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The social production of community garden space: Case studies of Boston, Massachusetts and Havana, Cuba

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THE SOCIAL PRODUCTION OF COMMUNITY GARDEN SPACE: CASE STUDIES

OF BOSTON, MASSACHUSETTS AND HAVANA, CUBA

BY

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DISSERTATION

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ABSTRACT

THE SOCIAL PRODUCTION OF COMMUNITY GARDEN SPACE: CASE STUDIES

OF BOSTON, MASSACHUSSETS AND HAVANA, CUBA

by

Charles A. French

University of New Hampshire, December 2008

This research incorporates 'production of space' theory to explore how individual

and societal characteristics influence community gardening practices and outcomes for

individuals and neighborhoods in Havana, Cuba and Boston, Massachusetts. Methods

used for this research include demographic analysis, interviews, surveys, field mapping,

photo documentation and direct observation. The hope is that this research will bring to

light certain policies and actions that will help ensure access to community garden space

by diverse individuals. The following describes the main findings of this research.

In Boston, some neighborhoods experiencing rapidly escalating rents are also

experiencing an outmigration of ethnic minorities, particularly Hispanic-Latinos and

African Americans. As neighborhoods lose their ethnic diversity, so do the community

gardens located in these neighborhoods. The consequence is that cultural gardening

practices and traditions are lost for gardeners, and often times, for entire neighborhoods.

In Havana, Cuba, the growing of food in urban plots helped the country weather

the crisis that resulted from the loss of food imports after the collapse of the Soviet

Union. During the early 1990s, the number of gardens cultivated by individuals, families,

and organized groups in Havana grew into the thousands due to a series of agricultural

reforms enacted by the government. In spite, new indications suggest that the government

is shifting its focus away from urban agricultural cooperatives towards private gardens.

CHAPTER I

INTRODUCTION

Overview of Research

Community gardening – the cultivation of fruits, vegetables, herbs, flowers, and/
or ornamentals on a common parcel of land by an organized group of individuals in a
city's urbanized district – has increased in popularity in cities worldwide over the past
century due to the many benefits that it provides (Warner 1987). In spite of the fact that
urban community gardens have become a major physical feature of thousands of cities
around the world, few scholars have examined how various societal factors such as
cultural norms, daily routines, class, politics and economic conditions all interact to
influence how individuals and neighborhood groups organize and utilize garden space, or
what outcomes they realize from their community gardening practices. Furthermore,
findings from this research suggest that certain societal factors, including the above, may
actually be limiting some urban dwellers' access to community garden space.

Therefore, the goal of this research is to elucidate interrelationships between
individual and societal characteristics (e.g. race, culture, norms, values, etc.), community
gardening practices (e.g. techniques, plant types, social activities, etc.), and outcomes that
individuals and neighborhoods attain from community gardening (e.g. food, income,
sense of community, etc.). The hope is that the findings from this study will bring to light
certain policies, actions and interventions that neighborhood garden associations,

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government agencies and non-profit organizations might take to ensure that community

garden space is accessible to diverse individuals and neighborhood groups in the future.

The study draws on production of space theory – the notion that space is both a

product of society and a producer of social relations – as a basis for examining

interrelations between individual/societal characteristics and how community garden

space is structured and utilized. Drawing upon this theory, an analytic framework is

established that consists of the three elements: individual/societal characteristics, garden

practices, and outcomes. Particular interactions between gardeners, garden space and the

surrounding neighborhood will be categorized according to these three elements of the

analytic framework, while also considering how changing demographics and

socioeconomic conditions influence each of these elements (figure 1).
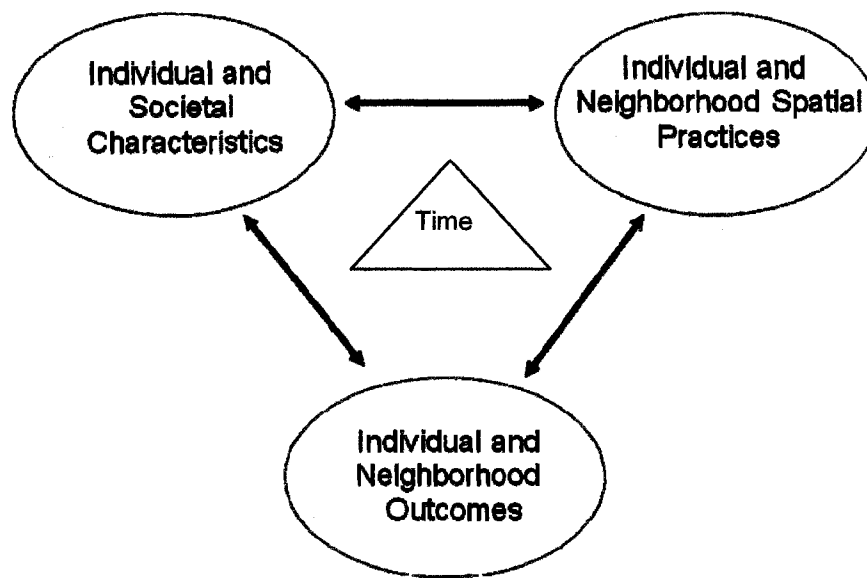
Figure 1. Analytic framework for examining socio-spatial relations
in community garden spaces in Boston and Havana.

Interviews, survey questionnaires, field mapping, photo documentation and direct

observation served as the primary field instruments by which data was collected from a

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representative sampling of community gardens in two case study cities, Boston,

Massachusetts and Havana, Cuba. Data generated from each of these instruments was

organized according to the analytic framework outlined above. Particular themes were

identified in each respective city, along with common themes that cut across both cities.

Historical Context

In order to fully understand how urban community gardens grew to become a

major feature of the urban landscape in cities around the world, one has to discern the

particular forces that lead to their rise in both the developing and industrialized worlds,

since community gardening plays a very different role in each context. The spatial

practices incorporated by community gardeners vary according to their needs,

knowledge, and limitations imposed upon them, all of which are a product of society.

Thus, the following section traces the evolution of community gardens in the

Industrialized and Developing Worlds.

The Rise of Community Gardens in the Industrialized World

The practice of urban community gardening dates back to the early 1800's in

England when so-called 'guinea gardens' were made available to the urban poor for the

annual rent of one guinea (Warner 1987). The trend caught on during the Industrial

Revolution and soon factory owners in cities all over England, Europe, and the United

States followed suit by allowing working-class poor to plant on company lands for a fee.

Industrialists effectively used these *allotment gardens* as a strategy to keep the bellies of

the poor contented, and perhaps more importantly, to prevent them from rising up. But, in

cities like Detroit, Chicago and Boston, plots were also granted to the poor as a form of welfare (Hynes 1996). For instance, after the Pullman railcar industry went belly- up in Detroit in the 1890's, the Mayor made 430 acres of urban land available to over 900 families to plant and thus helped insulate them from the economic depression that ensued.

During World Wars I and II, cities across the United States, Canada, France and Great Britain engaged hundreds of thousands of people to plant 'Victory Gardens' on public open spaces (Warner 1987). These gardens not only reduced the pressure on the public food supply brought on by the war, but they also helped feed the troops abroad. In fact, World War II-era Victory Gardens in the United States are estimated to have yielded 44% of the fresh vegetables produced domestically (Nelson 1996). New York, San Francisco and Boston were the first U.S. cities to allow gardening on public spaces, such as Franklin Park, Golden Gate Park and Central Park (Warner 1987).

Two decades after World War II, the civil rights era spawned yet another wave of community gardens in cities like New York, Boston and Chicago. Trained community organizers that were shaped by Civil Rights movement used community gardening to empower urban neighborhoods in cities across America (Warner 1987, Hynes 1996, Tucker 1993). Community gardens became the vehicle by which community organizers were able to mobilize disenfranchised urbanites into collective action.

For some community organizers during the 1960s and 70s, community gardening epitomized the 'Back to the Earth Movement'. For others, it was used to empower neighborhood residents, particularly ethnic minorities and those with limited means (Hynes 1996, Tucker 1993). Due to the emphasis that the community garden movement placed on local food systems, ecological awareness, sense of community, self-reliance

and defiance against government policies, it became a rallying cry for a range of interests. As a result, the civil rights era gardens marked a huge success and make up the majority of community gardens found in cities like Boston, New York and Chicago, today.

Even so, community gardens have become contested spaces in many cities due to increased competition for land over the past couple decades (Schmelkopf 1996, Smith et al. 2003). As cities work with developers to revitalize decaying urban neighborhoods, land in these neighborhoods increasingly becomes targeted for development (Smith 1996). Community gardens have become an easy target for development, particularly those located on municipal lands. Sarah Ferguson documents how many of New York City's gardens in low income and minority neighborhoods were plowed over as a wave of development swept the city during the 1990's (1999). This occurred in cities like Los Angeles, Chicago, and Boston, as well.

But development is not the only threat to current-day gardens. For many gardens whose lands are already secured by land trusts, the battle is between the values of the old generation of gardeners and the new generation of gardeners with regard to how gardens are organized, utilized, and physically structured. Suffice it to say, current-day gardens are experiencing pressures that were exerted by the ever-changing forces of society.

It must be noted that European cities also experienced a resurgence of community gardens during the 1960's and 70's. Buildings in England, Germany and France that sat as bombed-out hulls after World War II became the sites of many current-day gardens. In fact, the activity is so popular today that urban residents in many European cities find that getting a plot is near impossible. Waiting lists often reach ten years for some community

gardens. In spite, of their popularity, European gardens are also subject to many of the same pressures of societal change facing American gardens today (Groening 1996).

The Rise of Community Gardens in the Developing World

In contrast to the industrialized world, urban community gardens in the developing world are a more recent phenomenon, having emerged in the latter half of the 19th century (Freeman 1991). In spite of their relative novelty in the developing world, they have grown to become a major feature of the urban landscape due to their importance in providing food security (Nelson 1996).

The emergence of urban gardens in the developing world coincides with the rise of large, developing-world cities. Due to advancements in technology, agricultural production and transportation, cities of well over a million people began to emerge in the 20th century. By the 1950's, the sheer number of urban poor living in developing-world cities placed enormous pressures on the urban food supply. As a result, many rapidly expanding cities cities could no longer sustain their populations and giant squatter settlements began to emerge in cities like Bombay, Mexico City, Rio de Janeiro, Calcutta, Nairobi, and Bangkok. Since the squatters had no means of purchasing food to sustain themselves, they responded by planting gardens on any vacant land available to them, including public lands alongside roadways, riverbanks and public parks (Freeman 1991, Maxwell 1995, Nelson 1996).

By the 1970's, just about every square foot of available space was cultivated by the poor and homeless in some tropical, developing-world cities (Maxwell 1995). Fortunately, the level of community organization in squatter-settlement gardens increased

as the poor realized that their productivity was far greater if they worked together. In fact, some of the world's poorest cities now have the most organized community gardens. Without them, millions of individuals would not have the means to feed their families.

The importance of urban community gardens cannot be understated in the developing world. Millions of people rely on communally planted gardens to provide food and supplemental income for the household. In fact, in cities like Nairobi, Kenya; Kampala, Uganda and Bangkok, Thailand, up to half of the food consumed comes from urban vegetable plots (Maxwell 1995, Nelson 1996, Freeman 1991).

To conclude, by tracing the historical evolution of community gardening in the industrialized and developing worlds, one can see how community gardens are distinctly spatial phenomena that reflect the needs, trends, and conditions of society at any given point in time. At the same time, gardens serve to shape society, as exemplified by the Victory Gardens' role in catalyzing the public to engage in the war effort and their function as a locus for the civil rights movement in many urban neighborhoods. Thus, with the passage of time, gardens become a reflection of changing socioeconomic, political, and cultural conditions; beacons of change in the urban landscape worldwide.

Justification for Study

In spite of the important role that urban community gardening plays for individuals and society in Developing and Industrialized-world cities, they have become contested spaces in many cities. In Nairobi, Kenya, gardeners have butted heads with city workers that periodically slash and burn crops planted on public lands (Freeman 1991). In Los Angeles, California and New York City, neighborhood gardens have been bulldozed

in the name of progress in just the past fifteen years (Ferguson 1999). And in Havana, Cuba, dozens of large cooperative gardens have been converted to other land uses by the state since the start of the new millennium (Cruz and Medina 2003).

But it is not just garden spaces themselves that are being contested in cities. So too are the traditions, practices and activities carried out in the garden spaces by individuals and neighborhood groups. Inner-city neighborhoods in Boston, New York, and Chicago all experienced a so-called 'renewal' after decades of decay that prevailed in the 20th Century when well-to-do individuals and families began moving back to inner-city neighborhoods that were 'rediscovered' as artsy, trendy, culture-rich hot-spots during the 1980's and 90s. This resulted in the displacement of many urban poor and minorities as the demand for homes in these neighborhoods rose, along with the rents (Smith 1996).

As young, well-to-do professionals moved into these newly-popularized neighborhoods, the composition of gardeners in the neighborhood gardens also began to change. Many minority gardeners of predominantly Hispanic and African American descent were forced by economic circumstance to leave their neighborhood, along with their traditional gardens (Schmelkopf 1996). As they left, many of their traditions and ways of making meaning of their garden spaces also disappeared. In their place came a new wave of gardeners, often with new ways of organizing and making use of space.

In developing-world cities, the dynamics of demographic, socioeconomic and political change have also had a dramatic impact on many urban community gardens. As urban centers in developing-world countries have become more densely packed, food security has increasingly becoming an issue. Millions of poverty-stricken urban dwellers

in megacities around the world have turned to urban gardening as their only means of providing food for the family and supplementing their meager earnings (Nelson 1996).

As population pressure has increased in developing-world cities, so has competition for the land on which gardens are situated. In cities like Nairobi, Kenya and Havana, Cuba, many communal garden plots, including agricultural cooperatives, have been usurped for other uses, namely industry and tourism. As a result, many gardeners have resorted to planting the spaces around their homes in lieu of communal plots. But, what has become of the communally-oriented practices that were established through the cooperative gardens? And how has the loss of these practices impacted individuals and the city-at-large?

These are just a few of the social, economic and cultural changes impacting community gardens around the world. In order to understand how these changes impact community gardeners, urban neighborhoods, and society-at-large, one must understand the dynamic interrelations between individual and societal characteristics, community gardening practices. Only then can policies, actions and interventions be designed to help populations that are losing their traditions or their access to community garden space.

Case Study Approach

In order to explore the interrelations between garden space and society, this research incorporates case studies of urban community gardens in two distinctly unique cities: Boston, Massachusetts and Havana, Cuba. The purpose of selecting two socially, economically and politically disparate cities is to determine if the interrelationships

between individual/societal characteristics, garden practices and outcomes are applicable across locations, cultures, social systems and political systems.

