

**Urban Gardening:
Cultivating More Than Just Produce**

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Karla Zubrycki

Institute of Urban Studies

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Zubrycki, Karla
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Abstract

The two sustainable development goals of high-density development and urban gardening have conflicted with each other in recent decades. When land is available, particularly in the inner-city, a choice must often be made between using it for housing or other development and using it for community gardens. When viewed merely in economic terms, community gardens appear to have little value compared to residential development. When viewed in terms of educational, economic, social, health and ecological benefits, the multi-faceted, linked values of urban gardening become evident. This paper explores these benefits, the conflict between development and urban gardening, the validity of each argument and, finally, how the conflict can be resolved while still achieving more sustainable development.

Introduction

The average urban area offers its citizens very “packaged” and contained lives, both literally, in terms of available food, and even sometimes metaphorically, in terms of socialization within neighbourhoods. Most fruits and vegetables are bought in grocery stores, thereby distancing urban residents from the land on which the produce is grown (Barton 2002). Depending on the neighbourhood, these same residents may also have limited opportunities to get to know their fellow residents. Particularly in places such as the Spence Neighbourhood, urban gardens provide valuable venues at which to both get in touch with the Earth and get to know one’s neighbours. Perhaps even more importantly, urban gardening, when properly implemented, contributes to the attainment of sustainability goals set out in the United Nation’s Local Agenda 21 and the World Commission on Environment and Development’s *Our Common Future* (1987). The latter states that: “Officially sanctioned and promoted urban agriculture could become an important component of urban development and make more food available to the urban poor” (254). Drawing from these international documents, Howe (2002) suggests that “a city’s ability to feed itself is perhaps an important component of sustainable development” (126).

With this context in mind, this paper will argue that urban gardening is a valuable use of urban land. After defining urban gardening, it will consider the conflict between urban gardening and development. It will then discuss the benefits of urban gardening, including the provision of educational, economic, social, health and ecological advantages. The information in this paper will illustrate that these benefits are interlinked and build upon each other; for instance, the importation of cultural varieties of food can also benefit ecological sustainability, for a higher number of plants enhances biodiversity (although, the risk of invasive alien species should not be ignored). Similarly, education gained from community gardens gives participants skills that can later benefit an individual’s ability to find work and improve his or her economic status. Finally, options will be discussed to resolve the conflict between urban gardening and development.

What is Urban Gardening?

Before urban gardening can be discussed in-depth, it must be defined, for there are many types of urban gardening. Community gardens, the main focus of this paper, are “open spaces managed and operated by members of the local community for a variety of purposes” (Holland 2004, 286). These gardens can include both decorative (ex. floral, trees) and food components. This paper concentrates on community gardens because they arguably provide the widest range of benefits of all gardens that can be considered but have also experienced more conflict than have other forms of urban gardening. Other forms of urban agriculture which will only be touched upon in this paper include private backyard gardens, rooftop gardens, vertical gardens, urban market gardens—which concentrate on selling produce to the local population and city farms, which often incorporate livestock (Barton 2002).

Who Benefits from Urban Gardening?

The main beneficiaries of urban gardens should also be defined at the outset of this paper because it is by considering their situations and the opportunities provided to them by gardens that the many benefits of urban gardening become clear.

It is the poor, particularly those in the inner city with little access to resources, who benefit the most from community gardening. These inner city dwellers often include the elderly and diverse ethnic groups (Blair, Geisecke and Sherman 1991, 161). Such residents often “find it difficult to obtain fresh produce due to lack of availability or high cost in small neighbourhood stores, the exodus of large supermarkets and a lack of adequate transportation” (165). For instance, downtown Winnipeg does not have a large number of major food retail stores; while there is a Safeway downtown, other supermarket options such as Superstore and Sobey’s are only available to inner-city residents if they are willing or able to travel outside the downtown area. The problem of low availability of fruits and vegetables in downtown Winnipeg became more acute on November 24, 2005, when the Asian grocery store, Young’s Trading, burned down. The store, which specialized in “hard-to-find Asian goods” had been in the community for 23 years (Santin 2005). Immigrants often live in low-income areas and use urban gardening as a way to maintain some aspects of their culture by growing traditional foods. Young’s Trading provided an alternative way of accessing such foods but, now that it is gone, there is less availability in Winnipeg of traditional Asian produce.

