

# **Urban Horticulture in the Contemporary United States: Personal and Community Benefits\***

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## **Abstract**

**The early history of urban gardens in the United States is one of food production in response to war, economic depression, and short-lived civic reform movements. During the past thirty years, a broad-based community garden movement has spawned a wide variety of social, economic, health, and educational benefits in more than 250 cities and towns across the country. A companion food security movement has promoted urban-rural linkages, urban agriculture, and farmers' markets. Studies have shown that community gardens and nearby green space in cities are an important response to needs for nutritious and affordable food, psychological and physiological health, social cohesion, crime prevention, recreation, and life satisfaction, particularly in low-income communities.**

## **INTRODUCTION**

Horticulture, the science and art of growing plants for consumption and happiness, for the health of communities, and for the integration of nature into human civilization (Relf, 1992), has always been practiced in cities. In our ancestors' transition from nomadic to settled existence, their market gardens and farms gave birth to trading centers and cities; and cities became the incubators of insight, experiment, technique and exchange of ideas that advanced urban horticulture and that were disseminated to farmers in the hinterlands (Jacobs, 1969). For thousands of years, built and cultivated environments coexisted: Homes, cottage industries, markets, public buildings, and sacred spaces were interspersed with kitchen gardens, farms, and common grazing land for animals. Not until the Industrial Revolution were dooryard and market gardens, orchards, and town commons usurped by brick, mortar, and asphalt. Banishing nature was "not the inevitable way to build cities, but instead a bad mutation brought on by nineteenth and twentieth century land greed" (Warner, 1987).

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Horticulture, after being eliminated from nineteenth century factory neighborhoods, was then deliberately restored in selected urban open spaces, outside factory neighborhoods, as an antidote to the monotony, noise, congestion, and poor ventilation of industrial workplaces and the tenement dwellings of immigrants and the working class. City parks tranquilize and yet enliven, Frederick Law Olmsted, the designer of New York City's Central Park, observed about the capacity of trees, meadows, ponds, and wildlife to assuage the stresses of surrounding urban life. Jane Jacobs wryly observed, in her commentary on the downward spiral of many city parks into derelict and dangerous places, that parks need people no less than people need parks (Jacobs, 1961).

Cities of the rapidly urbanizing twenty-first century, however, may need local community gardens<sup>1</sup> and nearby green spaces as much as they needed the grand central parks in the late nineteenth century—for the give-and-take of working in gardens attaches gardeners to a particular place through physical and social engagement. Community gardens create and sustain relationships between city dwellers and the soil, and can engender an ethic of urban environmentalism that neither grand central parks nor wilderness—which release and free us from the industrial city—can do. As the studies reviewed in this article strongly suggest, nature in cities that is both cultivated and simply *nearby* enough to view and visit easily fosters personal well being and community benefits, such as more social interaction and sense of neighborhood, less crime, community food security, recovery from mental fatigue and increased life satisfaction.

Half the world's six billion people live in cities; and, according to United Nations estimates, almost two out of three people will be living in urban areas by 2030 (Worldwatch, 1998). Thus, most people's experience, knowledge, and valuing of nature in the 21<sup>st</sup> century, their environmental literacy and claims to natural assets will be shaped and, for most, bounded by the natural, social, and built environments of urban settlements. A community garden might be seen as a minor, merely local, and cosmetic experience of nature that could be more authentically sought in wild and remote places. Yet, gardens, with their "middle ground between the wilderness and the lawn," may "suggest the lineaments of a new [urban] environmental ethic...and help us out in all those situations where the wilderness ethic is silent or unhelpful" (Pollan, 1992), and where the experience of wilderness is unaffordable, remote, or inaccessible.