Boston Case: In Boston, the predominant force of socioeconomic change impacting community gardeners and how garden space is utilized is demographic change. In essence, the 'old guard' of established gardeners in Boston's community gardens has gradually given way to a new wave of gardeners. Each new wave of gardeners comes with its own set of cultural norms, values, and motivations to garden. Therefore, as the demographics of participation in the gardens changes over time, the physical nature of the gardens changes correspondingly to reflect the values, norms, and motivations of the new gardeners. In this regard, Boston's community gardens serve as a window by which neighborhood-level demographic transformations can be observed.

In Boston's South End, for instance, vegetable gardens have slowly given way to flower gardens as many low-income, ethnic gardeners have been displaced higher-income, young professionals (Medoff et. al. 1994). In the place of these minorities came young, well-to-do professionals, many of whom have taken over vacant plots in community gardens. As this demographic transition occurs within the confines of the gardens, many cultural traditions are lost. Several gardens in Boston's South End have ceased functioning as centers of social life for the neighborhood. This is exemplified by the disappearance of the *casita*, a structure which sat in the center community gardens and once served as the social epicenter for Puerto Rican and other Hispanic gardeners.

Havana Case: In Havana, the main force of socioeconomic change impacting community gardeners, particularly the diversity of participation, is industrialization. It is true that the food crisis that hit Cuba after the collapse of the Soviet Union during the

1990's is largely responsible for catalyzing the urban agricultural sector (Cruz and Medina 2003). However, the Cuban government has recently turned its focus on other industries, including a booming tourist industry, to fuel the socialist economic system.

In Havana, literally hundreds of garden cooperatives were established in the 1990's whose primary purpose was to provide food and income for urban residents (Cruz and Medina 2003). However, as Cuba began adapting to the global economy in the new millennium, cooperative gardens started giving way to private gardens. This shift was not merely a result of the state's recent efforts to convert cooperative gardens to other land uses. The shift is also due to an increasing interest in private gardens now that individuals have gained the knowledge and skills to plant in their own back yards and turn gardening into a lucrative enterprise (Premat 2003).

Thus, unlike the neighborhood succession that that is impacting the physical and social structure of Boston's gardens, Havana's gardens are facing a succession of a different sort: a succession of land uses as industrial uses usurp agricultural uses in the urban corridor. This succession of land uses is forcing residents of Havana to change their spatial practices. Rather than cultivating many communal plots, and taking advantage of economies-of-scale, gardeners are increasingly turning to cultivation of their dooryards (Premat 2003). This represents a fundamental shift in how individuals practice gardening; one that is increasingly becoming manifest on the urban landscape.

Research Questions

Given that the problem focus of this research is how changing social, economic, and political factors influence neighborhood garden practices and outcomes – and how

this in turn can individuals and neighborhoods – four primary research questions are posed:

1. What specific interrelationships are there between individual and societal characteristics (e.g. individual values, socio-economic status, cultural heritage, social norms, institutional frameworks, community/institutional/organizational support structures, etc.) and the way in which individuals and communities physically structure and utilize urban community garden spaces in Boston and Havana (i.e. gardening practice)?

2. What outcomes/impacts do particular community gardening practices have on individual gardeners and/or the surrounding community/neighborhood?

3. Are the interrelationships between individual/societal characteristics, garden practices and outcomes applicable across locations, cultures, social systems and political systems?

4. How do forces of socioeconomic change – including gentrification, neighborhood succession, industrialization, etc. – impact individual community gardeners, their respective garden organizations, and in turn, the surrounding community?

5. What interventions, policies or actions could help ensure that diverse populations in cities around the world have access to urban community garden space?

Research Goals and Objectives

Given the above research questions, the goals of this research are fourfold, with each goal having a specific objective, as outlined below:

➢ Goal 1. Determine how ever-changing individual and societal characteristics influence community gardening practices (note that the element of change over time from question 4 was incorporated into goal one, since societal characteristics are ever-changing).

 – *Objective.* Identify how specific individual-societal characteristics and processes – such as organizational capacity, socio-economic status, cultural heritage, social norms, politics, institutional/legal frameworks and demographic change – influence what people grow in their gardens, how they grow it, where it is grown, as well as how garden associations carry out their daily routines.

➢ Goal 2. Determine the outcomes or impacts that various community gardening practices have on community members.

- *Objective.* Identify specific outcomes or impacts that various community gardening practices have on those who directly or indirectly participate in the activity (e.g. generation of income, food security, provision of a healthy food, fostering of a sense of well-being, beautification of space, and long-term vitality of gardens, etc.).

➤ Goal 3. Determine if certain relationships between individual-societal characteristics and community gardening practices and outcomes are applicable across locations and cultures.

- *Objective.* Identify specific interrelations between individual-societal factors and community gardening practices that Boston and Havana have in common, if any, as well as those that are unique to each respective city.

➤ Goal 4. Determine if there are potential interventions, policies or actions that could be instituted to ensure that a diversity of gardeners have access to garden space in cities around the world.

- *Objective.* Identify specific interventions, policies and actions that have helped ensure diverse populations with access to garden space in Boston and Havana and propose mechanisms for replicating these steps in other cities.

To conclude, it is important to note that the objective of this research is *not* to draw generalized conclusions about causal interrelations between garden space and society. Rather, the purpose of the study is to build a deeper understanding of interconnections between individual and societal characteristics, community gardening practices, and outcomes that a sampling of individuals and neighborhoods have attained as a result of their community gardening practices in Boston and Havana.

CHAPTER II

THEORETICAL FRAMEWORK

Overview of Space and Society

Early scholars viewed space in the Aristotelian tradition as being static,

hierarchical, and unchanging, a category that facilitated the classification of the senses.

Nearly two thousand years after Aristotle, Isaac Newton advanced Aristotle's notion of

space by conceiving it as a grid on which physical objects are located and events occur: a

container of substance, so to speak (Carter 2005). But it was René Descartes who is

credited with launching the study of space into the modern realm of science. Descartes

came to view space as an absolute: a mathematical construct that could be empirically

defined through multiple formulations. Yet, in spite of his advancement of spatial theory,

he was never able to discern whether space is "...a divine attribute...[o]r was it an order

immanent to the totality of what existed?" (Lefebvre 1991[1974]). Nearly half a

millennium later, this same question still looms.

Although the term 'space' is often used in the modern fields of geography,

epistemology, sociology, anthropology and other disciplines, it is not well-defined across

the spatial sciences and the use of the term varies from context to context (Gottdiener

1994, and Soja 1989). A main reason why space is not well defined is that it is thought to

be a social construct rather than a physical entity. And, as would be expected, scholars

across various disciplines each have their own interpretations: writers conceive of literary

spaces, psychologists conceive of mental spaces, philosophers conceive of ideological

spaces, and mathematicians conceive Cartesian spaces. Each field has its own logic and way of making meaning of space (Lefebvre 1991[1974]).

For the purpose of the following text on socio-spatial theory, however, the usage of the term space shall refer generally to the extent of an area in relation to the earth's surface, as opposed to that which lies beyond the earth's surface (e.g. astronaut's space). While this usage rather simplistically describes the context in which space will be examined, it by no means captures the various conceptualizations or nuances of space, many of which will be discussed later on in this section. Such conceptualizations of space, as described by August Lefebvre (1991[1974]), include:

- Absolute space: space that is real, objective, and tangible.

- Representational space: space that is imagined or perceived through symbols.

- Representations of space: space that is conceived through plans, policies, etc.

In his book *Spaces and Places*, Geographer Yi -Fu Tuan writes that, "Open space...is like a blank sheet on which meaning may be imposed" (2001: 54). Unlike place, which Tuan describes as being intimate and having established meaning, space is rootless and requires that individuals impose their own meaning to it. In fact, Lefebvre contends that *all* space is socially created, or produced (Lefebvre 1991[1974]). And, according to both Tuan and Lefebvre, space is integrally connected to the urban social fabric, for without society, space is mere nothingness.

Scholars have long recognized that the patterns by which urban spaces are occupied, utilized, organized, and reorganized by individuals and society are influenced, if not driven, by larger societal systems and processes, including economic systems, political structures, and technological innovation at multiple scales (Gottdiener 1994,

Foucault 1986, Harvey 1973, Lyon 1989, Soja 1980, Smith 1984). Yet, it has only been in the last few decades that scholars have conceded that, as Lefebvre noted, "...space is not just an innocent container of social processes but is both constituted by, *and constitutive of,* social processes" (Lefebvre 1991[1974]).

So, why has so much attention been focused on the social organization of space over the past few decades, particularly in urban environments? For one, the recognition that space is a product that both influences and is influenced by individual and societal characteristics, structures, processes, ideologies, norms, etc., has profound implications on the way in which cities and societies develop (Smith 1984). The way in which cities grow, change and often decline are spatial manifestations of social relations and societal structures. Urban processes that are inherently social and spatial in nature – such as gentrification, urban decay, racial segregation, and urban sprawl – can be thought of as both products of, and producers of, society. Thus, a deeper understanding of socio-spatial relations is needed to shed light on how urban areas grow, develop, decline and/or change over time (Gottdeiner 1994: xv). Furthermore, a better understanding of the interaction of complex socio-spatial relations may elucidate the various functions that space plays for individuals, neighborhoods, cultural groups, and other forms of social organization.

For, as Neil Smith (1996) demonstrates in his book on gentrification, space can be misused and even appropriated by those in power to the detriment of those marginalized by society. What's more, it can be done in ways that are not inherently obvious through urban policy and via the private market. Philosopher John Berger once quipped, "[i]t is space more than time that hides consequences from us" (Massey 1992).

Socio-Spatial Dimensions of Urban Community Gardens

Before elaborating on socio-spatial theories in the context of the urban environment, it is important to clarify why the interrelationship between society and space is critical to the study urban community gardens. Community gardens, like any other urban spaces, face constant pressures exerted by the social, political and economic structures and systems inherent in the city and more broadly, in global society. Pressures include fluctuating real estate markets, changing land use policies, racial tension and changing lifestyles and preferences of society (Smith 1996).

These pressures exerted over time can lead to change in community garden spaces: change in the physical structure of gardens (e.g. plant types, techniques, etc.), change in the cultural practices incorporated in the gardens, change in the outcomes that people receive from community gardening, and perhaps more significant, change in *who* gets to garden. These and other social and physical changes in the context of urban community garden space, in turn, have a reciprocal effect on the city's social fabric: on the cultural traditions that are played out in neighborhoods, on the social networks that unite urban residents together, and on the very 'desirability' of neighborhoods and cities as a places to live.

In Manhattan's Lower East Side, traditionally known as Losaida, Geographer Karen Schmelkopf documents how the area's community gardens have come to serve as safe havens for the neighborhood residents and have had a positive impact on the community (1996). However, as the City increasingly scrutinizes garden spaces for other more profitable land uses in this neighborhood that was rapidly gentrifying in the late 1980s and 1990s, the gardens have become hotly contested spaces. Schmelkopf illustrates

how community gardens have come to symbolize a form of resistance by neighborhood residents against the City's political structures, thereby exerting influence on the very political and social fabric of the City (1996). Such change that plays out over space can be examined through the lens of socio-spatial theory in order to shed light on the interplay between space and society.

Broadening the scale to national and global scales, community garden spaces reflect changing food distribution systems, fluctuating commodities markets, and shifting public values with relation to how food is produced, including a renewed emphasis on local foods (Lyson 2004, Green et. al. 2002). These and other factors have helped urban agriculture emerge as a major economic activity in cities around the world (Nelson 1996).

While it is important to understand the context of urban community gardens in both an urban and global context, Adriana Premat reminds us, in the spirit of philosopher Henri Lefebvre, that community gardens are not merely 'innocent containers' of broader social processes, such as the processes outlined above. They also play a role in shaping these very processes (2003). For instance, the urban community garden movement that took root in the 1960's and 1970's in the United States was not merely a product of social unrest. The movement served as a *locus* of social change that trickled up from the neighborhoods to entire metropolitan system, to the point where urban land use policies in many cities were transformed (Hynes 1996).

In a sense, urban community gardens can be thought of as microcosms of the city; spaces where social processes inherent in broader society are produced and reproduced through peoples' gardening practices and routines while, conversely, the social processes of the city and society are modified by the mere existence of the community garden

(Premat 2003). Thus, gardens not only provide a discrete setting where these broader urban-social processes can be examined, but they also function as an ideal laboratory for examining the effect of community garden spaces on the surrounding neighborhood/community.

Urban Socio-Spatial Theory Development

As previously mentioned, socio-spatial theory is not a recent phenomenon. In fact, various socio-spatial paradigms have been developed, reworked, and hotly contested by of opposing paradigms centuries. Because the theoretical framework that that this paper incorporates is largely a result of spatial scholars' attempts to integrate socio-spatial theory from multiple disciplines, it is helpful to trace a few of the major epochs in socio-spatial theory and the key actors that promulgated each. From the lens of geography, whose primary concerns are space and place, the following major epochs or benchmarks in the evolution of socio-spatial theory in the industrial era will be examined: economic geography, human ecology, and Marxian Urban Economy. Of course, there are other important paradigms and developments in socio-spatial theory that will not be addressed, as the purpose of this text is to provide a broad overview of how socio-spatial theory has evolved.

Economic Geography

Nineteenth century theories explaining the structure, layout, and interaction between cities focused primarily on how economic determinants such as transportation

costs, market value of produce, and distance to markets influenced settlement patterns, markets, and how space within and outside of the central city was used (Knox 2003).

In the early 19th century, Johann Heinrich von Thünen conceptualized one of the first spatial models explaining agricultural land use around a city center from a rational-behavioral perspective. His location rent model focused on how transportation cost and market value of agricultural produce coincide to determine the optimal use of land around the city center. He postulated that the use of a particular parcel is a function of the cost of transporting produce from that parcel to the market, the market value of the produce, and the land rent that that a farmer can afford to pay (Hart 1991). As a result, the value of the produce, as well as the intensity of cultivation, decreases with distance from the urban center, resulting in concentric rings of agricultural activity around the city center. According to this model, dairying and intensive farming would occur closest to the city center in the first ring due to the high value and perishable nature of the product. Timber and firewood would lie in the second ring and the third would consist of easily transportable, extensive field crops. Finally, the outer ring would be dominated by animal husbandry (Knox et. al. 2003).

Albeit this model is a simplified view of agricultural land use patterns, it is acclaimed for being one of the first models to draw linkages between the use of space and human behavior. In fact, the location rent has served as a foundation for many subsequent spatial theories. Its main failing, however, lies in the assumption that all humans act as rational beings in their pursuit to maximize profits. Further, it assumes an undifferentiated, isolated state where transportation costs are also undifferentiated

(Lawrence 1998). Lastly, the model does not consider the role of government policy in markets, or changes in demand for and price of product (Knox 2003).