Although it is the poor who benefit the most from urban gardening, it should be noted that anyone who participates in urban agriculture reaps benefits and contributes to sustainable development. Middle-class or very wealthy people also learn by working with the soil and benefit socially, physically and psychologically by performing work outdoors. However, the focus of this paper is on the urban poor, for it is they who are the *most* affected by urban agriculture. In particular, the residents of the Spence Neighbourhood and actions taken to create community gardens for them will be considered throughout this paper.

Urban Gardening in Industrial Nations Compared to that in Third World Nations

According to Howe (2002), it is only recently that developed nations have recognized the potential benefits of urban agriculture; Third World nations frequently rely on urban gardening. In fact, of the 800 million people involved in urban agriculture around the world, many of them are in poorer countries (Barton 2002). The World Commission on Environment and Development sees the most potential for urban agriculture in less developed countries because, unlike in industrial countries, the land markets are less commercialized and, therefore, land for farming may be more available and affordable. There are other key differences between urban gardening in industrial and Third World countries. Most importantly, the goal of food production is much more prominent in Third World countries than in industrial ones; *Our Common Future* says that fifty to seventy per cent of the income of the urban poor in developing countries is spent on food and, therefore, supplemental food provided by gardens is very important (1987). For instance, domestic food production is of

major importance in Kenya, where very poor people often farm on public land. The majority of urban farmers—56 per cent—are women who farm to supplement small incomes (Memon and Lee-Smith 1993). In contrast, education, socialization and recreation are just some of the main goals of urban agriculture in developed countries, as will be explained in this paper. Food production and economic gain are not generally the main goals. Therefore, it is clear that urban agriculture must be discussed in the context of the level of development of the country in which it is done. This paper will focus on industrial nations.

Urban Gardening and Conflict

Although most people recognize that there is value in urban gardening, some argue that land used for urban gardens should be put to more “economically efficient” uses such as housing development. These arguments are put forth particularly in cases where land for housing is in high demand and planners are striving for high density housing, a characteristic of sustainable development.

This conflict has been documented in New York City, where community gardening has been helping to battle inner-city decline for 30 years. Approximately 750 community gardens existed in the city in 2001 (Kurtz and Smith 2003). These gardens have been imperiled numerous times. In 1987, many large garden sites were slated for redevelopment into 1,000 market rate housing units and 1,000 low-to-moderate income housing units. Gardening groups had to fight to retain their land and their leases (Schmelzkopf 1995). She writes that some gardens are targeted by urban redevelopment plans because of their accessibility: “The same attributes—such as access to light and a central location—that make parcels of land prime locations for gardens also make them attractive to developers” (377). Later, in 1999, 114 gardens were endangered by then mayor Rudolph Guiliani’s proposal to alleviate the housing crisis by auctioning off lots for the development of infill housing. These gardens were saved by a \$4.2 million purchase by two land trust organizations, the Trust for Public Land and the NYRP, then headed by actress and singer Bette Midler. However, land currently occupied by urban gardens in sprawling New York City will likely continue to be threatened by development (Schmelzkopf 1995; Kurtz and Smith 2003); the megalopolis currently occupies 800 square-kilometres and has a population of more than 8 million at its core and 22 million in the New York Metropolitan area. Therefore, land is in increasingly high demand.

Other cities have had the same problems as New York. Planners in the United Kingdom often only give urban gardening a marginal role in their planning process (Howe 2002). If one views land purely for its monetary aspects, it is easy to conclude that land is more valuable when developed for housing or commercial uses than when used for gardening because developed land provides a higher financial return. Officials in the U.K. “noted the potential for conflict between promotion of urban food growing and the ‘compact city’ idea” (133). However, proponents of urban gardening argue that many advantages of gardening, such as increases in quality of life, are harder to measure. The worth of an urban gardening plot cannot be summed up by stating the market value of the produce grown on it. They argue that greenspace and recreational space complement development.