## **MODERN COMMUNITY GARDEN MOVEMENT**

Community gardens and small farms in U.S. cities are not altogether new. However, their purposes today—neither short-term welfare during periods of recession, nor philanthropic charity to uplift "the masses," nor patriotic war relief, all of which catalyzed earlier urban horticulture movements (Bassett, 1981)—are new. Their goals include teaching inner-city children ecological literacy and diverting them from the streets; cleaning up overgrown neighborhood eyesores and pushing out drug dealing, that, like weeds, overtakes neglected vacant lots; growing and preserving food from seed to shelf; restoring nature to the industrial and post-industrial city using heirloom plants and

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<sup>1</sup> The majority of urban community gardens are created on vacant land that may be as small as a building lot and as large as a city block, and are gardened in individual plots by an organized group of people from the surrounding neighborhood. Common areas within the gardens may be sites for social, cultural, and artistic events. Unlike earlier periods, the modern community garden movement is initiated and driven by local communities with the financial and organizational assistance of government, foundations, and non-profit organizations.

bird and butterfly gardens; and bringing the farming tradition of the rural South to northern industrial cities. These are but a handful of the reasons that urban gardeners have given when asked why they garden (Hynes, 1996).

At its core, the community garden movement in the early twenty-first century is about rebuilding a spirit of local community tied to a place and restoring nature and food growing in the inner city. Some community gardens are linked to public housing projects, churches and social agencies; still others employ people who are incarcerated or recently released from jail. Most are neighborhood-based efforts, with multiple plots on once vacant land in which gardeners grow a mix of “food for the body and flowers for the soul.”<sup>2</sup> Even where the legacy of philanthropy lingers, it has lost the odor of reform charity—of the “haves” uplifting the “have-nots”—that characterized earlier garden movements in cities.

### **Post World War II Trends**

With the exception of some creative garden projects promoted by public housing authorities in the 1950s and 60s for the purposes of beautification and tenant pride, the tradition of urban growing was abandoned in the United States after World War II, when the focus of residential and commercial growth became the new suburbs. Older center cities were left to decline and wither as the middle and upper middle classes and financial institutions quit old urban neighborhoods and pushed the edges of metropolitan growth into peri-urban and once-rural areas. Poor and minority populations became starkly concentrated in economically devastated urban slums and ghettos; and public policy and market forces have mainly failed to pierce the web of social, political, and economic forces that have racialized and feminized poverty.<sup>3 4</sup> Metropolitan areas in the United States sprawled<sup>5</sup> with middle and upper middle class migration to suburbs while center cities lost people, businesses, and buildings and devolved, in many places, into vast, vacant, contaminated wastelands and neighborhoods of isolated and segregated poverty.

An inadvertent, but predictable result of disinvestment in American center cities in the latter part of the twentieth century was the emergence of vacant lots, a blight that

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<sup>2</sup> Interview with B. Cozart, former director of the Greening of Harlem, June 1992 by H. Patricia Hynes for *A Patch of Eden: America's Inner-City Gardens*.

<sup>3</sup> Demographer Douglas Massey (1996) argues that, with the worldwide phenomenon of urbanization, most of the world's poor will be clustered and segregated in poor neighborhoods of cities; the affluent will also be more segregated; and income inequality will continue the dramatic rise it began in the 1970s. Factors include stagnant incomes in the global economy and "racial and ethnic exclusion" which exacerbate growing class segregation. Inequality in the United States, as measured by the GINI index for family income, rose 14% between 1973 and 1991. In 1970, 56% of America's poor lived in central cities or suburbs. By the early 1990s, that concentration had risen to 72%, with the highest portion of the increase occurring in central cities.

<sup>4</sup> The extremes of racial and class segregation in the United States have changed minimally since the 1964 Civil Rights Act and the 1968 Fair Housing Act. Of all groups, Blacks faced the highest rates of residential segregation according to indices calculated for 1980 (Massey and Denton, 1993). In 18 major northern cities, poor Blacks had an average segregation index of 85.8, while the index for affluent Blacks was 83.2. In 12 major southern cities, the segregation index for poor Blacks was 74.4, while for affluent Blacks, it was 72.8.