A century after von Thünen articulated his principles of location rent, German Geographer Walter Christaller published a dissertation entitled *Central Place Theory*, in which he explained the size and spacing of human settlements according to certain laws that determine the number, size, and distribution of towns on a homogeneous plane. Christaller postulated that settlements would form a hexagonal latticework, as this pattern was most conducive to travel between settlements. Within this hexagonal latticework of settlements, Christaller modeled a hierarchy of settlements – referred to as central places – consisting of seven principal orders (Berry et. al. 1970). Each order provides particular goods and services to customers within its market. Spacing between each order of marketplaces would be regular and equidistant, with greater distances occurring between the larger marketplaces (von Boventer 1969).

Christaller's model is subject to many of the same assumptions and weaknesses as von Thünen's location rent model. First and foremost, factors such as variations in climate and topography are not factored in terms of how they impact transportation and access to markets. Second, land use and competition is not considered in terms of how it shapes markets. Third, evolutions in communication and transportation are not accounted for in terms of how products and services are distributed, accessed, and consumed, or how they are priced. Perhaps most important, the model assume that humans are rational actors and that their behaviors are predictable (Knox 2003).

In spite of these and other weaknesses, the models of Christaller and von Thünen have had a profound impact on modern economic geography, a field that has grown to

incorporate social, institutional, political and cultural dimensions. Modern economic geography has expanded far beyond its early focus on the city center and has broadened to consider urban, societal, and global systems and their influence back on urban form. Furthermore, economic geographers have branched out to incorporate other paradigms. In fact, the views of David Harvey, a modern economic geographer who has assimilated other paradigms in his work, will be briefly discussed in the section on Marxian political economy.

Urban Ecology

French thinker, Auguste Comte, first drew parallels between the evolution of species and the physical organization of society in the mi-1900s. Yet, it was Herbert Spencer who first conveyed the principles of Darwinian evolution to the field of modern Sociology in his analysis of urban form and function in the late 1800s, albeit he did not incorporate a strict spatial framework (Gottdiener 1994). Then, in the 1920's, University of Chicago sociologists Robert Park and Ernest Burgess drew upon previous works of Freidrich Ratzel, Comte, and Spencer to develop a distinctive theory that proposed that cities are much like natural environments in that they are subject to the same laws of evolution that Darwin theorized for natural systems (Lyon 1999). This new school of thought came to be known as the Chicago School of Urban Ecology.

Park and Burgess theorized that competition for land by various interests in cities is the primary force that leads to the division of urban space into distinctive uses, or niches (Lyon 1989). Under a system of laissez faire economics, humankind's struggle for survival in a physically bounded space would naturally lead to a functional division of

labor (Gottdiener 1994). It is this functional division of labor that defines the spatial order of cities (Park, Burgess, and Mackenzie 1925). In essence, there is a natural order to where social, commercial and industrial activities are located within the city. This order is a result of many of the same evolutionary forces that impact biotic communities: competition, natural selection, adaptation, etc. Conversely, over time, the different sectors of the city begin to take on the flavor of their inhabitants. As Park, Burgess, and their colleague Roderick Mackenzie noted in one of their seminal works, "[i]n the course of time every section and quarter of the city takes on something of the character and qualities of its inhabitants...the effect of this is to convert what was at first a mere geographical expression into a neighborhood..." (1925: 2).

Burgess took these theoretical concepts and applied them to a graphic model of urban spatial organization. He drew upon earlier spatial models by von Thünen, Max Weber, and others to develop his own concentric-ring model of urban form and function. Unlike previous models, Burgess's model conceived of specialized zones of use defined by the forces of competition (Lyon 1999). Ultimately, business and commercial activities that lost out to competition in the urban center would spread outward, thus leading to further spatial differentiation (Gottdiener 1994).

Although the theories put forth by Park, Burgess, and other scholars from Chicago School of Urban Ecology were innovative in how they connected community form with various processes of social organization, they were widely criticized for emphasizing the role of competition and the division of labor in the structuring of urban space. David Harvey wrote that the ecological approach failed by holding on to the last vestiges of biological organicism and was subject to the same traps of environmental determinism

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(Harvey 1981). Thus, it is no coincidence that urban ecology went dormant after the mass genocide during World War II.

The notion of urban ecology was briefly resurrected by Amos Huxley in the 1950's. Huxley addressed many criticisms of urban ecology by shifting its principal focus away from competition and towards the Darwinian principle of interdependence and symbiotic relationships among actors in society. This shifting of focus may have avoided the pitfalls of environmental determinism, but scholars soon noted that Huxley's abstract models failed to explain spatial organization in the city (Gottdiener 1994). Huxley's work was quickly brushed aside by scholars.

Marxian Political Economy

One critique of Carl Marx and other early Marxian thinkers such as Engels is that their philosophy evolved without any significant urban spatial perspective (Soja 1980). Marx's over-simplistic notion that urban settlement patterns were tied to the mode of production failed to recognize the broader context of society. In fact, it wasn't until the 1960's that Marxian scholars began focusing on urban space. Gottdiener suggests that this was likely an outgrowth of the ghetto riots of the 1960's in the United States and the worker strike in France (1994). These events focused attention on the urban condition and social inequality.

Out of this arose the Marxian political economy approach, which weighed the notion of space alongside the tenets of capital accumulation, labor and inequality. Some followers of this approach leaned towards class conflict as the mother of urban form. Others, like David Harvey, focused on capital accumulation as a driver of urban form

(1973). Yet, scholar Mark Gottdiener reminds us that that both are part and parcel of the same process: "...the hegemonic domination of capitalist social relations in modern society" (1994: 73).

As the Marxian political economy approach matured, many scholars joined the fray and "...began to analyze urban development in more global terms by tracing the process of capital accumulation and its relationship to space." (Gottdiener 1994). In contrast to mainstream socio-spatial scientists who viewed the city's population as nodes of functional differentiation, Marxian political economists viewed urban form as a product of concentration of labor and capital, resulting in social inequalities that are manifest of across space (Gottdiener 1994). One outcome of this, as described by Neil Smith, was the financial boom that occurred in real estate markets in the 1990's that displaced poor and working class people from their in-town homes, and, in some senses, erased neighborhoods cultural history of many cities in the U.S. (1996).

While the Marxian political economy approach marks a major advancement in the incorporation of socio-spatial relationships into traditional Marxian thought, it is still subject to many of the same criticisms as Marxism. Namely, it places emphasis on capital accumulation and labor in structuring urban form and it neglects other important social processes (Gottdiener 1994). As well, the approach focuses on inequality the central city and fails to examine the process of suburbanization, which Soja believes has been a more predominant process over the last few decades with major social consequences (1996).

Admittedly, the focus on three developments in socio-spatial theory – early economic geography, urban ecology, and Marxian political economy – overlooks significant paradigms and facets of urban socio-spatial theory development. Other

important developments include factorial ecology, positivist spatial geography, and (socio-spatial) network society, to name a few. But, alas, the purpose of outlining the above epochs is not to tell a definitive history, but rather, to lead into a socio-spatial paradigm that views urban form in a holistic and integrative manner.

The Social Production of Space

French sociologist, Henri Lefebvre, represented a clear break from the Marxian political economy paradigm when he drew from philosophies of René Descartes and his contemporary, Michel Foucault, to conceive 'the social production of space'. He used the term to signify that space is a socially produced construct, while at the same time it is also a producer of social relations (Unwin 2000).

In his book, *The Survival of Capitalism* (1973), Lefebvre first used the term 'production of space' in an attempt to move beyond the confines of class, power and accumulation by incorporating the routines of everyday life into Marxian spatial theory. Subsequently, after being sharply criticized by Manuel Castells for his subjective approach to spatial theory, Lefebvre responded by writing a dense volume called *The Social Production of Space*, in which he articulated various levels of space, ranging from the abstract space of planners and architects to the concrete, lived space of individuals in everyday life (1991[1974]). He believed that a thorough understanding of the various levels of space was the key to comprehending the complex interrelationships between space and urban society.

Although Lefebvre's purpose in *The Production of Space* "…was to write a history of space by relating certain representations of space to certain modes of

production through time..." (McCann 1999), he succeeded in captivating a much broader audience by conceptualizing a dialectic relationship between individual/societal identity and urban space. Scholars from diverse disciplines soon began to use his theoretical construct to examine how the practices of everyday life are produced and reproduced in the spaces around us.

Although Lefebvre conceived of the production of space, Edward Soja is largely credited for being the first notable Western scholar to recognize the significance of Lefebvre's dense volume a decade before it was translated into English. Other scholars, such as David Harvey, Neil Smith, Mark Gottdiener and Neil Brenner followed Soja by systematically dissecting Lefebvre's work and thereby helping to popularize the production of space in Western scholarship (Harvey 1977, Smith 1984, Gottdiener 1994, Brenner 1999).

Socio-Spatial Dialectic

Edward Soja utilized Lefebvre's production of space framework to conceptualize a middle ground where spatial scientists of all types could dialogue and stretch their minds beyond the bounds of spatial science's existing limitations of historicism, fetishism, determinism, empiricism, etc (Soja 1980). He coined this middle ground the 'socio-spatial dialectic' to encapsulate Lefebvre's spatial contingency in social life. He subsequently challenged other geographers and scholars other disciplines to incorporate the socio-spatial dialectic order to advance the socio-spatial sciences (1980).

Like Lefebvre, Soja's socio-spatial dialectic recognizes that societal systems, structures and processes directly and indirectly influence the way in which space is

organized, particularly urban spaces. Conjointly, however, space can also be thought of

as a *producer* of social relations, and hence the dialectic relationship between space and

society (Gottdiener 1994, Lefebvre 1991[1974]), Elden 2004, McCann 1999). As Soja

points out, "…[S]pace is not a separate structure with its own autonomous laws of

construction and transformation…" (1980: 208).

Abstract Space and Concrete Space

In order to comprehend the nuances of Lefebvre's dense volume on the

production of space, one must delve into the various concepts and constructs underlying

his work, much of which has been synthesized by other scholars, including Ed Soja and

Mark Gottdiener. The first critical distinction that Lefebvre articulates in *The Production*

of Space is between concrete space and abstract space.

Concrete space is the space that arises from everyday life and experience that are

materialized through the spatial practices of all members of society (Colocousis 2004).

Concrete space is "…the space of use values produced by the complex interaction of all

classes in the pursuit of everyday life" (Lefebvre 1979: 241 in Gottdiener 1994). They are

the spaces inside and outside of our homes that we encounter in our everyday lives,

spaces that we can physically touch and interact with (Harvey 2004). We 'produce'

concrete spaces, including community garden spaces, based on our experience and way

of knowing the world.

Abstract spaces, on the other hand, are the bureaucratized, conceived spaces of

planners, architects and policy makers through Master Plans, renewal corridors, building

blueprints, etc. Abstract spaces are spaces of "…quantification and growing

homogeneity, a merchandised space where all the elements are exchangeable and thus interchangeable…economic space and political space thus converge towards and elimination of all differences" (Lefebvre 1979: 293 in McCann 1999).

McCann points out that in order for abstract spaces to become realized, two processes must occur. First, architects, planners, and/or decision-makers must define the activities that can take place within a planned space, perhaps by means of a plan, plot map, blueprint, or zoning ordinance. Second, an erasure of history must occur: an erasure (or deliberate obscuring) of all the prior social conflicts and struggles that took place on that space (McCann 1999).

As Neil Smith outlines in The New Urban Frontier (1996), an erasure of history was conducted in New York City's Lower East Village, known as Losaida. Artists (perhaps unknowingly) and real estate brokers effectively converged to sell a glamorized, mythical image of Losaida that was devoid of the neighborhood's cultural history, effectively spinning it as the 'new urban frontier' (Smith 1996). With artists as the new colonizers of the neighborhood, a demand for homes emerged, driving up prices to a point where the charter group of Puerto Rican Hispanics that settled the area could no longer afford to live there. As a consequence of a real estate brokers' deliberate framing (or erasure) of the history of conflict and culture of the neighborhood, a new, gentrified Losaida emerged that was a sharp contrast to the ethnic enclave that it once was.

In many regards, city policy-makers were willing accomplices, given that the upscaling of the neighborhood had clear economic benefits for the City: business development opportunities, beautification, a stream of new tax revenue, etc. (Smith 1996).

Lefebvre goes on to contend that abstract space is actually a contradiction in terms. On the one hand, it emphasizes homogenization of cultures, socioeconomic classes, and societal norms, etc. Yet, the only way for abstract space to persist is through deliberate fragmentation and marginalization as means of preventing conflict (1991[1974]). In his case study of Losaida, Neil Smith points to the fact that the artists that 'colonized' Losaida were eventually displaced by the very same processes that displaced Puerto Ricans from the neighborhood a decade earlier. In effect, the artists were used as pawns by the real estate industry to 'create' a new image for Losaida. However, once the rent gap closed and the neighborhood became art-chic to the city's elite, the real estate brokers raised the rents, thus forcing out many of the artists that helped to popularize the area (Smith 1996).

Lefebvre contends that it is this apparent contradiction – that abstract space emphasizes homogenization, yet perpetuates itself through fragmentation – that opens the door for marginalized groups to appropriate, or reclaim, abstract space (Lefebvre 1974). McCann, in his case study of race riots in Lexington, Kentucky during the 1990s, documents how African Americans rose up in protest of the shooting of a black man by police (1999). The shooting spurred a wave of violence because it caused the black community to question the dominant abstract structures imposed upon space that promulgated racial marginalization and segregation in the city. Subsequent to the shooting, the African American community effectively challenged the hierarchies imposed upon space by the city's economic and political elite. Some argue that the riots only caused harm to the city, but McCann points out that they marked a major shift in how the black community interacted with the dominant 'abstract' regime (1999).

Sarah Elwood reminds us that there are other forms of resistance to abstract space aside from violent protests. She illustrates how marginalized groups can incorporate the use of technologies, such as Geographic Information Systems (GIS), to counter dominant abstract structures. Such groups can use GIS to create their own spatial narrative that adds significance to urban space, and thus, counter urban planning and other dominant policy processes (2006). Due to their data-driven, graphic nature, GIS-based spatial narratives can be quite compelling and have thus influenced urban land use policy in a number of U.S. cities.

Geographer Sam Bass Warner illustrates yet another example of how marginalized groups can resist dominant abstract structures without resorting to violent protest. He uses Boston's Southwest Corridor as an example of how marginalized African Americans organized to reclaim lands usurped by urban renewal in the 60s and 70s (1987). In the late 1960s, transportation planners had drawn up plans for an elevated inner belt to compliment Route 128 in Boston. To make way for the inner belt, a vast swath was razed from Charlestown all the way to Jamaica Plain and Roxbury, resulting in the demolition of thousands of acres and hundreds of housing units in largely African American and minority neighborhoods. What planners and city officials didn't count on was the counter-movement by neighborhood coalitions who resisted the plan, and eventually succeeded in blocking the highway's development (Warner 1987).

