial market gardens found that 13 of the 23 operations reporting annual sales figures made less than \$10,000 and only three earned more than \$50,000 (Feenstra et al. 1999). Two of these three high-earning operations sold value-added products, which typically require additional investment in staff, planning and equipment. These figures seem insignificant when compared to the profits from a new supermarket, not to mention the spin-off effects of a supermarket to neighborhood business revitalization. The modest revenues reported in the California study, however, reflect the scale of operations initiated by small nonprofits with little or no history of this type of physical development.

Overworked and Underfunded

Each of these obstacles reflect in one way or another the general observation that the typical CDC is small, overworked and too poorly funded to adequately address the breadth of community needs it confronts (Adelman and Barton, 2002; Deelstra et al., 2001; ELI, 2002; Feenstra et al., 1999). They try to fill in government service gaps and are forced to manage political pressure from within the community to find the right balance among conflicting needs. The result is a high-stress job with high rates of turnover. Even CDC staff members who are interested in the concept and potential of entrepreneurial UA have difficulties seeing how their organizations could fit such projects into their already busy program agendas. In such an environment, adding UA to a community development agenda would

need to be carefully assessed relative to other needs traditionally seen as more important, such as affordable housing.

Other Obstacles

Even if a community economic development group is willing to address these primary obstacles to entrepreneurial UA, there are still others it will have to confront. In addition to the obstacles such as land contamination and acquisition and the shortage of public funding addressed in this section, the lack of successful models to emulate is another important obstacle (Adelman and Barton, 2002). Community developers tend to depend heavily on information describing what has or has not worked in other situations. There are simply too few examples of successful UA ventures for them to learn from.

Partnership problems are of special concern as well (Kaufman and Bailkey, 2000; Mougeot, 1999). Community greening/ gardening groups are logical providers of the support and expertise that local development groups lack. The development of a partnership based on commonly held community objectives is logical reasonable; however, problems can occur with regard to planning and management roles, turf battles and the possibility that the objectives of any partner may change over the course of the arrangement.

Land Constraints to UA and Planning Factors that Reinforce Constraints

Land Constraints to UA

UA faces both intentional and unintentional constraints, especially related to land. These constraints can be linked directly or indirectly to planning and management interventions in urban and peri-urban (on the fringe of urban areas) areas and 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 reinforce these constraints (Allen, 2003; Campbell, 2004; Ellis and Sumberg, 2008; Quon, 1999).

While not all UA 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 activities. Ellis and Sumberg (2008) observed:

The existence, prevalence and growth, if it occurs, of food production in urban environments are 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).

The main issues faced by urban farmers are the availability of, access to, and usability of land (Ellis and Sumberg, 2008).

Availability

In areas of increasing urbanization, undeveloped land for agricultural use may not be available or may be difficult to access. Urbanization may displace farming activity (by replacing farming with land uses deemed more profitable) or prevent new farming from starting (by new construction and

development). Because agriculture does not generally produce economic returns as high as some industrial uses or housing, urban development pressures may coerce land holders to sell their urban plots. Land speculation may lead to the purchase of city lands, distorted land prices and sprawling development patterns. Because planning decisions, such as locating transportation routes or permitting land uses in particular areas, can influence the value of urban land, 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 1999; Quon, 1999). Not knowing the ownership or tenure arrangement of properties because of a lack of records or frequent change of hands can further confuse how much land is available for farming in a community or the prevalence the practice of UA.

A lack of available plots of land does not often dissuade urban farmers. Urban farmers tend to be opportunistic and find ways to use the smallest plots or strips of land and water in creative ways (Ellis and Sumberg, 2008). 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, sometimes without the farmer being aware of the hazard. 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 sources 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 (Ellis and Sumberg, 2008). 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.

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 (Ellis and Sumberg, 2008).