Winnipeg, too, has seen conflict between housing development and community gardens. Most notably, the land of a Toronto Street community garden was abruptly sold in June of 2005 to make way for infill housing (Skerritt *community garden* 2006). St. Matthew's Maryland Community Ministry, which operated the garden, had renewed their short-term land use agreement with the City but, because of a lack of communication, the Department of Real Estate sold the lot without realizing that an agreement existed. Also, the gardeners were not given advance notice of the sale (Lind 2006). As compensation, St. Matthew's Maryland was given a choice between four other sites in the Spence Neighbourhood area and, therefore, relocated the garden to McGee Street. According to Spence Neighbourhood Association Image Coordinator, A.J. Matsune, community garden space is particularly important within the Spence Neighbourhood because it has the lowest percentage of open space in the city. "We're not against housing, but part of building a community is making a livable environment," she says (Light 2005).

Another problem surfaced for a different Spence neighbourhood garden in March 2006, when the West Broadway Development Corporation announced that it could no longer afford to pay the taxes for the community garden at 198 Sherbrook Street (Skerritt *West Broadway*). The West Broadway Horticultural Society that uses the site was told it would have to raise \$42,000 by June 30, 2006, to keep the lot. The Society had only \$99 in its bank account. Therefore, the future of the garden is still on shaky ground. The root cause of this problem is that community gardening is not economically profitable, but housing and commercial development often is.

The final section of this paper, "Harmonizing Urban Gardening and Development," will present some ways in which the conflict between gardening and development can be resolved.

Benefits of Urban Gardening

There are a myriad of benefits to urban gardening, sometimes depending on the demographic cohort under consideration. These benefits are inextricably linked and, when considered together, help illustrate that urban agriculture is much more than just an economic activity.

Educational Benefits of Urban Gardening

With urban residents being separated from the soil by pavement, brick and tarmac, it is understandable that education, including that of children, is a main goal of many urban gardening projects. One study conducted by Holland (2004) found that education was a main purpose of 70 of 96 surveyed community gardens; no other purpose ranked higher, although community development, leisure and skills/training were also ranked highly.

Several studies of children who spent time in community gardens revealed what children learn from their experiences. One study in Ithaca, New York, demonstrated that youth appreciated learning about ethnic gardening practices and about science-related material, such as resource flows in gardens and soil testing (Doyle

and Krasny 2003). This hands-on study showed that reading about biology in the classroom cannot replace actual experiences in nature. One exchange between an educator and a youth participant illustrated this distinction quite clearly:

Educator: Do you know that this (soil sampling) is doing science?

Youth: I hate science.

Educator: This is science.

Youth: I like this (101).

Youth responses also indicated that urban gardening increased their appreciation of nature and their knowledge of nature-related subjects. When asked about what he learned, one child said: “Soil. It is alive. In the microscope, bugs you can’t even see are there. We mix compost and soil to make the dirt better. In the compost there were worms” (101).

Another student commented on how gardening was a new experience for him: “I never seen mustard be grown, I’m gettin’ to see that. A lot of things that I wasn’t able to see, I’m bein’ able to see now...Well plants and gardens are important to me now, ‘cause we actually come in here to work in the garden...” (105). Such responses indicate that urban gardening is very valuable in giving children a rounded education and enabling them to better understand the natural world. Without a connection to the land, they have a more fragmented view of how the world works; such incomplete education could conceivably have a negative effect on sustainable development goals, for urban citizens who have not been exposed to nature would perhaps not easily understand some of the concepts of sustainability. Urban gardening also instills a sense of pride in participating children; another study by Doyle and Krasny found that some children began to observe negative aspects about their communities and to think about how gardens could improve the situation. One child said: “I took a lot of pictures where our neighbourhood is falling apart. There are a lot of drug dealers out on the corner and they try to destroy little kids’ minds. If we try to fix up the neighbourhood maybe they will stop trying to mess it up all the time” (2002).

Both children and adults alike can also benefit from urban gardens simply by gaining an appreciation for the origin of food, a recognition that may be not be possessed by some urban dwellers. This knowledge can help influence their philosophy towards the land and encourage them to adopt more sustainable views of development that are in line with Aldo Leopold’s “land ethic.” This philosophy views humans as stewards of the environment who have the moral responsibility “to sustain nature for ourselves and for future generations” (Draper 2002, 46).