In fact, community gardens became the *locus* of this resistance, for neighborhood associations ultimately convinced the city to allow them to establish over a dozen community gardens in the Southwest Corridor lands that were razed. Through this example, Warner clearly illustrates how marginalized individuals can counter dominant

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power structures and appropriate abstract space and convert it back to the concrete space of everyday life without resorting to violent tactics.

Lefebvre's Conceptual Triad

Building on his notions of abstract and concrete space, Lefebvre conceptualized a tool for analyzing socio-spatial relations. His framework is referred to as 'Lefebvre's Conceptual Traid'. The triad consists of three elements, or moments, which encompass both abstract space and concrete space (McCann 1999, Lefebvre 1974[1991]). The three elements are conceived space (representations of space), perceived space (representational space), and lived/material space (spatial practice). Using Lefebvre's triad as an analytic tool, one can examine the producing relation of a particular space and thereby develop an understanding of where social and spatial practices overlap (Carter 1996). The following describes the three points of the triad.

Conceived space is the abstract space of planners, for it is conceived, not lived (figure 2). It is drawn up in plans, maps, zoning ordinances, and blueprints. It is through the abstractions created by these and other instruments that space is ordered. According to Lefebvre, this form of space dominates and is central to the production of abstract space (McCann 1999). As an example, urban renewal districts, which resulted in the destruction of countless acres in America's inner cities, are a direct product of conceived space (Smith 1984).
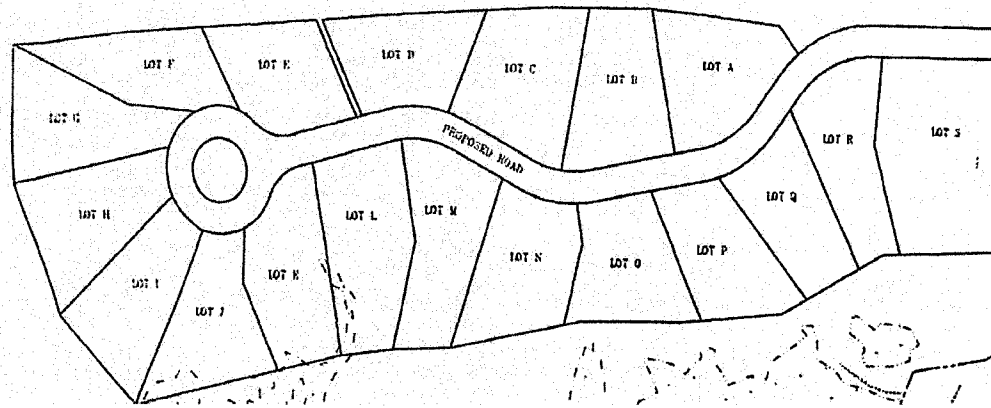
Figure 2. Example of Lefebvre's abstract space. Figure depicts a site plan for a proposed cul-de-sac neighborhood (courtesy of Sylvia von Aulock, Exeter Planner).

Perceived space, on the other hand, is the space of imagination that is based on individuals' experiences, culture, societal norms, etc. Perceived spaces manifest themselves as symbols or images that are held by their inhabitants (Lefebvre 1974[1991]). A good example of perceived space is Joel Pett's famous cartoon showing a map of Lexington with the East side colored black and the West side colored white to illustrate an imaginary border dividing black Lexington from white Lexington (McCann 1999). Granted, the cartoon is an intentionally over-simplistic depiction, but it illustrates how peoples' perception of space can be cultivated through their individual experiences, social relations, societal processes and bureaucratized processes. While such perceptions may not reflect the true physical nature of material spaces, they can have profound implications on both society and on the production and consumption of space.

Lastly, lived (material) space is the space of everyday life where daily practices, routines and experiences of individuals and society are incorporated into spatial form (McCann 1999) (figure 3). They represent the human activities that repeatedly take place within a given space (Carter 1996). David Harvey characterizes lived space as "... the world of tactile and sensual interaction with matter...the space of experience." (2004).

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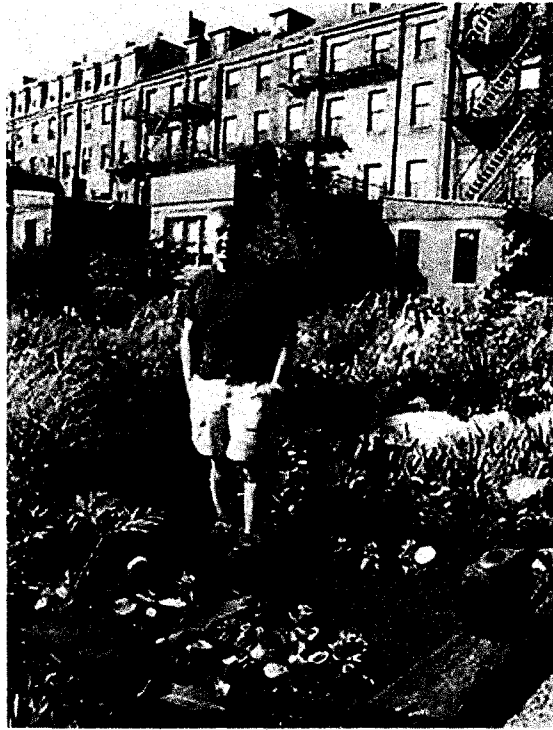
Figure 3. Photo showing the lived space of a
community gardener (photo by author).

According to McCann, lived spaces serve to mediate between abstract, conceived

spaces planners and the perceived spaces of individuals, for they reflect how space is

actually used by people, whether that use is a result of a conceived plan or the result of an

idealized perception or image that an individual or group has of that space (1999). In

effect, Warner is referring to the lived spaces of community gardeners when he describes

how gardeners exercise their perceptions, culture, and social norms through their

gardening practices; the techniques they use and the types of plants they grow (1987).

Now that we have outlined Lefebvre's production of space and his conceptual

triad of conceived, perceived, and lived space – and how other scholars have used the

framework to analyze urban socio-spatial interactions – a key question remains . Is

Lefebvre's socio-spatial framework relevant and, if so, can it be used as an analytic framework for examining socio-spatial interaction in urban community gardens?

Towards a Socially Relevant Spatial Science

Mark Gottdiener contends that in order for any theoretical framework to be capable of examining socio-spatial relations in a non-reductive manner, the framework must be holistic in nature (1994). Such a framework should not be limited to the examination of systems – such as economic and political systems – as drivers of spatial organization. Nor should the framework be limited to concepts such as competition for space and adaptation to explain the pattern by which space is organized by society. Lastly, the framework cannot be confined by ideologies that examine space purely from the context of power, class, or race. Instead, a holistic framework for examining socio-spatial relations is needed that exhibits flexibility for examining and incorporating socio-spatial relations at multiple levels (Gottdiener 1994).

Using Lefebvre's Production of Space as an Analytic Framework

According to McCann (1999), Lefebvre's conceptual triad not only provides a potential analytic framework for examining spatial processes, but it does so in a manner that can incorporate individual behaviors, political structures, economic structures, social norms, and culture all at once. Further, it recognizes Lefebvre's notion that space is both produced by, and a producer of, social relations (Soja 1980).

In spite of the proliferation of books and articles that expound upon Lefebvre's production of space and his conceptual triad, relatively few scholarly works actually

apply his framework to real-world issues. The few studies that *do* incorporate Lefebvre's

framework include McCann's look at racial relations in Lexington, Kentucky (1999),

Gotham and Brumley's socio-spatial examination of agency and identity in a public

housing development in the American South (2002), Premat's look at the 'new man' in

Havana's urban agriculture sector (2003), Carter's examination of production of space in

Shaker societies (1996), and Lowa's examination of how public spaces in Costa Rica

become interpreted reality (1996), along with a handful of other studies.

There may be good reason why the production of space has not been widely

applied to real-world problems. Perhaps it is because it is philosophical in nature and the

theoretical foundation behind it may be too vague and too broad to be of use as an

analytic tool. Or perhaps the notion of production of space is taboo to some due to its

association with radical Marxist ideology.

Based on previous studies citied above, however, it appears that Lefebvre's

production of space framework could be adapted to analyze socio-spatial relations in

urban community gardens. After all, community gardens not only manifest themselves in

space, but they are also a product of social relations. Moreover, evidence suggests that

community gardens have certain spillover effects on neighborhoods and urban

environments (Warner 1987, Hynes 1996, Shmelkopf 1996, Shumoske 2000). Thus,

Lefebvre's framework would allow various levels or conceptualizations of garden space

to emerge, such as how the material spaces of community gardeners reflect gardeners'

beliefs, values, cultural heritage, socioeconomic means, and their everyday practices.

Conversely, one could draw upon Lefebvre's spatial contingency in social life (Soja's

socio-spatial dialectic) to examine how community gardens exert a force back onto the neighborhood and thus impart a societal impact.

Although Lefebvre's general framework perhaps provides a starting point, applying his concepts to the examination of socio-spatial relations in urban community gardens is a challenge. In spite of the case studies that borrow from Lefebvre's concept of production of space, a well-defined analytical framework has not been established in the literature. Thus, the examination of socio-spatial patterns in the context of urban community gardens would require the creation new construct that draws upon the various conceptualizations of space articulated by Lefebvre, Soja, and other scholars.

Incorporating the Element of Time into the Socio-Spatial Framework

Another challenge to applying the production of space framework to the examination of socio-spatial relations in urban community gardens is that that the body of theory separates the elements space and time (Unwin 2000). Both Lefebvre and Soja were quite cognizant to emphasize the importance of space over time, lest we fall into the same traps of historicism as our predecessors (Soja 1980). As a result, very little emphasis has been placed on how socio-spatial processes change over time.

Swedish Geographer, Torsten Hägerstrand, argued that the phenomena of space and time are inextricably connected. He conceived of the 'space-time path' to illustrate the movements of individuals in space over defined periods of time (1967). Allan Pred, who translated Hägerstrand's work into English, wrote, "…space and time are universally and inseparably wed to one another…questions pertaining to human organization of the earth's surface, human ecology and landscape evolution cannot divorce the finitudes of

space and time." (Pred 1977: 218). Harvey Miller echoes Hägerstrand's and Pred's assertion that the activities of individuals have both spatial and temporal dimensions that cannot be separated. He suggest that the very activities that individuals partake in on either a daily, monthly, or lifetime scale all have a spatial extent (2004).

The interconnectedness between space and time is of particular significance when examining the social production of urban community garden space, as evidenced by the work of the following scholars. Sam Bass Warner found that Boston's community gardens are in constant flux as a result of ever-changing social, economic, and political conditions (1987). Patricia Hynes illustrates how neighborhoods and community groups have brought about change over time by converting vacant, rubble-strewn lots into neighborhood sanctuaries (1996). Adriana Premat explores how recent restructuring of Cuba's agricultural policies has changed Havana's urban agriculture sector (2003). And Kareen Schmelzkopf documents how community gardens turned into contested spaces as gentrification swept through Losaida, New York in the 80s and 90s.

In each of the cases highlighted above, both the social and spatial attributes of community garden spaces morph over time. Thus, if Lefebvre's production of space framework is to be of use for examining urban community gardens in the context of political, economic, and social change, the framework must incorporate the element of time alongside that of space.

A New Production of Space Framework for Urban Community Gardens

Drawing upon Henri Lefebvre's conceptual triad, Ed Soja's socio-spatial dialectic, Neil Smith's analyses of various processes of urban change, Torsten

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Hägerstrand's space-time geography, and various scholarly works on urban community gardens, a new framework for examining socio-spatial relations emerges that synthesizes key elements from each.

First and foremost, the framework is dialectic in nature, for community gardens are both a product of society, as well as a force that exerts back onto society. Individual gardeners and neighborhood garden groups structure their community gardens and garden plots based on their experiences, values, culture, beliefs, etc. Yet, the impact of .
community gardens reaches not only the gardeners, but also neighborhoods, and in some cases, entire cities. Gardens have served to clean up blighted lots in Chicago and inspired hope in inner-city youth (Hynes 1996), they have served as an economic engine for cities like Havana and Cienfuegos, Cuba (Premat 2003), they have provided more than half of the food consumed in cities like Nairobi, Kenya and Kampala, Uganda (Freeman 1991). So, it seems evident that urban community gardens not only a product of society, but they are also producers of social relations.

Second, Lefebvre's conceptual triad of lived space, conceived space, and perceived space resonates with urban community gardens. The lived spaces of community gardeners – gardens and their individual plots – are the tangible, material products of gardeners' beliefs, values, culture, habits, needs, daily routines, etc. In essence, the lived space of community gardeners represents their experiences and how those experiences are materialized into action through space (i.e. spatial practice). While lived space may be the dominant form of space in urban community gardens, it is also mediated by Lefebvre's two other conceptualizations of space. On the one hand, lived garden spaces are constrained by the abstract space of planners, architects and policy-

makers that dictate how urban land is used. On the other, community gardens are also subject to individuals' imagination, their perceptions of reality, and their visions of the future

Although the literature on urban community gardening does not explicitly address these three levels of garden space based on Lefebvre's conceptual triad, it is clear through the case studies highlighted in this section that each of these forms of space plays a vital in the context of urban community gardens. For instance, Warner provides a vivid description of how the physical nature of Boston's gardens (i.e. lived space) represents gardeners' cultural traditions. He also documents how plans for a new inner belt in Boston resulted in the razing of the city's Southwest Corridor (i.e. abstract space), but paradoxically gave rise to a community garden movement which ultimately helped to block the construction of the highway (1987). Shmelkopf depicts how gardens in New York's Lower East Side became contested spaces as the area was overrun by individuals with a glamorized vision of life there (i.e. perceived space). And Smith and Kurtz examine how garden advocates in New York City resisted the auctioning-off of over 100 of the city's gardens and effectively raised the 'politics of scale' of the issue beyond the individual gardens, and ultimately beyond the scope of the city (Smith et. al. 2003).

Thus, the only aspect of socio-spatial relations that has not been addressed in this new conceptual framework, thus far, is the notion that time and space are inextricably linked and therefore cannot be separated. It is clear that urban community gardens, like any lived spaces, are subject to the force of time. Just as cities like Boston and New York have experienced different waves of immigrant groups and cycles of renewal and decline over the past two three centuries, the community gardens have also experienced change.

Tracing the history of community gardens in the United states – from the allotment gardens of the early industrial ghettos and the Victory Gardens of World Wars I and II all the way to the Civil Rights-era ethnic gardens of the 1960's and 70's and the gentrified gardens of the past decade – it is clear that community gardens have changed both in form and in social structure. Thus, if a conceptual framework is to effectively be used to examine socio-spatial relations in urban community gardens, it must treat community gardens as socio-spatial phenomena that change over time and are subject same societal processes that have served to restructure cities over the past three-plus centuries.