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 (Ellis and Sumberg, 2008). In some communities, discrimination based on race, gender, or socio-economic status may prevent equal access to land, credit or financing opportunities. In addition, there may be socio-cultural restrictions on who can own or use land or different kinds of land tenures available (Mougeot, 1999). Land access may be further constrained by missing or inaccurate records of who presently owns or has owned the property in the past.

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, constraining what kinds of agricultural activities can occur on the site as well as what technologies might be applicable. Services such as water access, the quality and availability of transportation infrastructure and access to technology are external factors that can determine a plot's usability (Ellis and Sumberg, 2008). Without these things, farming small urban spaces may not be economical or worthwhile.

Planning Factors that Impose or Reinforce Land Constraints

Before beginning an urban agricultural project, whether it be small or large, for-market or not-for-market, it is important to understand the role of the planning policy context and how it imposes or perpetuates these land-related impediments to UA. Because UA occurs in urban areas 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 and the planning policy context can impose and perpetuate the identified land constraints in three main ways (Quon, 1999):

1. Through the institution of planning. This includes the institutional structure (that is, the organization of and relationships between people who plan at local and regional levels of government) as well as 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).
3. Through cultural norms and attitudes of the key actors 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 (Quon, 1999). Below is a discussion of how the organization and resources of the planning institution can contribute to these land constraints.

Responsibility for Urban Agriculture

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 government. 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 to provide urban services and public education while remaining accountable to the public. This general assertion is further applied to the specific activities of UA. However, without effective environmental planning or support for environmental goals and objectives, communities lack the capacity to adequately address UA (Bartone et al., 1994).

Respondents from a survey of urban planning professionals conducted by researchers from the International Development Research Center (IDRC) expressed the potential for confusion and conflicting responsibility with regard to UA (Quon, 1999). Their responses generally confirm the assertions made in the 'government-related obstacles' to UA. In the surveyed cities, a wide range of participating agencies from different levels of government shared responsibility for different stages of UA. Of the cities surveyed, most had two or more parties responsible for policy development,

identifying appropriate locations, registering, permitting and monitoring UA and providing extension services for UA. The departments involved included (Quon, 1999):

- 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
- Nonprofits

Survey respondents reported that it was generally the responsibility of urban planners to identify locations for UA while local municipal councils were responsible for permitting UA 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 (Quon, 1999).

Regulating and Supporting Urban Agriculture

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) (Quon, 1999).

Enforcing Policy

UA activities may suffer from either one or a combination of the following factors: a presence of prohibitive land use; UA policies or a lack thereof; or inconsistent enforcement of supportive policies. Inconsistent and inequitable enforcement may be as problematic as a lack of enforcement of land-use policy, resulting in local resentments and a general lack of faith in planning policy (Quon, 1999).

Farmers' lack of awareness of or disregard for applicable 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 (Quon, 1999). Farmers may be confused by policy and legislation that is not enforced consistently or when perceived as unfair and uncertain, it may be disregarded. Additionally, opportunistic urban farmers such as those described in the discussion of land availability as a constraint faced by UA, may or may not be aware of relevant legislation (Ellis and Sumberg, 2008).

Keeping Land and Agricultural Records and Statistics

Land management in urban areas is complicated by a lack of clear records of land ownership or land tenure (Bartone et al. 1994; Quon, 1999). 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 accurate records, land transactions are difficult to control. Statistics about UA are rarely collected. 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 (Quon, 1999).

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 (Gardner, 1994;

Quon, 1999). 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 (Quon, 1999). 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 (Quon, 1999). Maxwell and Armar-Klemesu (1998) asserted that the legal and regulatory framework of a city, along with access to land, poses the most significant constraint to UA. The main policy problems are that UA is either ignored and not addressed or severely restricted in land-use policy (Maxwell and Armar-Klemesu, 1998; Quon, 1999).