Barton succinctly summarizes how such appreciation of gardening and nature may be possessed by some urban residents. He writes:

Parks, street trees, and manicured lawns do very little to establish the connection between us and the land. They teach us nothing of its productivity, nothing of its capacities. Many people

who are born, raised, and live out their lives in cities simply do not know where the food they eat comes from or what a living garden is like. Their only connection with the productivity of the land comes from packaged tomatoes on the supermarket shelf. But contact with the land and its growing process is not simply a quaint nicety from the past that we can let go of casually. More likely, it is a basic part of the process of organic security. Deep down, there must be some sense of insecurity in city dwellers who depend entirely upon the supermarkets for their produce (202).

Aside from gaining an appreciation for nature, teenagers and adults can also benefit from urban gardens by learning valuable skills. Activities related to the gardens, such as workshops, provide opportunities for gardeners to practice skills in “leadership, community organizing, cultural competency (i.e. relationships between races), and program planning” (Dickinson et al. 1436).

Winnipeg’s Spence Neighbourhood Association (SNA) provides its participants with such opportunities. The SNA, which helps operate many community gardens in the area, regularly organizes mini workshops on gardening, where residents are invited to learn the basics of the hobby, including tips on plant selection, potting locations, soil preparations and watering schedules. Other events invite local residents to share gardening tips and creative designs. Such occasions provide excellent opportunities for community involvement, and encourage sharing and cooperation (Spence Neighbourhood Association, pamphlet 2005).

The SNA document, “Spence Neighbourhood Green Plan: A Five Year Strategy,” also notes the potential for green spaces to increase the ability of residents to concentrate, citing a study by Taylor, Kuo and Sullivan (2002) that found that “girls living in an inner-city low income housing project, in homes with a view of trees and maintained green space scored higher on concentration tests than girls living in areas of the same complex where green spaces had been paved over” (2002, 4). In addition, another study found that children with attention deficit disorder benefited from being in green spaces (Taylor, Kuo and Sullivan 2001).

Other educational and learning spin-offs of urban gardening include “job-skills training for the horticulture industry, farm-to-market programs, and business skills education” (Kurtz and Smith 2003). For instance, Jackson (1996) explains how individuals are supported by welfare and who are often living in public housing can find work through skills gained in gardens. He reports that one trainee of a community development program said: “I’ve been given a second chance in life, starting from the bottom, but going wherever I want to go with this opportunity.”

Economic Benefits of Urban Gardening

Linked to educational benefits of urban gardening are economic benefits. As discussed in the previous section, the economy benefits from gardening by providing an opportunity for participants to gain work-related skills and, therefore, increase their incomes.

However, it is important to note that direct economic benefits from the growing of food have consistently been shown to not be the main focus of gardens in the industrial world (Blair, Giesecke and Sherman 1991;

Barton 2002; Holland 2004). Rather, economic benefits are considered secondary to quality of life benefits, such as recreation, mental health, exercise, nutrition, contact with nature and self-fulfillment, as will be explained throughout this paper. That said, the economic benefits of gardens can be quite beneficial, despite their low placement on gardeners' lists of priorities. For instance, one UK family found that gardening reduced its food bills to 3£ (\$6 Cdn.) per person during the summer; "the total annual productivity of their garden has been estimated as producing the annual equivalent of 15 tons of food per acre" (Barton 2002, 204).

It was during certain periods North America's past that urban gardening was more of a staple for economic survival. During the economically difficult 1890s, urban gardening was the equivalent of a 'make-work' welfare program in some American cities. Detroit mayor in 1894, Haze S. Pingree, promoted a program that encouraged 975 Detroit families to cultivate "potatoes, beans and turnips on city and privately donated vacant land" (Warman 1999, 12). During the Great Depression, a similar program called "Relief Gardening" was implemented (14). Finally, "Anti-Inflation Gardens" were created in the 1970s "to combat the inflation of food prices" (17), with the State of Massachusetts even passing an Act to allow "people to garden on vacant public land" (17).