So, what does this new conceptual framework for examining socio-spatial relations in urban community gardens look like? First, the model is premised on Ed Soja's socio-spatial dialectic; the interactive relationship between space and society. However, much like Lefebvre's conceptual triad, this new conceptual framework incorporates a triad of variables, or moments in time. These moments – each of which operates in the confines of both space and time – are individual/societal characteristics, spatial practices, and individual/societal outcomes.

The first leg of this triad of variables consists of the individual and societal characteristics that serve to produce lived community garden space. Individual characteristics include personal values, beliefs, experiences, cultural heritage, economic needs, daily routines, etc. Societal Characteristics include social norms, socioeconomic conditions, race relations, cultural heritage, political structures, organizational structures, etc. In effect, it is the individual and societal characteristics that are the mother of community gardens' material form.

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The second leg of the triad consists of spatial garden practices, or the lived, material space of community gardeners which comes to life based on their experiences. Garden spatial practices are the practices of individual gardeners incorporate in the confines of their garden, such as the types of plants they plant, the techniques they incorporate, and the activities that they carry out in the garden. Also included in this leg of the triad are the social practices incorporated by the garden organization and by the neighborhood. Social practices might include social functions carried out in the garden, organizational structures that manage the garden, and dominant patterns that characterize the garden (e.g. the ratio of vegetables to flowers).

As a direct result of the individual and social garden practices carried out in community gardens, a third leg of the triad is conceived; outcomes. The outcomes describe that which individual gardeners, garden organizations, and the neighborhood realize from the garden. Individual outcomes might include food security, sense of well-being, connection to cultural roots, feeling of satisfaction in watching things grow, and individuals' satisfaction in giving back to the neighborhood/community. Social outcomes might include beautification of the neighborhood, creation of a safe place for the community, preservation of cultural traditions, and, in some cases, the loss of cultural traditions or social gathering places.

As with Soja's dialectic, each of these elements in the triad exerts influence on the others. Individual and societal characteristics influence spatial practices. And spatial practices, in turn, influence outcomes. Conversely, outcomes can serve to modify spatial practices, and spatial practices can exert influence back onto on individual characteristics (e.g. values, daily routines, etc.), as well as neighborhood characteristics (e.g.

neighborhood social structures). Thus, to borrow from Soja's dialectic, a new conceptual framework is conceived.

But that is not the end of it. Each element in the conceptual framework is merely a static moment unless time is addressed. Rather than incorporate time as a fourth leg to the framework, it sits in the middle of this new framework, since individual/societal characteristics, practices, and outcomes are all subject to change over time.

Out of this emerges a new analytic framework that builds off of the theoretical works of Lefebvre, Soja and Hägerstrand; a framework that is grounded in the applied literature on urban community gardening. This framework, which will be discussed in Chapter 3, provides a unique analytic structure for examining complex socio-spatial interactions in urban community gardens through time.

CHAPTER III

METHODOLOGY

Research Approach

In order to evaluate the impact that individual and societal characteristics have on urban community gardening practices and outcomes, as well as explore the interrelationships between each of these variables, this research draws on production of space as a theoretical basis and incorporates the use of multiple field instruments to collect data from selected gardens in the case study cities of Boston, Massachusetts and Havana, Cuba. Field instruments utilized include direct observation, field mapping, photographs, a survey questionnaire, and structured interviews.

Theoretical Framework

As discussed in Chapter II, Henri Lefebvre's notion of 'production of space' provides a complex, theoretical construct for examining socio-spatial relations in the spaces occupied by individuals and society, such as community gardens. Specifically, Lefebvre's construct addresses three levels of space – imagined space, abstract space, and lived (material) space – and how each of these levels is influenced by societal factors such as culture, class, race, politics and daily routines. In turn, each of these three levels of space exerts an influence back onto society and serves to shape social relations.

Although Lefebvre's construct provides a possible starting point for examining socio-spatial relations in community garden spaces, it does not propose an applied,

analytic framework for organizing and structuring field data. True, a number of scholars have incorporated elements of Lefebvre's production of space construct in their analyses of real-world issues, but none to my knowledge have proposed an analytic framework that is appropriate for holistically examining socio-spatial relations in community garden spaces. Thus, a new analytic framework was conceived in Chapter II that not only draws upon Lefebvre's production of space construct to examine socio-spatial relations in urban community gardens, but also incorporates the variable of time. The following details how this simplified, analytic framework was derived from Lefebfre's overly-complex theory.

First, Lefebvre's notion of 'lived space' is of central importance to the new analytic framework, for it represents how garden space is physically materialized on the urban landscape: the types of plants grown, garden configuration, plot arrangement, gardening techniques, etc. Thus, lived space is treated as a distinct element in the new analytic framework and is referred to as *individual and neighborhood spatial practices*.

Lefebvre's 'abstract' and 'imagined space', on the other hand, typify individual and societal norms, structures, or conceptualizations that influence how lived space is physically structured. Thus, they are synthesized into a second element, referred to as *individual and societal characteristics*. A societal characteristic might include the policy framework that defines how urban land is used (i.e. abstract space), and thus influences the spatial practices that take place in community gardens. An individual characteristic might include one's cultural heritage, for it influences one's conceptualization of space (i.e. imagined space), as well as what they grow and the techniques that they use.

A third element is added to the analytic framework to capture the outcomes or impacts that individual and societal characteristics and spatial practices have on

individuals, neighborhoods and society. This element, referred to as *individual and neighborhood/societal outcomes*, is a missing link in Lefebvre and Soja's socio-spatial dialectic; the notion that space is both a product of society and a producer of social relations. Outcomes are critical to the new analytical framework, for the outcomes of a particular spatial practice can shape the very practice itself. For instance, African American gardeners often plant yams in Boston; a tradition that can be traced to the American South and ultimately, to Africa (Warner 1987). However, the temperate climate of Boston has forced African Americans to modify their traditional cultivation practices to enable them to cultivate this tropical plant. Many have adopted the use of a black plastic covering to trap incoming solar radiation to extend the growing season.

Thus, we are left with an analytic framework that now consists of a triad of elements for categorizing interrelations between community garden spaces, urban neighborhoods and society (figure 4). The three elements, or legs, are summarized below.

- *Individual and societal characteristics:* This first leg of the triad consists of individuals' values, beliefs, experiences, cultural heritage, etc., as well as societal characteristics such as social norms, socioeconomic conditions, race dynamics, demographics and political and organizational structures, etc.

- *Individual and neighborhood spatial practices:* The second leg of the triad represents the material spaces of gardeners that come to life based on their lived experiences, including the forces exerted by society. Spatial practices include types of plants grown, techniques used and everyday activities carried out in the gardens. Also included are practices carried out by the neighborhood, such as garden social functions, organizational structures, etc.

- *Individual and neighborhood outcomes:* The third leg of the triad consists of results or outcomes that gardeners, garden organizations, neighborhoods and society realize from community gardens. Individual outcomes include food security, sense of well-being, connection to cultural roots and satisfaction in giving back to the community, etc. Social outcomes include neighborhood beautification, creation of public spaces, preservation of cultural traditions, and, in some cases, the loss of traditions or gathering places.
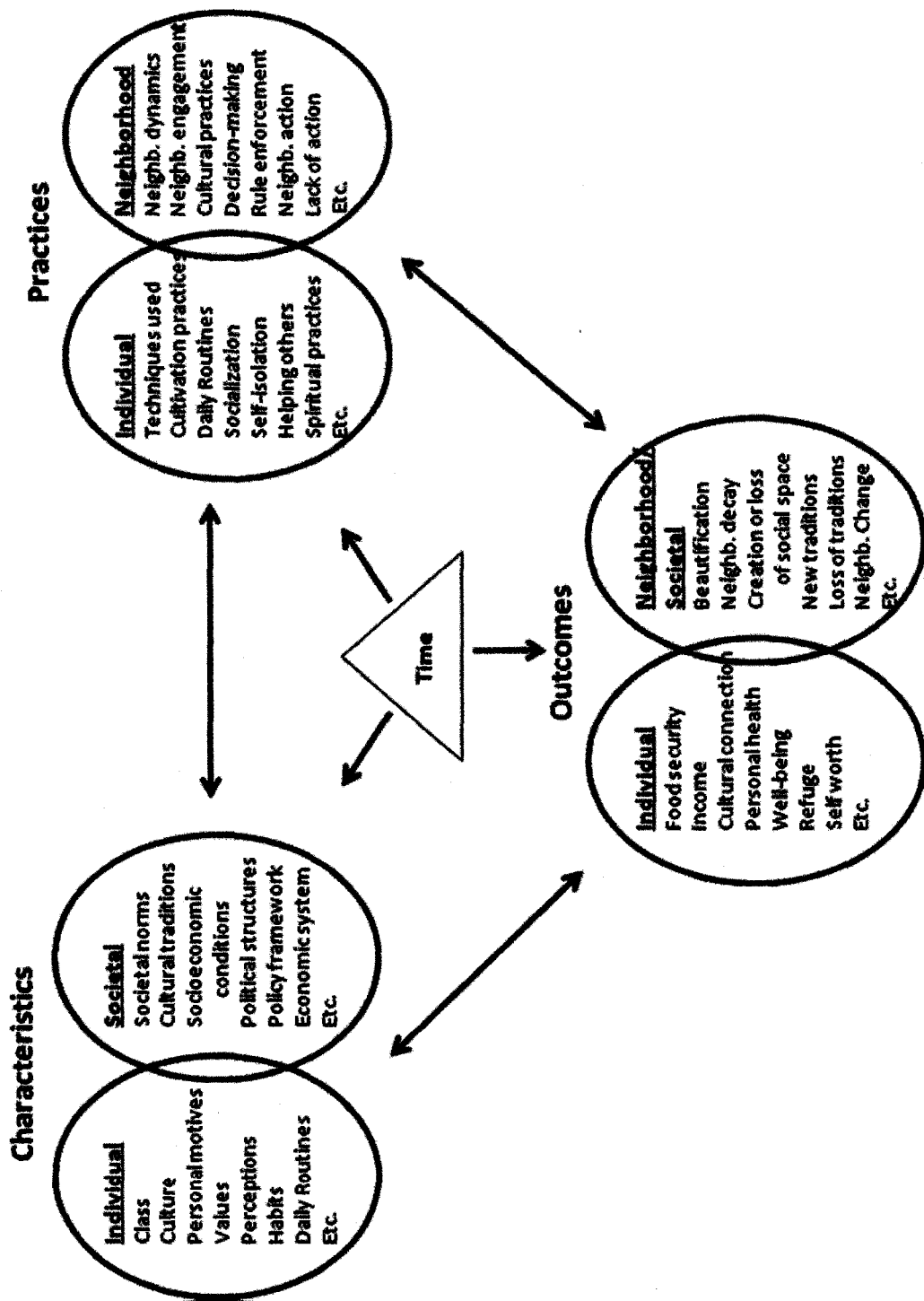
Figure 4. Detailed analytic framework for examining socio-spatial relations in community garden spaces.

Of note, the three legs of this stool each represent a single moment in time, or a snapshot. Thus, in order to incorporate the element of change over time into the analytic framework, each of the legs of the stool was examined based on interview subjects' and survey respondents' perceptions of how individual, neighborhood and societal characteristics, practices and outcomes have changed over the years. In essence, the element of time can be thought of as the lens through which socio-spatial relations can be examined. Therefore, it lies at the center of the analytic framework and is a condition under which each of the three elements operates.

In summary, the analytic framework takes Lefebvre's conceptualizations of space, which merely describe the various dimensions of space in theoretical and philosophical terms, and synthesizes the elements into an analytic framework, or model, for examining particular socio-spatial interactions in the context of community gardens. The framework essentially provides a tool for examining how community garden spaces reflect broader societal characteristics and processes – such as suburbanization and gentrification – and how individual gardeners and neighborhoods are impacted by these and other societal characteristics and processes. The framework is also used to explore the corollary of how garden spaces impart change on the neighborhood, the City and society-at-large vis-à-vis the practices carried out by gardeners.

Case Study Analysis

Now that an analytic framework has been established and the topic of the research has been defined (i.e. urban community garden space), the following describes the research approach for examining the interrelations between neighborhood-societal

relations and community garden spaces. Since community gardens are present in the majority of the world's cities, a cross-case study comparing two different cities was incorporated. Individual gardens in each respective city served as embedded units of analysis. The purpose of incorporating a cross-case comparison between two cities, with gardens as embedded units of analysis, was to determine if the interrelationships between individual/societal characteristics, garden practices and outcomes are applicable across locations, cultures, social systems and political systems.

Ultimately, two cities with vastly different political, social, and economic systems were selected in order to compare the processes by which gardens become social manifestations on the urban landscape in unique contexts.

Primary Cases: The first case study selected for this research is Boston due to the city's rich history of community gardening and the various stages of growth and decline that the gardens have experienced over the past century or so. Today, the city boasts over 200 community gardens and has a vast network of organizations and agencies that support community gardens and their respective associations. It also must be noted that the city was an attractive case study because of its proximity to the researcher.

The second case study is Havana, Cuba. This city was selected not only because it has vastly different economic, political, and social systems from Boston, but also because it is considered in the scholarly literature to be a shining international star with regard to urban-community gardening. Unlike Boston, which has a couple hundred community gardens, the comparably-sized city of Havana maintains thousands of gardens. The majority of these gardens have arisen in just the past decade. Also, Havana's socialist

political-economic system and pervasive poverty provide a sharp contrast to Boston's relative affluence and long history of urban community gardening.

The boundary for each case study consists of the lands that are administratively and legally zoned for urban uses (i.e. the urbanized district). Specifically, the case study boundary for Boston consists of 15 municipal districts, or neighborhoods, that fall under the legal jurisdiction of the City. The case study of Havana also consists of 15 municipal districts that fall under the jurisdiction of the City (synonymous with Havana Province).

Embedded Cases: Within each of the two case study cities, embedded units of analysis, or embedded cases, were selected. The embedded cases consist of individual community gardens. In Boston, 30 community gardens were selected as embedded cases while only 11 were selected in Havana due to the difficulty of conducting research in a country that has poor political relations with the United States. For each embedded case (i.e. garden), direct observation, structured interviews, photo documentation and field mapping were conducted.

The thirty garden cases in Boston were selected to encompass as diverse a range of social, economic, and cultural characteristics as possible. In fact, tract-level data on population density, race, ethnicity, median rent, and other variables from the 2000 Census were incorporated into a Geographic Information System (GIS). The data was overlaid onto a base map of Boston depicting the locations of the City's community gardens. The purpose of overlaying the Census data on the basemap of Boston's gardens was to determine if certain Census variables were visually correlated to the location of gardens. Additionally, the boundaries of Boston's urban renewal districts were overlain onto the basemap of Boston's community gardens to see if there was a visual correlation.