Form of the Policy Framework

Planning decisions are not always based on formal comprehensive planning policy. In some communities, planning decisions may be guided by an assortment of written and unwritten rules and by-laws combined with more formal policy statements (Quon, 1999). 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 do not explicitly discourage UA, they may be interpreted as such. This variable and uncertain way of making land-use decisions makes it difficult for proponents of UA 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 UA to different degrees, ranging from full endorsement to prohibition. Some urban planners question the need for UA-specific policy at all, urging instead that UA be addressed under existing agricultural, land-use or environmental policy (Ellis and Sumberg, 2008). Supporters of UA, however, argue that permissive UA policy with specific objectives, such as equity entitlements to food and other urban area resources, is the most effective means of developing policy. They insist that it is the job of policy to adapt institutions to its citizens' needs, and not the other way around (Quon, 1999).

A key policy problem occurs when UA is not recognized or named as a land-use activity. Studies show that many municipalities dismiss UA as a short-term, interim activity, undertaken until a more economically productive land-use is available (Monroe-Santos, 1998; Quon, 1999). 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. Without baseline understanding of the state of UA, misconceptions about its socio-economic importance will persist (Allen, 2003; Henn and Henning, 2002; Ellis and Sumberg, 2008). Consequently, UA may not be addressed, either positively or negatively, in urban planning policy (Ellis and Sumberg, 2008). Without recognition, UA remains a marginalized activity.

In other cases, UA may be recognized, but viewed negatively and either suppressed or discouraged by formal land-use planning mechanisms. In certain instances, 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) (Quon, 1999). If left

unaddressed, UA activities will inevitably conflict with other land uses, perpetuating concerns that agriculture is unsuitable for urban environments.

Attitudes and Cultural Norms

The perceptions about agriculture held by planners, legislatures 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 inappropriate in urban areas (Bourque, 1999; Mougeot, 1999). In many instances, agriculture and urbanization are seen as necessarily conflicting, where “any non-built use of land is seen as temporary” (Monroe-Santos, 1998). UA can also be viewed as a “backwards” activity, one that gives a community an “unprogressive” air, detracting from the “prosperity” that comes of industrialization (Mougeot, 1999).

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 (Quon, 1999). These ideas can determine what land uses get recognized in land-use plans and whether resources are made available to support particular activities (Quon, 1999).

When asked whether they believed that UA is appropriate in their city, the majority of respondents from a survey of urban planning professionals conducted by researchers from the IDRC agreed that UA is appropriate (Quon, 1999). The reasons they cited most often were that UA provides income, employment and health benefits. Respondents noted that UA can improve the economy of the community, improve quality of life (through neighborhood beautification, improved community food nutrition, and increased recreational activities) and protect the environment. That UA might degrade the environment or merit regulation to prevent other nuisances was mentioned by only a few respondents.

Farming and Non-farming Public

If they are informed about issues and participate in community planning and decision-making, the attitudes of community residents can have a significant impact of attitudes of politicians and other government decision-makers (Bartone et al., 1994). Unfortunately, the opinions held by citizens on the merits of UA and on how it should be practiced vary widely. 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 practiced by unsophisticated and unlawful people and is an inappropriate urban land use. However, for urban farmers to change their behaviors 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 (Mougeot, 1999).

This section has 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 appropriate land uses for the urban area.

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.

UA will become increasingly prevalent with increased urban in-migration and the consequent problems of hunger and poverty. Planners are faced with the choice of creating local and regional policy that regulates UA, or policy that regulates *and promotes* UA. Maxwell and Armar-Klemesu(1998, 32) observed: “Ultimately, the vibrancy and health of urban agriculture depends on the level of active support from municipalities.”

Solutions and Responses to UA Constraints and Barriers

The previous sections have described both general and 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. Based on the available UA literature and the responses of those urban planning professionals surveyed by the IDRC, this section offers some general solutions regarding how these obstacles can be overcome.