Social Benefits of Urban Gardening

One major benefit of urban gardens is that they bring neighbours together who might otherwise not interact. Dickinson et al. (2003) recognize that such connections help to form social capital, "features of social organization, such as networks, norms and trust, that facilitate coordination and cooperation for mutual benefit" (Jackson and Vitek 1996, 218). In fact, gardeners are more likely than non-gardeners to view their neighbours as friendly (Blair, Giesecke and Sherman 1991). The community garden begins to act as focal points or "neighbourhood commons," where leisure activities aside from just gardening can be enjoyed (Glover, Parry and Shiness 2004). Through their work with the land, these residents begin to share common interests; for instance, the safety of their neighbourhood might become more important to them as they spend more time out of their houses (Dickinson et al. 2003). Studies have shown that residents who participate in community gardening have more pride in their neighbourhoods. They become more involved in activities such as neighbourhood clean-ups and community social events (Blair, Giesecke and Sherman 1991). For example, many Toronto area gardeners participate in an annual event called "Seedy Saturday," during which seeds are exchanged and "participants meet other gardeners, attend gardening workshops and learn about environmental projects in the city" (Baker and Huh 2003). Such networking events clearly help to build not only social capital but also knowledge of gardening techniques.

The Spence Neighbourhood Association is striving for social capital benefits in its community gardening projects. According to the SNA:

Under represented (sic) groups are finding their role in the community by sharing information, resources, skills, and creating relationships through their involvement in the hands on decision-

making within community gardens. Some of these people will eventually bridge the gap from the garden to the meeting room. Others will draw more outsiders into the community through gardens and green space...it is evident that gardens and green spaces are creating community leaders, building a unique kind of social capital and pulling quiet voices into the community decision making process (Spence Neighbourhood Association Plan 6).

This fostering of community pride, community leaders and the general trend of more people spending time outside could also result in increased safety and decreased crime because of more “eyes on the street” (5). In turn, an increased sense of safety could conceivably further improve social relationships by helping to build trust.

Health Benefits of Urban Gardening

Urban gardens benefit the health of participating residents in a number of ways. Perhaps the most obvious benefit is that nutrition can be improved when fruits and vegetables are grown. However, it should be noted that nutrition is often not the main goal of urban gardening; rather, participants cite education, socialization and recreation as just some of the more common reasons to participate in community gardening (Blair, Giesecke and Sherman 1991). Moreover, in a study in St. Louis, it was found that the provision of healthy food was significantly more important to the African American population than it was to Caucasians (Glover, Parry and Shiness 2004). This study suggests that the nutritional aspect of urban gardening can vary by demographic.

The nutritional benefits of urban gardening are most important in inner-city areas where affordable fresh produce may be hard to come by. Howe notes that: “supermarkets shy away from these areas of high crime and low disposable income, leaving them barren retail deserts” (126).

Findings from numerous studies indicate that the consumption of fruits and vegetables among people who participate in community gardening is higher than among those who do not. For example, a study in Philadelphia found that gardeners consumed significantly more vegetables than non-gardeners (Blair, Giesecke and Sherman 1991). However, it should be noted that dairy consumption was lower among gardeners, indicating a possible negative influence of urban gardening on the lifestyles of people who participate in the activity. Similarly, a California study found that children participating in a school-sponsored urban agriculture program increased their intake of fruits and vegetables from 3.44 to 3.78 servings per day, an increase of ten per cent (Dickinson et al. 2003). Canada’s Food Guide recommends that people eat five to ten servings of fruit per day (Health Canada n.d.). It is evident that urban gardening can help residents follow these guidelines. In the California study, even with the influence of urban gardening, children were not obtaining the minimum suggested number of fruits and vegetables.