<sup>5</sup> Lopez and Hynes (in press) designed a new method for measuring sprawl by analyzing population density according to Census tracts. They established a sprawl index where 0 indicates that the entire metropolitan area is high-density and has the least sprawl and 100, that the entire city is low-density and has the most sprawl. Between 1990 and 2000, sprawl had increased in almost two thirds of the 330 metropolitan analyzed.

metastasized and spread like a cancer through neighborhoods.<sup>6</sup> Abandoned lots that had once accommodated houses, businesses, parks, and industries became local eyesores and the site of waste dumping and criminal activity. Between 1960 and 1990, about 30% of residential buildings in Harlem, New York became derelict and uninhabitable. Chicago, Illinois has 70,000 vacant lots; 18% of once-productive industrial land is vacant. The population of center city Philadelphia, the oldest industrial U.S. city, was 2.2 million after World War II; today it is 1.6 million and shrinking. Philadelphia has more than 30,000 vacant lots and 21,000 abandoned houses (Gowda, 2002; Hynes, 1996; Smit, 1999).

The beginnings of the modern community gardening, urban agriculture, and food security movements in these same neighborhoods were quiet, local, and disparate—a group of progressive landscape architects in one city, an activist politician in another, a director of a horticulture society in another, and, in many cities, community organizers and residents disgusted with trash dumping and the lack of safe greenspace. A low-key urban movement, with tributaries in the peace, environmental, women’s, civil rights, and “back-to-the-city” movements of the late 1960s and early 70s as well as the environmental justice movement of the 1980s and 90s, eyed vacant land and saw the possibility of community and school gardens and, more recently, urban agriculture<sup>7</sup> and farmers’ markets.

Today, some 30 years after the first community gardens were organized, we do not have a complete census of urban gardens, their organizations and their evolving activity—such is the movement’s variable, local, and non-statistically-inclined nature. However, we do have some survey data, informed estimates, and in-depth case studies about the growth and diversity of the many efforts to revive horticulture and agriculture for the purposes of community development and community food security in U.S. cities.

The American Community Gardening Association (ACGA) estimates that municipal governments and non-profit organizations operate gardening programs in about 250 cities and towns, although ACGA staff have said privately that the number could be twice as large (Pers. comm., 1995). In its 1994 survey, the National Gardening Association found that 6.7 million households, which are not currently engaged in gardening, would be interested in community gardening if there were a plot nearby (American Community Gardening Association Monograph, 1995).

The most recent survey of community gardens, in which ACGA polled residents of 38 cities across the United States, revealed some interesting issues and trends. First, despite a lack of security in land ownership (only 5.3% of the 6020 community gardens surveyed are securely owned or placed in trust), *more gardens are being created in these cities than are being lost* to economic development or lack of interest. Second, the primary reported use of community gardens is the neighborhood garden in which the land is divided into numerous plots cultivated for vegetables, flowers, and fruits by individuals and households. Other potential uses and kinds of community gardens, such as ones in public housing, senior housing, and schools, were reported in much smaller numbers.

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<sup>6</sup> A number of studies have documented the “synergism of plagues” (Wallace, 1988) in abandoned and vacant neighborhoods, including higher risk of HIV (Wallace, 1988), higher prevalence of death from heat stress (di Leonardo 2002), and higher rates of substance abuse (Fullilove and Fullilove III, 2000).

<sup>7</sup> Urban agriculture is a small but growing phenomenon within urban core areas that includes vegetable, fruit, flower and fish growing, as well as animal husbandry for purposes of personal consumption, job creation, and market sale (Kaufman and Bailkey, 2000). Other purposes may include checking sprawl, efficient use of vacant land, increasing urban food security, job training for youth, reuse of urban waste, creating greenspace, and contributing to a sense of community (Smit, 1999).

The survey also revealed the small but increasing use of community gardens as job training sites for youth and as market gardens from which plants and products made from plants would be sold, often in local farmers' markets (American Community Gardening Association, 1998).

The lines of distinction between large community gardens, market gardens, and urban agriculture can be quite porous: Some community gardens may have a market component; some market gardens and urban farms enjoy the social benefits of community gardens. The recent rise of market gardens and agriculture in U.S. center cities coincides with the renaissance of urban farmers' markets. Urban horticulture in the United States—which loosely encompasses community gardens, market gardens, small farms and farmers' markets—is taking a noteworthy and admirable trajectory, one that is fluent with larger issues of community development and community food security.