Changing the Organization and Resources of the Planning Institution

A lack of clear responsibility for UA has been identified as a key problem posed by the planning institutions. Without a mission-driven agency or organization to regulate and support its activities, UA is often ignored or intentionally suppressed. Possible responses to this issue include: allocating responsibility for or clarifying jurisdiction over UA, increasing resources allocated to UA and developing the mechanisms to distribute these resources, enforcing policy measures and establishing clear records about the state of UA (Quon, 1999).

Allocating Specific Responsibility for Urban Agriculture

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 or the clear sharing of responsibilities between departments is a potential solution to such conflicts (Quon, 1999).

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 the environment (Quon, 1999). In many instances, non-governmental agencies have taken on this role where government has failed. NGOs have proven to be successful and responsible advocates of UA , coordinating activities, developing policy, developing a regulatory framework and building urban management capacity, providing advisory services and technical and logistical assistance (Ellis and Sumberg, 2008).

An agency responsible for UA should, or should delegate to others, a variety of tasks. Opportunities for UA need to be identified and access facilitated. Assistance and support, such as providing credit, for UA practitioners needs to be offered. UA needs to be consistently monitored and regulated and research conducted (Quon, 1999). Responsibilities for these different stages or aspects of UA need to be clearly allocated and undertaken or overseen by the responsible body for UA.

Providing Resources for Programs and Enforcement

The planning institution demonstrates its capacity to support UA by providing programs or pilot projects as well as extension services for farmers in the form of materials, equipment or technical advice, assisting farmers in gaining temporary access to land through the use of permitting agreements or facilitating the transfer, conversion or restoration of contaminated or other environmentally denigrated land for UA (Quon, 1999).

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 city green spaces and parks as well as neighborhood and academic environmental programs (Ellis and Sumberg, 2008).

Financing through Credit and Loans

Government or planning institutions can offer assistance to farmers in the form of grants, loans or credit. The potential for UA to improve the social and economic well-being of citizens has been recognized in communities where urban farmers are given priority for loans and credit as well as additional economic incentives such as insurance coverage for farming activities and discounted water rates (Maxwell and Armar-Klemesu, 1998).

Collecting Baseline Data Planning and Land banking

It was noted in the previous section 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 (Mougeot, 1999).

While planners may conduct land-use studies as a basis for planning policy, UA 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 areas. Investigations should include determining what kinds of agricultural activities are practiced in the community, where, by whom (e.g., age, gender, race, 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 (Mougeot, 1999; Quon, 1999).

Also, having basic information about the land resources of a community can be useful for the promotion and regulation UA (Maxwell and Armar-Klemesu, 1998). 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 UA 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 allows planners to better assist prospective urban 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 parcel level (Quon, 1999). 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.

Enforcing Policy and Providing Incentives

Enforcement of UA policy, by-laws and zoning restrictions is an important demonstration of the planning institutional capacity (Adelman and Barton, 2002). 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 and the planning institution itself.

There are other means available to local government to effect UA policy, such as enforcement or the provision of incentives. Alternatives to the traditional means used by government to affect UA policy include community-based monitoring and peer-enforcement of regulations (Henn and Henning, 2002).

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 (Quon, 1999). 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 Armar-Klemesu (1998) recommended project monitoring, especially to discover the environmental impacts of UA.

Changing the Policy Framework

Changes to the existing policy framework, or the legislation, policies, zoning, and by-laws that guide and regulate particular land-use activities, can benefit UA (Quon, 1999). Planners are tasked with developing and promoting sustainable land-use patterns that minimizes transportation and energy demands and protects green space (Quon, 1999). Incorporating UA into this agenda, though, requires its explicit recognition in policy, establishment of zoning that is more accommodating, the development and enforcement of UA-friendly by-laws and support at the regional level.