Gardening also provides participants with exercise. According to the Public Health Agency of Canada, “gardening is Canada’s second most popular physical activity after walking.” The agency touts gardening as an activity that benefits endurance, flexibility and strength. For instance, heavy yard work, such as digging and raking, improves muscle endurance and strength. Such activities can contribute to the *Physical Activ-*

ity Guide suggestion of incorporating sixty minutes of activity into a day (Public Health Agency of Canada, *Physical*, n.d.). Blair, Giesecke and Sherman (1991) found that this recommendation can even be exceeded by community gardeners. In their study, participants spent an average of 11.5 hours per week in their gardens. Moreover, it has long been recognized that exercise can improve life expectancy. Postmenopausal women who exercise may have a 23 per cent lower death rate than women who do not regularly exercise. Since it is such women who are common participants in gardening—one study found that 38 per cent of women aged 65 to 69 participate in gardening—it is feasible that community gardens could have significant health benefits in terms of providing exercise opportunities (Browner et al. 2001). The benefits for all demographics include a reduction in a person’s risk of “early death, heart disease, obesity, high blood pressure, adult-onset diabetes, osteoporosis, stroke, depression, and colon cancer” (Public Health Agency of Canada, *Physical*, n.d.).

Finally, significant psychological benefits are garnered from gardening. Myers (1998) says that: “Historically, Egyptian physicians prescribed walks in gardens for the mentally disturbed.” While this cure is less mainstream today, some health professionals still recognize that plants can provide “healing therapy.” In her study of psychiatric patients participating in community gardening, Myers discovered that empowerment, confidence, independence and socialization all improved through gardening. In particular, psychiatric patients in her study were more able to hold conversations with interested passer-bys who stopped to comment on the gardens and to share information. Moreover, some participants showed initiative to start their own gardens or look for gardening-related jobs, ambitions which were not present before the community gardening project began. Therefore, Myers provides some evidence that community gardening can help to make mentally ill people more comfortable and productive in society.

The general population can also benefit psychologically from gardening. For instance, gardeners may report higher levels of psycho-social well-being and life satisfaction than those who do not garden (Blair, Giesecke and Sherman 1991).

Fulfillment may be gained by people who have otherwise experienced many disappointments and failures in life. Jackson (1996) refers to community gardens as “urban oases,” “respite from an often intimidating world.” He writes that a “successful growing experience is important to those who have not experienced financial success in their lives” (44). This conclusion is logical, given that many community gardens are formed in lower-income areas; gardening, therefore, provides an opportunity to accomplish something meaningful.

Ecological Benefits of Urban Gardening

Urban gardening not only benefits humans, but also benefits the environment in general in a variety of ways. Baker and Huh (2003) discuss how community gardens in Toronto contribute to biodiversity through the introduction of plant species by different cultures, particularly by first generation immigrants. They write that: “the global food system now relies on just 20 or 30 key crop species, many of which have been bred or genetically altered to suit the profit-making needs of the agri-food industry” (21). Seed saving practices of immigrants

go against this grain, providing genetically variable seeds of such plants as bok choy, amaranth, spinach, long bean, hot peppers and sweet potatoes. In addition, these cultural gardens help to preserve the personal histories of the immigrants who tend to them.

However, an argument can be made against the introduction of such plants, or “alien species.” Sustainable urban agriculture must also involve the planting of native species that have been displaced by urbanism. Such is the goal of The Alex Wilson Community Garden in Toronto, which grows exclusively native plant species (Irvine 1999). The garden also takes into consideration and meets the requirements of “Local Agenda 21,” encouraged by the International Council for Local Environmental Initiatives (ICLEI). The elements of “Local Agenda 21” include: “equally factoring the economic, community and environmental conditions into the design and operation of the garden, fully engaging relevant interest groups and users...and considering long-term trends and constraints...” (ICLEI 1996, 7 as cited in Irvine 1999). The Alex Wilson Community Garden includes lakeshore, agricultural (40 plots for local residents) and woodland sections, thereby ensuring that not only are human needs met, but that animal needs are met as well; habitat and food for animals such as birds, squirrels and insects is provided. Founded in the name of community activist, horticulturalist and journalist, Alex Wilson, this garden takes into consideration his view that “we need to gain a sense of how our constructed environment connects to the natural one surrounding it, and to its history. Only then can we be mobilized to restore nature and assure it, and ourselves, to a future” (1999). This view parallels the ideas espoused in Local Agenda 21. The Alex Wilson Community Garden connects the built environment to the natural one by being strategically located near a drop-in centre and a non-profit housing complex, the residents of which use plots in the community garden. Therefore, the people who can benefit most from community gardening have access to it.