### COMMUNITY FOOD SECURITY

Urban farmers' markets flourished in the early 20<sup>th</sup> century but then disappeared mid-century as downtown districts declined and suburban shopping malls proliferated. Concurrently, processed foods replaced fresh foods in the national diet with the growth of the convenience and fast food industries.<sup>8</sup> In 1977, the United States Department of Agriculture (USDA) initiated a significant urban gardening program to assist low-income people in cities to grow and preserve vegetables, primarily for nutrition and food security. At its zenith in 1989, almost 200,000 gardeners, of whom 64% were minorities, were producing vegetables on 800 acres of "farmland" in 23 major cities. For every dollar invested by the USDA, gardeners grew an estimated US \$6 worth of food (United States Department of Agriculture Extension Service, 1989).

In 1993, the U.S. government inexplicably ceased funding this low-budget, highly successful program. Some non-profit organizations, already dedicated to community gardens, stepped in to provide services abandoned by the USDA urban gardening program. In 1994, a new coalition of environmental, community development and food system activists lobbied quickly, aggressively and successfully for funding under the aegis of *community food security*.<sup>9</sup> The subsequent U.S. Community Food Security Act has provided a new infusion of federal funding into certain inner cities for food growing and marketing through farmers' markets, nutrition education, and links between peri-urban growers and low-income families and urban schools. Farmers' markets, with their capacity to support local small farmers and provide fresh, unprocessed food to urban communities abandoned by supermarket chain stores are a particularly important ingredient of community food security.

Farmers' markets are now enjoying a revival, thanks to recent federal and state investment and community food policy activism. By the late 1990s, 2,500 farmers'

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<sup>8</sup> Potatoes are a prime example of the change in food consumption and food growing. In 1950, six percent of potatoes purchased by Americans were in the form of processed food. By 1983, MacDonald's was the largest purchaser of potatoes and 60% of potatoes purchased by Americans were processed as chips, fries, etc. (Gottlieb, 2002).

<sup>9</sup> The concept of community food security arose within international development in the 1970s and 1980s, as pressure on developing countries mounted to adopt the now-dominant industrial model of U.S. agriculture, that is to mechanize and organize for export-oriented agriculture. In the United States, community food security emerged during the 1980s and 1990s, a period of growing disparity between rich and poor, of small farm bankruptcy and loss, and of reliance on emergency food from soup kitchens and food pantries in numbers and rates not seen since the Great Depression (Gottlieb, 2002).

markets were established in 50 states, earning small and organic farmers US \$1 billion annually (Gottlieb, 2002). Community food security, in practice, generates alternative strategies for the dual crises of food supply (a lack of local markets for small farmers) and food consumption (hunger, malnutrition, and a dearth of supermarkets in inner cities). The self-defined goal of community food security is to achieve a safe, affordable, nutritious, and culturally acceptable food supply for all (particularly low-income) people, as much as possible from local sources. Food security analysts have undertaken innovative studies of food scarcity, price inflation, and inaccessibility in urban and inner-city neighborhoods. These include: surveys to expose the scarcity of supermarkets and food stores, surveys to uncover price inflation, and, studies demonstrating insufficient urban public transportation service to larger, cheaper supermarkets (Community Food Security Coalition website, 2002).

The findings of these studies have shaped and driven numerous food security projects. School food service staff and teachers have joined with farmers to supply locally-grown produce to students. Supermarket price monitoring programs have been established. Some inner-city community organizations now work with nearby rural farms to make nutritious, lower-cost produce available through food coops and community-supported agriculture. Farmers' markets have been set up in inner-city neighborhoods where low-income residents can buy wholesome, locally-grown food with government vouchers. And, food-related transportation strategies have been created for low-income, transit dependent communities (Community Food Security Coalition website, 2002).