Recognizing and Supporting UA in Policy

Proponents of UA advocate changing or removing policies and legislation that restrict or discourage UA and urge the creation of policies and legislation that directly or indirectly improve conditions for UA (e.g., through statements supporting urban sustainability and alleviating the effects of poverty). They recommend that UA-specific policy be incorporated under agricultural or land-use policy (Ellis and Sumberg, 2008). Environmental protection policy can also promote urban sustainability and is also an effective place for UA policy (Bartone et al., 1994). UA can also be encouraged through more general municipal planning policies, such as those that support alternative uses of urban spaces or assert support for urban design and management practices (Quon, 1999).

Policy will not change without increased recognition and acknowledgment of UA by city authorities (Quon, 1999). Being recognized and addressed in policy and regulation would offer UA legitimacy

and provide eligibility for services such as water or recycling/waste management (Ellis and Samberg, 2008). Local planning policies need to recognize UA and its ability to contribute to urban planning goals. The first step in recognizing 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.

Favorable 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, it is an obvious target for UA policy reformers (Ellis and Samberg, 2008). UA could be permitted under traditional zone classifications (for example, added as a permitted activity in open or green spaces) or permitted under new zone categories explicitly dedicated to agricultural use (Ellis and Samberg, 2008; Quon, 1999). 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 (Quon, 1999).

Regulation through By-laws

By-laws are used to uphold land-use zoning designations and non-location-specific policies. By-laws that allow UA, while specifying restrictions, are commonly suggested as a means to permit and control UA by local government (Quon, 1999). Such by-laws need to specify which UA activities are permitted and which are not 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 Samberg, 2008) that legalize UA (Gardner, 1994) with some regulation.

Regional Involvement

National or state level government departments (e.g., agriculture or health) can assert a great deal of influence over local agricultural activities. The opportunities offered by top-down policies for UA have been recognized by some UA proponents who recommended couching community land-use planning for UA at the regional level (Adelman and Barton, 2002). 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 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 (Adelman and Barton, 2002).

Changing Attitudes and Responding to Cultural Biases

Deeply-held cultural norms and ingrained attitudes may be at the root of resistance to UA and, 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 (Bourque, 1999; Mougeot, 1999). Education of legislators, planners, and citizens, is the key to changing such attitudes.

Education of the Public on Urban Agriculture Benefits

The attitudes and values of citizens who participate in UA, as well as those who do not, can influence 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. Studies to discover those UA practices perceived to be most or least harmful by citizens would be extremely useful for UA advocates (Mougeot, 1999).

There are various ways to change negative or inaccurate perceptions of UA. In many communities, local NGOs may have greater resources, trust and influence over the local population than the local government (Ellis and Sumberg, 2008). These organizations may be the most effective means to effect land-use change in a community. In addition, UA education can benefit from being linked to other education campaigns about urban issues (e.g., health, nutrition, education, environmental awareness) (Brown and Jameton, 2000; Bartone et al., 1994). For instance, agricultural issues can be incorporated into elementary school curriculums, providing 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

Opponents to UA are not the only constituency in need of increased education. Urban farmers who view planners and politicians as adversaries and policies and by-laws as something to be defied also require illumination. While their anger and mistrust of the planning process may be justified, urban farmers need to learn about legal ways to assert their interests in the political arena and participate in policy-making where possible (Mougeot, 1999). Feenstra et al., (1998, 23) observed that 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." Urban farmers need to become familiar with 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 (Feenstra et al., 1998). 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 (Heimlich and Anderson, 2001). By forming groups or cooperatives, urban farmers can gain a stronger political voice, and a greater ability to influence the attitudes of politicians (Bourque, 1999; Mougeot, 1999).

Education of Politicians on UA 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 of legislation at other levels. Thus, the attitudes and values of politicians can have a strong influence on the official acceptance of UA in a community and its ability to overcome land-related constraints (Bourque, 1999; Quon, 1999). Information campaigns employing various media, seminars and training, and written material can be used to alter either the negative attitudes to or misunderstandings of the public and politicians about UA.