Non-probability cluster sampling was used to select embedded cases (i.e. gardens) for this research, since the aim was not to produce a statistically representative sample, but rather, to gain a deeper understanding of socio-spatial relations in different contexts. Specifically, the selection of embedded cases was based on Glasser and Strauss's qualitative, purpositive sampling method, whereby non-random subjects are selected from geographic clusters (1967). The clusters were identified using geospatial analysis. In essence, GIS was used to identify demographic clusters where community garden locations visually correlated to certain Census variables mapped at the Census tract level. Once the clusters were identified, a random sampling method was used to select five gardens from each of the geographic clusters so that the field methods could be incorporated in each. Five additional outlier gardens that fell outside of the clusters were selected due to their unique attributes.

In Havana, the selection of cases was constrained by the lack of Census data for the City and because a basemap depicting garden locations was not available. Further, the researcher was limited in what gardens he was able to visit due to the fact that he was a guest of the quasi-governmental *Cuban Association for Agroforestry Techniques* (ACTAF). Thus, the goal was to identify one garden in each of the 15 municipal districts to serve as embedded cases. However, because of the ACTAF liaison's limited time and resources, he was only able to accompany the researcher to 11 different garden sites in only 9 out of the 15 municipal districts. In two of these municipal districts, two gardens were selected based on the recommendation of the ACTAF liaison. Moreover, it must be noted that the ACTAF liaison selected the garden cases based on the researcher's desire to incorporate a variety of different garden organizational structures into the sample.

Embedded Case Subjects: To compliment the direct observation, field mapping and photo documentation, an individual gardener was targeted for a structured interview in each of the garden cases. The selection of the subject for each garden is described below under 'Structured Interviews'. In Boston, 32 gardeners were interviewed in 30 separate gardens, while 11 gardeners from different gardens were interviewed in Havana.

Field Instruments

Based on the case study framework outlined above, a variety of field instruments were used to examine how garden space is produced, utilized and often challenged in Boston and Havana, as well as how it can exert influence back onto the neighborhood and society. These research instruments include secondary data analysis, direct observation, structured interviews of community garden participants and survey questionnaires.

Secondary Data Analysis

Secondary data, although not technically classified as a field instrument, was used to trace the historical evolution of community gardens in Boston and Havana, as well as identify current and future trends. Sources of secondary data included land use plans, maps, public records, meeting transcripts, organizational brochures, and community garden records. In addition, a review of the literature on each city's community gardens served to provide background on the various individual and societal influences on urban community gardening practices and outcomes from the perspectives of other researchers.

Direct Observation

Prior to interviewing community gardeners in each city, a direct observation protocol was established that involved up to one hour of observation of social interactions in each garden, as well as interactions between participants and outside individuals (i.e. city officials, institutional representatives, other communities, and others). The purpose of direct observation was to examine and record the human interactions that take place on a day-to-day basis within the lived space of the community gardens (Appendix A).

In addition to recording direct observations at each of the, the physical characteristics of each were mapped by hand in order to document information about the garden's size, shape, structure, content, and other features inside or adjacent to the garden. The field mapping also served to identify certain physical patterns manifest in the gardens, such as a predominance of flowers over vegetables, lack of maintenance, or the presence of designated social meeting space in the garden. Lastly, for the researcher, the field maps help to preserve a visual image of each garden and its context in the urban landscape.

Photo documentation was also used to visually document the physical and situational characteristics of each community garden, including human interactions that took place in the confines of each. As is the case with the field maps, the intent of the photos was to enable the researcher to compare the physical makeup of each of the gardens in terms of size, shape, structure, condition, environmental surroundings, garden characteristics, etc. Further, when incorporated into the research findings, the photos enable the reader to visualize each community garden case in Boston and Havana.

Structured Interviews

A subject in each garden case was selected for an in-depth, structured interview. The purpose of the interviews was to discern how particular individual and societal characteristics – cultural heritage, personal values, politics, economic conditions, organizational capacity, etc. – influence how they practice community gardening, why they garden, and what the impacts or outcomes result for them and for the neighborhood

The interview protocol consisted of 39 questions. In Boston, a hard copy of the protocol was made available to the interview subjects in either English or Spanish (Appendices B-1 and B-2). In Havana, the interview protocol translated into Spanish was used (Appendix B-2). In both cities, each subject was given an Informed Consent Form which required either their signature or their verbal consent (Appendix C). In Havana, consent was provided verbally at the recommendation of the ACTAF liaison. The consent form was required as part of the IRB Approval granted for the study (Appendix D).

Because there is no master list of gardeners in either Boston or Havana, interview subjects were identified simply by virtue of the fact that they were present in the garden at the time of the site visit and they were willing to be interviewed. In cases where there were two willing interview subjects in the garden, the researcher interviewed them separately (note that the only gardens where two gardeners were interviewed were the Blackwood-Claremont and the Lenox-Kendall Community Gardens in Boston).

Overall, 32 subjects were interviewed in 30 gardens in Boston's and eleven were interviewed in a corresponding number of gardens in Havana. While the goal was to interview one gardener in each of Havana's 15 municipal districts, as was previously

mentioned, certain constraints limited the interviews to 9 districts. Principally, the
ACTAF liaison did not have the capacity to accompany the researcher to all 15 districts.

Survey Questionnaire

Because the interviews were limited to a sampling of gardeners in each of the case
study cities, a survey questionnaire was designed to query a larger audience of gardeners
(Appendix E). Although the initial plan was to conduct surveys in both Boston and
Havana, the ACTAF liaison in Havana suggested that conducting a survey was not a
good idea due to the sensitivity of political and social relations between Cuba and the
United States and due to the restrictions posed on my research license from the U.S. State
Department. Thus, surveys were only conducted in Boston. In Havana, the research
findings were based mainly on data collected through structured interviews, photo
documentation and field maps.

For the Boston case, the purpose of the 18-question survey was to compliment the
qualitative data from the interviews of the City's gardeners with basic summary statistical
data. Thus, many of the same themes from the interview were addressed in the survey.
With the exception of a few general questions, the questions were either multiple-choice
or they asked the respondent to rate their response on a Likert scale to facilitate the
generation of summary statistics.

Because the survey sample was larger than the interview sample, the goal was to
corroborate whether the themes that emerged from the interviews were representative of
the gardens as a whole in each respective city. Thus, the home-garden for each survey
respondent was mapped using GIS technology in order to provide a visual distribution of

the respondents, as well as to determine if certain patterns were present with respect to garden practices and the location of the gardens (see figure 4 in Chapter IV). These patterns could be compared with the interview responses coded by geography, as well.

In Boston, the main challenge was to determine how to distribute the surveys, given that there is no master list of community gardeners. The Boston Natural Areas Network authorized the distribution of the surveys at Boston's annual Gardeners' Gathering, which draws diverse gardeners from all over the city. As an incentive to get gardeners to fill out the survey, free garden gloves were offered to the first 75 respondents. All told, 65 gardeners from Boston completed the survey, along with approximately 20 gardeners from other cities in the Northeast. Since the survey focused on Boston, surveys from non-Boston respondents were not counted in the analysis.

Data Analysis Procedures

Coding of Interviews and Direct Observation Data

The comparative case study approach was used, as defined by Jensen and Rodgers (2001: 237-239). The specific analysis procedures used to extract the findings from the field data sources were enabled by NVIVO 8.1, a qualitative analysis software program

First, a technique called open coding was used to categorize data from the interview transcripts and direct observations into the three main categories in the analytic framework: characteristics, practices and outcomes. Subsequently, two levels of sub-categories emerged under each of the main categories to further differentiate the data. As an example, under outcomes emerged a sub-category for individual outcomes and another for neighborhood outcomes. And, under individual outcomes, a third layer of coding, or

second-level sub-category, emerged based on the type of outcome (i.e. positive outcomes versus challenges). Yet another level emerged classifying specific types of positive outcomes and challenges faced by individual gardeners or by the neighborhood (figure 5). Lastly, axial coding was used to relate the different coding categories together, looking for interactions or intersections between characteristics, practices and outcomes.

Figure 5. Major coding categories (nodes) and sub-categories (child nodes) for Boston interview and direct observation data as coded using NVIVO software.

Second, interview transcripts and direct observation data for each garden were imported into NVIVO and the software's 'classifications' function was used to create a table describing the attributes of each of the interviewees, including ethnicity, annual income, gender, population density, main reason for gardening, etc. As well, data about each interviewee's respective garden was added to the table to describe particular attributes or characteristics of the garden and/or the neighborhood, such as the location of garden, the primary ethnic makeup, whether the garden was located in a renewal corridor,

etc. (figure 6). Ultimately, the attributes table that emerged provided an overview of the particular attributes of each gardener and his/her respective garden.

	A: Garden N..	B: Ethnicity	C: Origin	D: Garden Di..	E: Garden..	F: Gender	H: Neigh..	I: Income L..	J: Primary Mo..	K: neighb pop..	L..	
1: Alberta	Lennox Kendall	African American	Southern Afric	African American	Mainly Vegetabl	Female	70's	Roxbury	L	Food (for table)	Medium	Yes	3
2: Alison	Minton Stable	Anglo	English	Ethnic Mix	Mainly Vegetabl	Female	30's	Jamaica Plai	LM	Food (growing ow	Medium	Yes	2
3: Angela	Highland 400	Anglo	Italian/African	African American	Mainly Vegetabl	Female	50's	Roxbury	L	Community	High	Yes	3
4: Arthur	Lennox Kendall	African American	Southern Afric	African American	Mainly Vegetabl	Male	60's	Roxbury	LM	Food (Health)	High	Yes	3
5: Awilda	Leyland Street	Hispanic	Puerto Rican	Hispanic	Mainly Vegetabl	Female	40's	Dorchester	L	Enjoyment	High	No	1
6: Berkeley Street Communit..	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned	Una	South End	Unassigned	Unassigned	High	Unas	3
7: Bettie	Clark Cooper	African American	Southern Afric	African American	Mainly Vegetabl	Female	50's	Mattapan	LM	Well-being and th	Low	No	3
8: Brianna	Unity Towers	Anglo	European	Chinese	Mainly Vegetabl	Female	20's	South End	LM	Helping others	High	Yes	1
9: Cammy	Food Project #1	Anglo	European	Ethnic Mix	Mainly Vegetabl	Female	40's	Roxbury	M	Youth education	Medium	No	1
10: Cindy	Gardens for Cha	Anglo	Unassigned	Mostly White	Mix	Female	50's	Charlestown	MH	Relaxation and g	Medium	No	2
11: Cleveland	Greenwood Stre	African American	Southern Afric	African American	Mainly Vegetabl	Male	60's	Dorchester	LM	Food (for table)	Medium	No	2
12: Dawn	Harrison St. Urb	Anglo	European	Mostly White	Mix	Female	20's	South End	LM	Food (growing ow	High	No	1
13: Deborah	Leland Street	Anglo	Swedish	Ethnic Mix	Ornamentals &	Female	50's	Jamaica Plai	M	Community	Medium	No	2
14: Eileen	Joseph Ciampa	Anglo	Irish	White/Italian	Vegetables	Female	50's	East Boston	M	Environment & C	High	No	3
15: Eleanor	Rutland/Washint	Anglo	Spanish	Mostly White	Mix	Female	80's	South End	LM	Healthy Activity/F	Medium	Yes	3
16: Gardens	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned	Una	Unassigned	Unassigned	Unassigned	Unassigned	Unas	U
17: Jennie	Paul Gore/Seac	Anglo	Irish	Mostly White	Mix	Female	30's	Jamaica Plai	LM	Relaxation	Medium	Yes	2
18: Jeremy	Berkeley Street	Chinese	Hong Kong	Chinese	Mainly Vegetabl	Male	20's	South End	LM	Connecting w/cult	High	Yes	3
19: Jim	Rutland/Washint	Anglo	Yankee	Mostly White	Mix	Male	40's	South End	M	Relaxation/spiritu	Medium	Yes	3
20: Joanne	Jackson Mann	Anglo	Italian	Ethnic Mix	Mainly Flowers	Female	60's	Allston	M	Youth education	Medium	No	1
21: Jose	Jardin de la Ami	Hispanic	Puerto Rican	Hispanic	Mainly Vegetabl	Male	40's	Roxbury	LM	Food (for table)	High	No	1
22: Juan	Soulwest Corrid	African American	Puerto Rican	African American	Mainly Vegetabl	Male	60's	Jamaica Plai	M	Food (good veget	Medium	Yes	3
23: Julie	Worcester Stree	Jewish	European	Ethnic Mix	Mainly Vegetabl	Female	20's	South End	LM	Relaxation (gettin	High	Yes	2
24: June	Mission Hill	Anglo	Italian	Ethnic Mix	Mix	Female	40's	Roxbury	M	Food (organic at r	Medium	Yes	2
25: Katie	Paul Gore #2	Anglo	European	Mostly White	Mix	Female	50's	Jamaica Plai	M	Refuge in wild nat	Medium	Yes	2
26: Maggie	Lawn Street	Jewish	European	Ethnic Mix	Mix	Female	50's	Roxbury	M	Community and t	Medium	Yes	2
27: May	Kennedy Playgr	Anglo	Irish-French	Ethnic Mix	Mainly Vegetabl	Female	60's	Mattapan	LM	The pleasure of g	Medium	No	1
28: Melba	Lawndale Terrac	Hispanic	Costa Rican	Hispanic	Mainly Vegetabl	Female	60's	Jamaica Plai	LM	Community (getti	Medium	Yes	2
29: Rand	Round Hill	Anglo	Swedish	Mix	Mainly Vegetabl	Female	50's	Jamaica Plai	M	Enjoyment	Medium	Yes	2
30: Sean	Symphony Road	Anglo	Irish	Mostly White	Mix	Male	30's	Fenway	M	Having own spac	High	Yes	2
31: Seth	Warren/Clarend	Anglo	European	Mostly White	Mainly Flowers	Male	50's	South End	H	Garden's beauty	High	Yes	2
32: Skip	Richard Parker	Anglo	Slavic	Mostly White	Mainly Flowers	Male	40's	Fenway	MH	Relaxation and so	High	Yes	3
33: Susan	Garden at the R	Anglo	Dutch	Mostly White	Mix	Female	50's	East Boston	M	Food (fresh veget	High	No	1
34: Tim	Samac-Newcast	Anglo	European	Mostly White	Mix	Male	40's	South End	H	Likes to garden	High	Yes	2

Figure 6. Matrix describing attributes of community gardeners and individual community gardens established using <u>NVIVO's</u> 'classifications' function.

Third, using the software's query builder function, a set of queries was constructed to examine particular interrelationships between various elements from the attributes table for each interviewee/garden and the coding categories (figure 7). For instance, one query was built to extract from the data the main motivation to garden by Hispanic gardeners in Roxbury, Dorchester, and Jamaica Plain. Another was built to determine what types of plants predominated in white gardens as compared to Hispanic and African American gardens.