Another ecological benefit of urban gardening is that it reduces “food miles,” the distance that food travels before it reaches its consumer (Barton 2002). Draper (2002) illustrates this benefit when she writes: “It has been estimated that it takes three times as much energy to truck a head of lettuce from California to Toronto as it does grow it locally in season” (471). Because of this reduced transportation, less packaging is needed; food is less likely to get damaged if it does not travel a long distance (Howe 2002).

There are numerous other advantages of urban agriculture. It helps to improve air quality by absorbing carbon dioxide, producing oxygen and filtering pollutants. Moreover, it moderates the urban heat island effect; plants and trees can reduce temperatures in New York City by as much as 5 or 6 degrees Celsius during the summer (Schmelzkopf 1995). Finally, rooftop gardens, a form of urban gardening to be discussed in the following section, insulate buildings and reduce energy costs of heating and cooling (Draper 2002).

Harmonizing Urban Gardening and Development

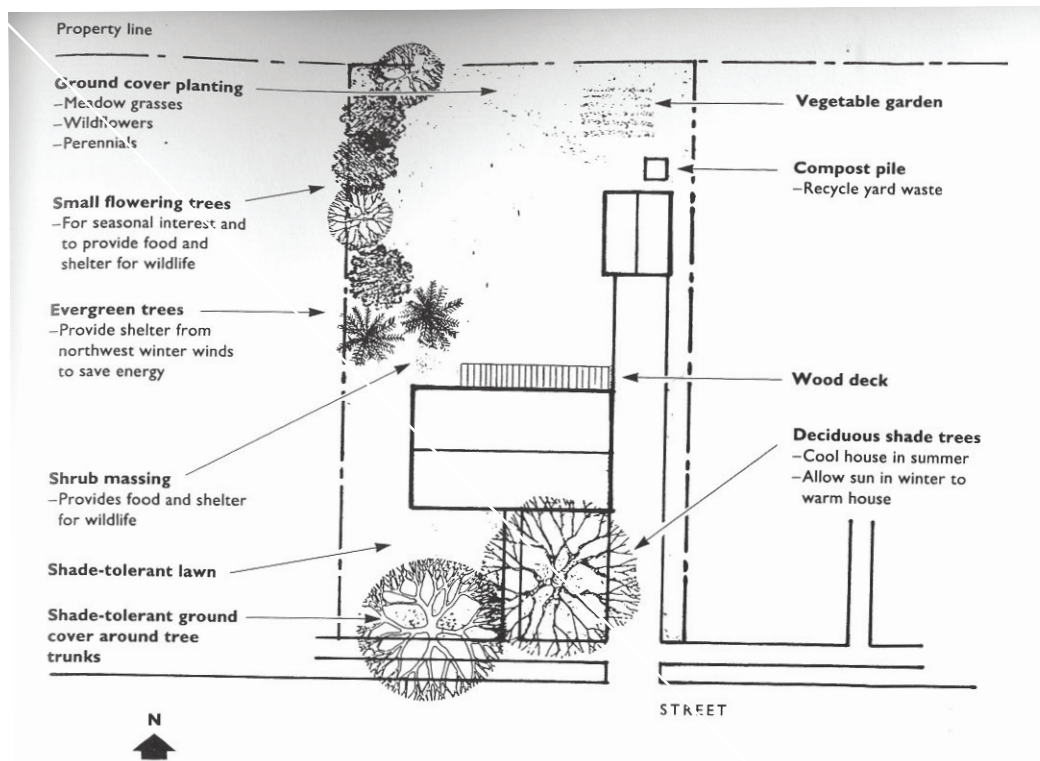
Although there is considerable conflict between the ideas of urban gardening and compact development, there are a variety of options available that allows for each to exist.

One popular solution to this conflict is to create rooftop gardens that allow for building construction and gardening on the same land. Not only can rooftop gardens provide the educational, economic, social, health and ecological benefits outlined above, but they can also play a role in urban storm water management. King (2005) writes that “if half of the downtown area of Portland, Oregon, (219 acres) all had green roofs, we would see an estimated 66 million gallons of water retained annually” (32). This water retention would be particularly beneficial in cities with combined sewer overflows, such as Winnipeg and Victoria, that lead to raw sewage discharge into waterways (2005).