In the opinion of many food policy activists, a new structure of local food growing and marketing has the potential to challenge and begin to redress the injustices of industrial agriculture, a vertically-integrated multinational system that has commodified food and subsumed food security to profit. Above all, the food security movement is grounded in a philosophy of social justice, which helps assure that community food security and its companion, urban community gardens, are not merely *ad-hoc* opportunistic programs, which, like the world war victory gardens, are dismissed once "the war" is over.<sup>10</sup>

## **PERSONAL AND COMMUNITY BENEFITS OF URBAN HORTICULTURE AND NEARBY GREENSPACE**

The majority of urban community gardens are located on undeveloped public land to which gardeners have no title and no long-term security (ACGA, 1998), a potentially great vulnerability for the movement. New York City is the most egregious example of a municipal landowner that pits "rent-free" community gardens against potential affordable housing and tax-paying retail development; the city has attempted to develop almost 20% of the 700 sites currently used for community gardens.

Community gardens, and more recently urban agriculture, cannot compete with market-based land uses, such as housing and retail, if they are evaluated solely by their tax generating and other economic potential. We need, therefore, to demonstrate and document the health, education, and social welfare benefits of community gardens, urban agriculture, and access to nearby greenspace for city dwellers in order to assess and

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<sup>10</sup> The community food security movement has consciously politicized urban horticulture, emerging as a local force in the face of the globalized food system; while the political potential of community gardens is more implicit and emerges at times of threat or crisis, such as their takeover and elimination by New York City for more profitable land use (Gowda, 2002).

validate their full value as natural assets that contribute to social, human, and financial well-being.<sup>11</sup>

### **Nutrition and Cost Savings**

U.S. government studies have revealed that groceries in urban markets cost 3% to 37% more than the same goods in large suburban supermarkets (U.S. House Select Committee on Hunger, 1990). Moreover, the inflation of food prices in urban stores and the lack of transportation from center cities to cheaper suburban stores aggravates malnutrition, poor diets, and related chronic health conditions among the urban poor (U.S. House Select Committee on Hunger, 1987 and 1992). Using 1990 census tract and population density data in 221 neighborhoods of four states, Morland et al. found that white neighborhoods had four times as many supermarkets as black neighborhoods and that the wealthiest neighborhoods had larger numbers of supermarkets compared to the poorest neighborhoods. Further, the poorest neighborhoods had three times as many bars and taverns as the wealthiest. Disparity in local access to nutritious, affordable foods and transportation access to larger supermarkets with greater varieties of healthy, food choices at lower costs led the authors to conclude, "the choices people make about what to eat are limited by the food available to them" (Morland, 2002).

A population-based study of 144 community gardeners in Philadelphia and 67 non-gardening controls evaluated the nutrition and economic benefits of community gardens. Researchers found that gardeners ate vegetables significantly more than comparable non-gardeners and consumed significantly fewer sweet foods and drinks and milk products. The mean value of vegetables grown in 1987 (the year studied) by gardeners was US \$160±178, with a range of US \$2 to US \$1134 (Blair et al., 1991). Further, gardeners participated in community projects and shared produce with friends, family and food pantries more significantly than did the non-gardening controls.

The most systematic assessment of the value of food grown in community gardens was conducted by the U.S. Department of Agriculture during 1977 to 1993, the period in which the agency promoted urban food growing among low-income communities in 23 cities. As cited earlier, urban gardeners grew, preserved, and consumed an estimated US \$6 worth of produce for every US \$1 invested by the government (United States Department of Agriculture Extension Service, 1989). Thus, inner city community gardens can be a significant source of low-cost, nutritious food for communities threatened by food insecurity due to factors of poverty, inadequate public transit, and abandonment by supermarkets.

### **Emotional, Social, and Cognitive Effects**

In a set of open-ended questions, community gardeners in Philadelphia were asked to list the reasons they gardened and to identify the single most important reason. Their responses were: recreation (21%), mental health (19%), physical health and exercise (17%), produce quality and nutrition (14%), spiritual reasons (10%), cost and convenience (7%), self expression/self fulfillment (7%), and other (5%) (Blair et al., 1991). Waliczek et al. conducted a national survey of community gardeners using a set of quality of life questions based on Maslow's hierarchy of human needs model:

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<sup>11</sup> Any potential health liabilities of growing vegetables in the city, such as food contamination by lead in soil, must also be examined and remediated to maximize the benefits of urban horticulture (Litt et al., forthcoming) on lead in urban soil.

physiological, safety, social, esteem, and self-actualization. The majority of gardeners reported that gardens meet all of these needs, with African-American and Hispanic gardeners reporting statistically significant higher responses than Whites and Asians on most of the questions (Waliczek et al., 1996). In a similar survey, Lee found that American-born and immigrant gardeners in eight San Jose, California community gardens reported comparable personal and social benefits (Lee, 2001).