Because the query builder was simply used to pull up the data from the coded excerpts that fit each particular query, the technique of pattern-matching, as described by Yin (2002), was used to identify specific patterns or interrelationships between the

various elements in the model. Using pattern-matching, the researcher ultimately must decide what patterns or findings are relevant (Yin 2002). The software merely helps the researcher to organize and structure the data.
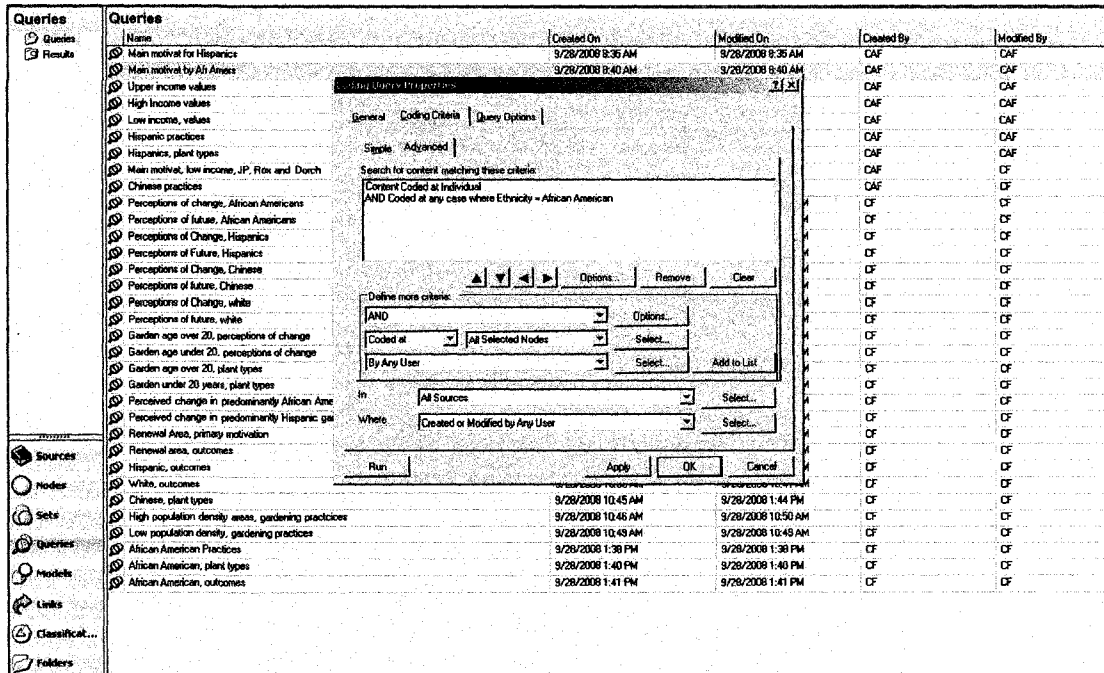
Figure 7. Queries built using NVIVO's query builder function to cross reference data coded into particular coding categories and attributes from matrix table.

Lastly, data from the each of the coding categories was used to generate a model using NVIVO's 'models' function to determine if the interrelationships between characteristics, practices and outcomes ultimately conform to the analytic structure (figure 8). In other words, a visual analytic framework was created using the 'models' function and sources of evidence from the interviews the casebook were linked to each visual element in the model. While the outcome of this was much the same as the coding, it enabled the researcher to view the sources of evidence in the context of a model as opposed to viewing the raw data that was categorized according to each of the coding

59

categories. Furthermore, the model function serves to annotate the direction of

interactions between different elements in the model.
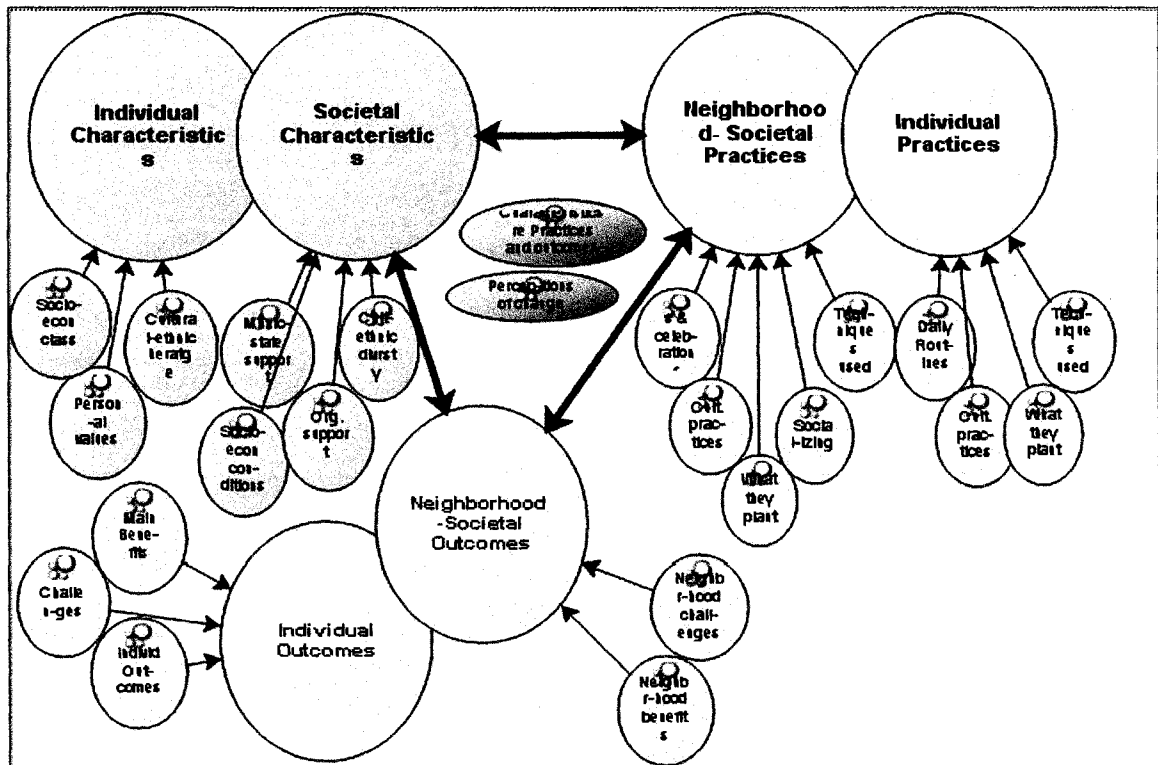
Figure 8. Model structure created using NVIVO's 'models function. Each element, or balloon, in the model structure contains a live link to all the data coded for that element.

Analysis of Survey Questionnaires

A survey questionnaire was distributed to community gardeners in Boston, but

was not possible in Havana. As previously mentioned, the purpose of the 18-question

survey of Boston gardeners was to compliment the information and perceptions provided

by interview subjects with quantitative data on the same topics and themes. Thus, aside

from asking the respondents which community garden they participated in, most of the

survey questions were multiple choice or scalar.

Basic frequencies and modes were calculated for each of the multiple choice

questions, along with average ratings for the scalar questions. Additionally, cross-

tabulations were conducted to determine if there were interdependent relationships between responses from different questions. Each cross tabulation was displayed as a matrix table with simple frequencies depicting the relationship between various responses. As well, a Pearson's chi square tests were incorporated to determine the significance level of any possible interdependencies or contingencies between responses from different questions.

Lastly, because the purpose of the survey was to supplement the findings from the interviews, the responses were categorized based on what district, or neighborhood, the survey respondent came from. Overall, there were 65 survey respondents from nearly 40 community gardens in Boston.

Validity and Reliability

The issues of validity and reliability are important aspects to any research that collects, tabulates, and analyzes data. They provide the researcher with parameters to ensure that the problem focus is clear and that the measures and techniques incorporated are appropriate and consistently applied. Structural validity refers to whether or not data collection measures and analysis techniques are appropriate for a particular problem focus. To be valid, measures and analyses need to be clearly defined and consistently incorporated. Reliability, on the other hand, refers to the extent to which data collection measures and analyses yield similar results when repeated. In short, both measures help ensure that measures and analyses are consistently applied and are replicable (Yin 2003).

To ensure the validity and reliability of this study, extensive background research was conducted on the theoretical construct, on the phenomenon of urban community

gardening, and on the various methods and field instruments available for qualitative research. Ultimately, this background research helped in the creation of a new analytic framework for examining the problem. It also guided the selection of appropriate field instruments for collecting the data given the particular focus of the study.

After the field instruments were selected, they were pre-tested to ensure that there were no flaws in the instruments, and also to provide the researcher with practice in administering them prior to going into the field. The interview protocols were tested with peers, while the direct observation and field mapping protocols were practiced as part of a class exercise for Social Impact Assessment.

When it came time to incorporate the instruments in the field, the protocols were strictly followed. The same procedures were used for direct observation, field mapping, and photo documentation for all of the garden cases in Havana and Boston. The same interview protocol was also used, albeit it was made available in Spanish to gardeners in Havana, as well as Spanish-speaking gardeners in Boston. The only instances where the protocols differed slightly between Boston and Havana occurred when the ACTAF liaison recommended against the use of certain elements. For instance, the protocol for conducting one-on-one interviews with gardeners in Havana was not possible due to my status as an invited guest. The ACTAF liaison was present during all of the interviews.

With respect to data analysis, the theoretical framework was used as a basis for establishing the interview coding structure, as well as the survey analysis (see above sections on Coding of Interviews and Analysis of Surveys that describe how the framework was applied to the analysis).

To ensure reliability of the study's findings, multiple data sources were incorporated. While each of these data sources provided a unique view of the problem, the data and measures used for each instrument were designed to overlap to ensure that the findings from each source corroborated the others. For instance, the field mapping and photo documentation both served to confirm the physical attributes of each garden as described by the interview subject. As well, the summary statistics from the survey analysis addressed the same themes as the interviews. By triangulating the data generated through field mapping, photo documentation, and summary statistics, the data and themes that emerged from the interviews were corroborated, in effect.

Ultimately, through the triangulation of data from various data sources, multiple lines of evidence converged to corroborate the research findings. While it can be a challenge to ensure validity and reliability in qualitative research due to its focus on human behaviors and perceptions, which often cannot be quantified, this research sought to consistently apply appropriate, research-based protocols for collecting and analyzing data. The fact that the data triangulates to confirm the main findings of the study is a testament to how the principles of validity and reliability were incorporated.

Note that the research questions, variables, field methods, analysis techniques, and scope of research are summarized in the Case Study Protocols (Appendix F).

Assumptions and Biases

Just as history is subject to the interpretation of historians, qualitative research is up to the interpretation of the researcher. To ensure objectivity, the researcher has to lay

out all of his/her assumptions, biases and pre-conceived notions that could potentially impact the data collection, analysis and/or interpretation.

The first of the assumptions held by the researcher is that the 2000 Census data for the City of Boston accurately reflects the demographics in each of the city's Census tracts. In sorting through the tabular data, certain minor data anomalies became apparent. This becomes an issue, because the Census data was integral to the selection of garden cases in Boston and it brings into question whether the variables that were selected are the right variables. None-the-less, once the data was post-processed in GIS, most of the anomalies were addressed and the general geospatial patterns remained the same.

Second, because society is ever-changing, one must question if the demographic patterns portrayed in the 2000 Census still hold today in Boston. Based on anecdotal data, there appears to be a relatively recent out-migration of minorities from several districts, including the South End and Jamaica Plain. As this particular outmigration is thought to be a relatively recent phenomenon, it is difficult to determine the extent of the outmigration without years of Census data to track. Second, the Census has yet to reveal where minorities are moving to. To paraphrase Oscar Handlin, let us not forget that the City of Boston has experienced many waves of immigrants and minorities who have settled and resettled the City prior to this one (Handlin 1991).

With regard to the Havana case, a number of assumptions come into play. First, information on the number, form, and type of gardens in the City is controlled by the state and access to that data is limited. As a result, there are few opportunities to cross reference the data with other sources to check its reliability. To put it bluntly, access to

data on Havana's agriculture sector was a big challenge. And the data that exists is hard to corroborate and therefore suspect.

With regard to interviewing subjects in Havana, it is conceivable that another bias emerged. The interviews were all conducted in the presence of the ACTAF liaison. Although the liaison did not interject, except to make a few clarifications, there is no telling how his presence impacted the responses. However, judging from the criticisms and concerns that each of the subjects expressed towards the Cuban government, in spite of the ACTAF official's presence, it suggests that the subjects were candid in their responses.

Considering the interview protocols for both Boston and Havana, one must also question whether a structured interview biases the responses, as opposed to an open-ended interview. Because there is a natural progression of questions in a structured interview, the subject could conceivably discern where the interview is headed and therefore respond in a way that he or she feels might suit the interviewer. Robert Yin advocates for a less structured interview protocol when possible, but concedes that it depends on the objectives of the researcher (2003). In the case of this research, a specific theoretical framework was proposed, along with specific objectives, thus making an unstructured interview a challenge.

Finally, from the standpoint of the researcher, it is important to outline ones observational standpoint and potential biases prior to laying out the research findings. Not only does this provide any others who might be interested in the research findings with a clear understanding of where the researcher is coming from, but it also protects the researcher from accusations by others regarding their objectivity. Simply put, laying out

one's observational standpoint may not lend credibility to the research, but it certainly diminishes the potential that the research will be discredited.

I will briefly resort to using the first person singular in the following paragraphs, since I will be defining my own observational standpoint. First, I found that the 'production of space' theory to be overly complex and therefore difficult to apply to the real world. Yet, the theory so well encapsulates the interrelations between space and society that I felt that it could not be ignored. Thus, as an applied practitioner of community and economic development, I saw it as my role to take the complex theory on the social production of space and the socio-spatial dialectic and distill it down to a simple, but useful analytic framework for examining real-world issues. That perhaps explains my tendency to discuss the findings in the context of my synthesized analytic - framework rather than Lefebvre's complex theoretical construct.

Second, in the spirit of full disclosure, I must note that prior to my initiating this research, I had a strong suspicion that the processes of change in Boston's community gardens was marginalizing select groups of individuals. Thus, this research is largely driven by my desire to find out if there was any form of social injustice occurring as a result of political or social processes. To the full extent possible, however, I will rely on the picture that the data paints and not my hunch.

Third, I have to admit that I was very taken by the Marxian political economy approach to spatial science which contends that the main producing forces of space are capital accumulation, labor, class conflict and inequality. These tenets resonate with my own sense of social justice. At the same time, I recognize that there are a number of other key variables at play in the production of community gardening space, including cultural

heritage, personal values, and peoples' daily routines. Thus, while I admire the Marxian political economy approach I think it is very limited in scope.