Another space-saving option for urban agriculture is to create vertical gardens, where “vines and other vegetation are placed on or adjacent to interior or exterior walls” (Draper 2002, 471). Like rooftop gardens, vertical gardens moderate the temperatures of buildings, particularly by providing cooling during the summer (2002).

Space for urban gardening can also be found by creating gardens in creative places that cannot be considered for housing usage. For instance, the land beneath power lines, spaces between apartment buildings and parkland all offer land that will not conflict with development (Irvine 1999). Less conventional solutions can also be found. For instance, the proportion of lawns could be reduced in urban areas. Balmori, Bormann and Geballe discuss the ecological inutility of lawns and suggest that native plants and gardens, among other elements, be further encouraged (see Figure 1). While they mainly discuss the suburban yard, their discussion can also be extended to inner-city areas where community gardens most often develop and where land is at a premium. Since even very small parcels of land can be productive, inner-city lawns could be transformed into urban gardens. It is also interesting to note that large areas of land are also landscaped by corporations and institutions, such as universities and legislatures, but that much of this landscaping concentrates on worshipping the lawn and does not take advantage of ecological possibilities. For instance, the 12 franchise units of the Canadian company, Clintar Groundskeeping Services, serve Fortune 500 companies (70 per cent), government (25 per cent) and wealthy homes (5 per cent). High-profile clients include the Coca-Cola production plant in Brampton, Molson Breweries in Toronto and Hewlett Packard in Mississauga. Each franchise unit earns an average of \$800,000 from April to October caring for massive, manicured lawns (Wilton 2004). It could be possible for corporate entities that often strive to be recognized as “green” to convert part of their well-groomed land to urban gardens, tended either by employees or by nearby residents.

Figure 1: Reducing the Lawn's Proportion



Warman (1999) also notes that community gardens can enjoy more security if their use of the land cannot be taken away. One option is for the land to be bought with the help of a public or community land trust, as was the case in 1999 when New York City almost auctioned off 114 gardens (see page 3 of this paper). Similarly, longer leases can be offered to community gardens. This is the avenue currently being pursued by Winnipeg's community gardens and green spaces. Groups such as the Spence Neighbourhood Association and the Winnipeg Community Garden Network have been in communication with the City of Winnipeg since 2005 in an effort to develop a city "community garden policy" (Light 2005; Skerritt *policy* 2006; Lind n.d.). According to Lind, "a long-term lease, with the option for renewal, would allow the gardens to focus on increasing participation from the community, incorporate perennial plants and secure funding for garden projects or programs."

A second option presented by Warman is to legitimise community gardening as a land-use through zoning. This type of designation is still relatively rare, with Montreal, Toronto and Vancouver being some of the few cities that designate, and therefore protect to some degree, community gardens through zoning (Warman 1999; Light 2005).

Finally, education of urban planners, developers and residents can also help resolve the conflict between urban gardening and building development. First, the level of desire for community gardens needs to be recognized; Warman asserts that many city officials and planners assume that most residents want “mowed landscaped turf,” but that these assumptions do not always reflect reality (9). Second, Howe (2002) found that “all officials noted potential conflict between promotion of urban food growing and the compact city idea” (133) but agreed that the two uses could be compatible if neither was at an extreme. Methods to reach such a balance need to be discussed and diffused throughout the garden-starved cities in the industrialized world. With only a slight reduction in density, a city can afford residents the opportunity to live in an urban environment that provides gardens for educational, leisure, social, economic and health-related activities.

Conclusion

The argument that urban gardening conflicts with compact development is valid and understandable, but is fortunately quite simple to resolve. Creative urban planning and development can provide urban gardens near the low-income people who can most benefit from them. Inner-city children who might not often have the chance to leave the city will have the chance to experience nature and adults will be able to learn valuable skills in the garden. Moreover, community gardeners will improve both their economic status and their physical and mental health. Finally, the environment itself will benefit from the increased greenspace breathing life back into often derelict downtowns. Given these many advantages of urban gardening in industrial cities, it is evident that urban gardening should have a place alongside development.

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