Because economic arguments may be most persuasive to some critics, efforts should be made to quantify benefits of UA to communities in monetary terms (Bartone et al., 1994; Gardner, 1994). Bartone et al. (1994) suggested such comparisons of different land-use pattern options accompanied by quantitative modeling to demonstrate the effects of different land-use planning policy. Such comparisons, however, are difficult and often cost-prohibitive for local planning departments. One the other hand, involving municipal staff in research as both advisors and contributors can be instrumental in influencing their ideas and attitudes about UA.

Education of Planners on Urban Alternatives

Planners themselves may have strong 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 the elimination of poverty (Deelstra et al., 2001; Feenstra et al., 1998; Mougeot, 1999). Urban planning

should be used to fulfill the social and economic needs of citizens, including UA (Campbell, 2004; Mougeot, 1999; Quon, 1999). Planners should critically reevaluate traditional value judgments and take guidance from local citizens themselves, working together to find locally-accepted solutions and standards (Quon, 1999). Planners need to change their approaches to dealing with urban problems and alter how they assess measures to meet problems (Campbell, 2004; Quon, 1999).

An underlying and more sustainable means of gaining long-term support for UA is to increase the practice of environmental planning and reinforce the role of UA as an integral component of environmental sustainability. Such land-use patterns would minimize transportation, save energy and protect green space and reduce excessive resource consumption (Adelman and Barton, 2002; Henn and Henning, 2002).

Five strategies have been identified that can be used to overcome constraints to the practice of UA (Quon, 1999). They are summarized below:

1. Clarifying responsibilities for UA and ensuring that there is coherent and consistent government policy regarding it;
2. Reworking and creating policy to recognize and encourage UA, as well as removing policy that prohibits UA;
3. Providing support, technical services, and financial support, or linking the available services with those in need;
4. Overcoming negative perceptions (justified and unjustified) about UA held by the various players in the planning process through a combination of targeted and persuasive education, demonstration and participation; and,
5. Overcoming traditional ideas about what are appropriate activities in a city and how to best address the real needs of community members.

The Roles to Effect these Changes

As described in earlier sections, 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 politicians, UA practitioners and 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 favor UA (Quon, 1999). Legalizing UA at the local level, through the recognition and acceptance of UA in urban planning policy, gives farmers and their practice legitimacy and stability. This is the necessary first step toward providing more formal programs and services to urban farmers.

Planners can promote a favorable community disposition towards a land use such as UA. They can do this by clarifying the role of UA in the social and economic life of a community and promoting its potential positive benefits for the community (Mougeot, 1999).

Furthermore, planners are well-positioned to assist farmers, and the NGOs who support them, with information on land-use and zoning changes, impending developments and assisting them in using the planning process to voice their concerns about UA-related issues. This 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 (Quon, 1999). Planners hold a unique position with regard to their capacity to encourage and speed community-directed projects and serve as a mediator in land-use conflicts. Planners are also well-positioned to present alternate visions of our communities, and to change how we think about urban areas (Quon, 1999).

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 UA

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 (Quon, 1999). NGOs can lend legitimacy to UA (Bourque, 1999; Mougeot, 1999). NGOs can further the cause of UA in several important ways, including monitoring of 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 (Bourque, 1999; Mougeot, 1999).

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 and to explain why and how it occurs. Their research findings should be widely distributed and made accessible to reach all actors in the planning process, especially decision makers (Mougeot, 1999).

Conclusion

The specific methods each community uses to enhance its own planning institutions and policy framework cannot be prescribed. Each community must assess the particular obstacles faced by urban farmers from the institutions of planning, the policy framework and cultural norms and attitudes within their community and incorporate whatever combination of responses to these factors that may be appropriate. Likewise, there is no precise way to prescribe particular strategies for planners to work from inside the institution, as each municipality has its own culture and traditions. However, recognizing the range of options and learning about the experiences and successes of other communities can provide an important foundation from which decisions about what might be the best

course of action can be made and how best to change the planning policy context to improve opportunities for UA.

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