The findings of the aforementioned studies resonate with the growing body of literature over the past 25 years that documents the beneficial effects of nature on human well-being and has provided theories concerning the role of nature in human restoration. Trees, grass, and flower gardens, by their presence and by their visibility, have been found to increase people's general life satisfaction in urban settings, reduce irritability and mental fatigue, restore calm (Kaplan and Kaplan, 1990), and regenerate the capacity for directed attention (Tennessen and Cimprich, 1995). Stephen Kaplan (1990) theorized that the experience of nature restores people by giving them a feeling of release or escape from the quotidian life and by eliciting fascination within a natural setting that feels whole, adequate and compatible.

Most people-plant interaction studies, however, have dichotomized city from nature, in comparing human response to remote nature scenes and urban built environment scenes. Honeyman (1992) is one of a handful of researchers to test the restorative value of nature scenes in urban environments. She found that scenes of the urban built environment with vegetation produce more mental restoration than those without vegetation and that vegetated urban scenes had more positive psychological impact than nature only scenes. In studying the effect of nature near-at-hand in gardening, Kaplan found that gardening elicits fascination in gardeners and “plays a role in people’s lives not unlike that played by the more dramatic, more distant, and less frequent encounters with nature” (Kaplan, 1973). Residents in multiple-family housing reported that the most important factors in their neighborhood satisfaction were nearby trees, well-landscaped grounds, and places to go walking. Opportunities to garden and the view of nearby gardens were much more significant than large open spaces to a sense of community (Kaplan, 1985). National surveys have also found that easy access to nature is the strongest predictor of residents’ satisfaction with their local neighborhood (Fried, 1982).

A recent series of studies in Chicago public housing, one of the starkest of urban built environments, have found consistent results regarding the positive social and behavioral benefits of greenspace. In comparing residents’ use of outdoor space, researchers found that greater numbers of people gathered in spaces with trees than in those without. Thus, trees created greater opportunities for social life and social cohesion (Levine Coley, Kuo and Sullivan, 1997). A study among senior public housing residents found that greater access to common greenspace is positively associated with neighborhood social ties and a sense of community (Kweon, Sullivan and Wiley, 1998).

### **Effects on Children**

In an observational study of inner-city children playing outdoors, researchers found that children in highly vegetated spaces played more (by a factor of two) than children in non-vegetated areas, and that they played more creatively and interacted more with adults (Taylor et al., 1998). Wells undertook a longitudinal study of low-income children who moved from poor housing with little vegetation into Habitat for Humanity housing with more vegetation to assess the cognitive benefits of the increased presence of



nearby nature. She found that children had a significant increase in “directed attention capacity” (DAC), as measured in tests of concentration, after moving to a more vegetated environment and that the variance in their DAC attributable to change in vegetation was greater than that attributable to the change in housing (Wells, 2000).

### **Physiological Effects**

Others have used physiological testing to corroborate self-reported emotional states when viewing natural scenes. The simple act of gazing at a plant can lower blood pressure and muscle tension and can reduce stress, fear and anger (Ulrich and Parsons, 1991). Merely viewing pictures of nature consistently and significantly held the viewers’ attention and interest and induced higher alpha intensity (associated with relaxed feelings while awake) than did pictures of the urban built environment (Ulrich, 1981). The same researcher found that post-operative patients with a window view of deciduous trees recovered more quickly, had better progress evaluations, and requested fewer analgesics than a matched set of patients with a view of a brown brick wall (Ulrich, 1984). These findings complement those that have found that workers with views of nature, such as trees and flowers, reported fewer ailments and more job satisfaction than those without an outside view or with a view of the built environment (Kaplan et al., 1988). Likewise, others have documented that prison inmates with a view of nature reported fewer stress symptoms and less sickness than those with views of prison yards, walls, and buildings (Moore, 1981).

### **Reduction in Crime**

Dense vegetation in urban areas has been associated with criminal activity as well as with fear of crime (Talbot and Kaplan, 1984). A study of the relationship between crime and non-dense vegetation in Chicago public housing has found that vegetation that preserves view and visibility (e.g., trees and low shrubbery) has a role in reducing crime. Comparing end-of-year reports on property and violent crime in buildings with and without vegetation, researchers found that buildings with a high level of greenery had 52% fewer crimes than those with no landscaping and those with medium levels had 42% fewer crimes (Kuo and Sullivan, 2001). Green spaces, *where vegetation does not block people’s view*, may support residents spending more time outdoors in common spaces, which in turn fosters a culture of care for one’s community and an informal surveillance that deters criminals. Drawing from studies linking mental stress and crime, the researchers concluded that nearby nature mitigates mental stress and mental fatigue, thereby reducing the emotional, psychological, and cognitive “precursors” to violent behavior. Related research on community gardens in upstate New York found that community gardens in *low* income minority communities were four times more likely to lead to organizing around community issues, including crime prevention and improved neighborhood services, than *non-low* income community gardens (Armstrong, 2000).

### **Exercise**

A more recently assessed benefit of community gardening—and one that most directly impacts public health—is the physical exercise of gardening. Regular physical activity, that is an estimated 30 minutes three to five times per week, has been found to reduce significantly the risk of dying of coronary heart disease and the risk of chronic diseases, including diabetes, high cholesterol, and high blood pressure, as well as age-associated declines in musculo-skeletal function (Chakravarthy, Joyner and Booth, 2002;

Galloway and Jokl, 2000). Gardening is considered comparable to moderate walking, bicycling at <10 mph and water aerobics (Relf, 1996) and is increasingly promoted, like walking, for reducing the risk of chronic diseases from overweight and sedentary lifestyles. This benefit is particularly salient given the recent findings by the U.S. Centers for Disease Control (CDC) on the epidemic in overweight and obesity in the United States and a similar trend worldwide. In 1999, an estimated 61% of U.S. adults were either overweight or obese, an increase of approximately 5% from the 1988-94 federal study. (Centers for Disease Control, 1999).<sup>12</sup> The prevalence of overweight children has doubled since 1980 and tripled since 1960 (Centers for Disease Control, 1999). Both adult and child trends in overweight are attributed, in large part, to higher carbohydrate intake (while energy intake has remained fairly constant), sedentary lifestyle and physical inactivity around routine daily tasks (Blair and Nichaman, 2002).<sup>13</sup>

## CONCLUSION

Urban community gardens and the newer urban agriculture appear to be rooted in a more enduring substrate than the cycles of recession and war that generated urban food growing over the past 100 years. And they fulfill many more social purposes. Community gardens re-create a sense of “place” for those dispossessed of place by slum clearance and ghettos and for immigrants arriving from agrarian cultures. Offering physical, existential, and community support, they become *places that matter*. Gardening and urban agriculture offer a source of nutrition in neighborhoods abandoned by supermarkets and a sorely needed regimen of exercise to reduce the risk of chronic diseases from overweight and inactivity. Nearby greenspace, including trees and open space play areas, increases social cohesion through attracting adults and children into common greenspace areas where they socialize, build a sense of neighborhood, and carry out an informal surveillance that creates greater security and deters crime.

If a mere view of nature—whether in a photograph or through a window—is balm for patients, students, workers, and inmates of prisons, how much more restorative is the sight, smell, sound, and touch of nature nearby in community gardens, urban farms, small sitting parks, tot lots, and even farmers' markets?

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<sup>12</sup> This data was collected on the National Health and Nutrition Examination Survey (NHANES). While the federal NHANES study data is standardized and validated by physical examinations, the 1999 sample size is smaller than previous NHANES studies, such as the 1988-1994 study. Additional data will be sought to confirm the findings.

<sup>13</sup> The potential decline in recreational opportunities, particularly in poor communities, must also be investigated.

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