Dissertation Structure

While traditional in most regards, this dissertation departs from traditional dissertations with regards to structure. The first three chapters are the Overview, Theoretical Framework and Methodology chapters. However, rather than incorporating a separate section called Analysis, the analyses of the data for each case are incorporated into separate chapter-manuscripts, one for Boston and one for Havana. Due to the unique nature of each of these cities, and because slightly different methods were used in Havana due to certain limitations outlined previously, having separate manuscripts for Boston and Havana was more logical in terms of flow. Directly following the chapter-manuscripts with the analysis and findings are two final chapters – a Comparative Case Analysis and Discussion and Conclusions – thus accounting for a total of seven chapters.

Now my research framework, methods, protocols, biases, assumptions and structure have been laid out, I hope that you can read the following with an objective eye.

CHAPTER IV

BOSTON CASE

Introduction

Community gardens have been a feature of Boston's urban landscape for well

over a century. The City's very first community garden was established in response to the

depression of the 1890s. Since then, the number of gardens in the City's 15 municipal

districts has blossomed to approximately 200. Today, Boston is nationally renowned as a

model for greenspace planning with its vast network of public parks and community

gardens interlacing the City. Unlike other cities whose community gardens and pocket

parks are often subject to the whim of developers, the majority of Boston's gardens and

pocket parks are under permanent land protection (Dowty 2005).

Even though Boston's community gardens are vital from a land use perspective, it

is not to say that they are without issues and challenges. In fact, many of Boston's

community gardens are contested spaces. The contest is not generally between developers

and gardeners, as has recently been the case in New York City and Los Angeles (Smith

et. al. 2003, Ferguson 1999). Rather, the contest is between the gardeners themselves. It

is a contest over values, traditions, how garden space is used and to what end. The

struggle ensues with the continual ethnic, cultural and socioeconomic reconstitution of

Boston's neighborhoods (Medoff et. al. 1994).

As processes of socioeconomic change reshape the city's social fabric – including

gentrification in some inner-city neighborhoods and physical decay in others – Boston's

neighborhoods have also experienced a demographic shift. Between 1990 and 2000,

districts like the South End and Jamaica Plain saw an out migration of black and Hispanic populations and an increase in the white population; a trend that this research suggests is reflected in the diversity of participation in community gardens in those neighborhoods (Census 2000). In contrast, neighborhoods like Dorchester, Roslindale and Hyde Park experienced a ten-plus percent increase in the population of blacks and Hispanics during this same time-period. Some gardens in these neighborhoods are actually more diverse today than they were in 1990

But it is not just racial and ethnic shifts that are impacting neighborhoods and their respective community gardens. Also in flux in Boston are various indicators of socioeconomic well-being, including per capita income, median rent, poverty levels and median home values. While most of Boston's neighborhoods saw escalating rents and home values between 1980 and 2000, some neighborhoods increased faster than others, notably the South End and the Fenway. These same neighborhoods experienced a decline in Hispanic and African American populations (U.S. Census Bureau, 2000). According to Geographer Neil Smith, it is no coincidence that such neighborhoods saw an outmigration of minorities (1996).

The question is; just how have changing socioeconomics, demographics and various individual and societal factors influenced the manner in which community garden space is structured and utilized in Boston, as well as the outcomes that individuals and neighborhoods realize? And what impacts have these changes had on urban society?

Given these questions, the purpose of this research was to elucidate the ever-changing interrelationships between individual and societal characteristics (e.g. race, culture, socioeconomic conditions, norms, values, etc.), community gardening practices

(e.g. plant types, techniques, social activities, etc.), and outcomes realized by individuals

and neighborhoods (e.g. food, income, sense of community, etc.). The hope is that the

findings from this study will bring to light certain policies, actions and interventions that

neighborhood garden associations, government agencies and non-profit organizations

might take to ensure that community garden space is accessible to diverse individuals and

neighborhood groups in the future. The following are the four main research goals:

- Goal 1. Determine how ever-changing individual and societal characteristics influence community gardening practices.

- Goal 2. Determine the outcomes or impacts that various community gardening practices have on gardeners, neighborhoods, and the community-at-large.

- Goal 3. Determine if certain relationships between individual-societal characteristics and community gardening practices and outcomes are applicable across locations and cultures.

- Goal 4. Identify interventions, policies or actions that could be instituted to ensure that diverse gardeners have access to community garden space in the future.

Background

In order to comprehend the changes at work in Boston's community gardens, as

well as the outcomes that gardeners and neighborhoods realize, one has to understand the

historical context in which community gardens evolved to become prominent features on

the City's landscape. The following outlines the rise of Boston's community garden

sector and the various socio-spatial issues and challenges it is faced with today.

Evolution of Boston's Community Garden Sector

As previously noted, Boston's first community garden was established in 1895 by

the Industrial Aid Society to alleviate food shortages during the depression. This garden,

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the Morton Farm, was modeled after Mayor Pingree's 'potato patch' that saved hundreds of families from starvation in Detroit. In spite of the Industrial Aid Society's success at feeding the poor during the depression, it was not able to permanently acquire land for cultivation. In his book To Dwell is to Garden, Warner notes that "...the commissioners of that day, then aggressively expanding their chain of public open lands, must have believed that vegetable gardening by poor people was not a suitable sport to add to their facilities for tennis, golf, [and] cricket..." (1987: 15). And so, the Farm faded with the depression.

It wasn't until World War I that the community garden movement was revived in Boston. By 1917, the National War Garden Committee had begun encouraging people all over the country to plant 'Victory Gardens' to alleviate food shortage resulting from the war (Hynes 1996). The vegetables produced in these gardens not only provided food for families during the war years, but they also enabled producers to direct their shipments of vegetables overseas. Thousands of Victory Gardens emerged out of this effort across the country engaging millions of people. Although records of Boston's Victory Gardens were lost, it is estimated that 3000 people cultivated vegetables on open lands in Boston, including large sections of Franklin Park and the Boston Common (Warner 1987).

Although the Victory Gardens were converted back to their original uses after the First World War, they were re-instituted during the Second World War with help from the Boston Parks Department and a City-wide Victory Garden Committee. At that time, Victory Gardens contributed 44-percent of the fresh vegetables in the country. In Boston, forty nine urban plots were planted with vegetables, resulting in hundreds of tons of food produced (Warner 1987). But, as happened after First World War, the Victory Garden

movement faded after the war and garden plots were converted back to public parks or private lands (Saldivar-Tanaka et. al. 2004). The only Victory Garden remaining today in Boston is the Richard Parker Memorial Garden in the Fenway. It is also the City's largest garden with approximately 400 gardeners (Fenway Victory Gardens 2008).

The next wave of community gardens came nearly two decades later. During the 1960s and 70s, many American cities experienced a draining of their populations as the automobile fueled a mass exodus to the suburbs. Middle class Americans moved out of the city in droves, while immigrants and minorities moved in to take their place. Yet, the pace of exchange was not sufficient to keep up with the growing number of vacancies (Smith 1996). As a result of falling tax revenues and declining rents, Boston's inner city neighborhoods saw disinvestment and many fell into decay (Medoff et. al. 1994).

To combat this decay, the Boston Redevelopment Authority began tearing down old buildings, including a World War II-era housing project in the South End. However, because the City lacked investors to develop the land in the mid- to late-1960s, the land sat idle for many years after the demolition. So began a decade of rubble-filled, weed-infested, vacant lots (Warner 1987). While these lots ultimately become home to dozens of community gardens, it took a major catalyst to get them started.

In a dramatic action in 1967, the state of Massachusetts revealed plans for the construction of a Southwest segment of Interstate 95 using Federal transportation dollars. This proposed eight-lane spur through the heart of the city was to be built on the site of the Elevated Orange Line (Northeastern 6/19/08). To make way for the highway, the City cleared an eight-mile strip of land of nearly 700 homes and 300 businesses from the

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North End all the way to Lower Roxbury (Warner 1987). A large portion of the homes and businesses demolished were in poor and minority neighborhoods (Smith 1996).

To surprise of the State, neighborhood coalitions formed all across the City in protest of the plan (Lupo et. al. 1971). With the help of Mayor White, these coalitions stymied the state's efforts to build the highway. To boot, they helped convince policymakers to rebuild the dismantled elevated Orange Line as an underground rail-line, thus creating new public space out of land once shadowed by the tracks.

Although the coalitions succeeded at blocking the highway, there soon came the question of what to do with the vacant land. A group of citizens, including a state senator and neighborhood activists, decided to preempt the city by drafting the 'Massachusetts Gardening and Farm Act of 1974'. The legislation passed, thus giving individuals the right to cultivate vacant, public land for no cost until a 'higher' use was determined by the municipality. Since the legislation opened the door for community gardens, Mayor White decided to allocate Federal block grant funds towards the construction of 'Revival Gardens' on these and other vacant lands. His program helped to establish gardens in the South End, Southwest Corridor and other neighborhoods, but it was short-lived due to the City's inability to guarantee long-term land leases to gardeners (Warner 1987).

It wasn't until community organizers from various local organizations put their heads together that a unified vision for the future of Boston's gardens was forged. Out of this group of activists a new coalition emerged in 1976 called the Boston Urban Gardeners (BUG). With BUG's help, several gardens in the Southwest Corridor were initiated, most notably the Highland Park 400 Survival Garden, which alleviated economic strains on lower-income families during the oil crisis of the 1970's (Dowty

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2005, Warner 1987). Other gardens soon followed in the Southwest Corridor and the South End, such as the Southwest Corridor Community Farm located alongside the new underground Orange Line, the Lennox Kendall Community Garden off of Tremont Street and the Berkeley Street Garden on the Edge of Chinatown in Boston's South End.

Soon, neighborhood Coalitions emerged in other parts of the City including Roxbury, Dorchester, Charlestown and Mattapan. With the help of BUG and other organizations, dozens of gardens were established in the 70s and early 80s. Fortunately for garden advocates, vacant lots still peppered the City, providing opportunities for the creation of new gardens, that is, until the real estate boom hit. Starting in the 1990s, securing land became more difficult and the number of gardens initiated per year dropped precipitously. Although approximately two dozen gardens have been initiated over the past two decades, the gardens of the 1970s and 80s still dominate the City's community garden landscape.

Today, Boston's 200 community gardens are owned by approximately thirty non-profit organizations and several municipal and state agencies. In 2002, several of these organizations, including BUG, Boston Futures and the Boston Natural Areas Foundation, joined to form the Boston Natural Areas Network (BNAN). BNAN now serves as an umbrella for several neighborhood organizations and provides training and resources to community gardeners. BNAN, in partnership with organizations like the South End Lower Roxbury Open Space Land Trust and Dorchester Gardenlands, has secured easements for approximately half of the lands on which Boston's gardens are located (Dowty 2005).

The above historical anecdotes reveal that Boston's community gardens have been shaped by societal forces for over a century. They arose to serve the poor in a time of need, they reemerged to unify a nation against axis powers during both World Wars and they functioned as a locus of community resistance against the status quo in the 70s. Today, they still play a vital role for individuals and neighborhoods, for they function as places where neighborhood residents can gather, share experiences, connect with their cultural roots, incorporate their values and play out their everyday practices and routines.

In spite of these developments, gardeners in some neighborhoods were being threatened by forces of socioeconomic and demographic change. True, most of Boston's garden spaces were secure, but the traditions, values and everyday practices carried out in the gardens may not be. In order to understand how community garden spaces – and the individuals that garden them – were subject to social and demographic forces of change, the following examines the various interrelationships between community gardens and society.

Methods

Theoretical Framework

The theoretical basis for this research was based on Henri Lefebvre's 'production of space'; the concept that space is both a product of society and a producer of social relations ([1974] 1991). Lefebvre's concept provides a complex, theoretical basis for examining socio-spatial. Specifically, it addresses three different levels of space – abstract, imagined and lived – and how each of these levels are influenced by societal

factors such as culture, class, race, politics and daily routines. In turn, each of these three levels of space is assumed to exert an influence on society and can shape social relations.

Yet, while Lefebvre's theoretical conceptualizations of space are perhaps shed light on the forces that lead to the social production of space, he stopped short of proposing an analytic structure for applying the theory to real-world cases. Therefore, this study draws upon Lefebvre's work to synthesize a new analytic framework for examining the social production of community garden spaces in Boston. This new framework, described in the Methods chapter, consists of three main elements for examining socio-spatial relations in community gardens: individual and societal characteristics, individual and neighborhood spatial practices, and individual and neighborhood/societal outcomes. Data for this research are categorized according to each of these categories.

Field Instruments

As was outlined in the Methods Chapter, secondary data for this research was derived from public documents, the US Census and academic literature on community gardens in Boston and other U.S. cities. Primary data for this research were derived from the incorporation of multiple field instruments in 30 community gardens in Boston. In each of these gardens, gardeners were interviewed, direct observations were made of personal interactions taking place in the garden, photographs were taken of the garden's physical characteristics and a field map was drawn to document the size, shape and contents of the garden.

Data from each of these sources was organized using the analytic framework. Specifically, data was categorized according to the three elements of the triad. While

some of the data fit within a particular element, other data served to bridge two or more elements. Ultimately, through the triangulation of data from different sources, common themes began to emerge with respect to how Boston's community garden spaces reflect, as well as shape, individual and societal characteristics, processes and outcomes.

Lastly, a survey questionnaire was distributed to community gardeners at the City's annual Gardeners' Gathering (Appendix E). The purpose of the survey was to generate summary statistical data to compliment the interview data (Appendix G).

Data Analysis Procedures

NVIVO 8.1, a qualitative data analysis software program, was used to organize and analyze data pertaining to each of the community gardens in the sample. Interview notes were imported into NVIVO, along with supplemental sources of data, including direct observations, field maps and photographs. The process of coding the data was initiated by establishing three general coding categories based on the research framework: individual/societal characteristics, garden practices and individual/ societal outcomes. Additional sub-categories emerged as the coding proceeded (Appendix H).

With regard to the survey, most questions were multiple choice or scalar. Basic frequencies were calculated for multiple choice questions, along with average ratings for scalar questions. As well, cross-tabulations were conducted to determine if there were interdependent relationships between responses from different questions, using Pearson's chi square tests to determine significance levels of possible interdependencies. Overall, there were 65 survey respondents from approximately 40 community gardens in Boston.

Demographic Cluster Analysis for Identifying Gardens for Study

Because the analytic framework for this research is premised on Henri Lefebvre's 'production of space' – the notion that space is both a product of and producer of society – the main goal of the study was to identify particular relationships between societal characteristics and community garden practices. Thus, to begin, a map depicting the location, size and shape of Boston's community gardens was created using ArcGIS 9.0, a computer-based Geographic Information System (GIS). Data on Boston's gardens was provided by Boston's Department of Neighborhood Development. Data from the 2000 Census was incorporated into the GIS to create a series of thematic overlays depicting various Census tract-level demographic variables, including population density, median income and race.

Of all the demographic variables explored using GIS overlay analysis, only four depicted a strong visual correlation with the location of Boston's community gardens: median rent, population density, Hispanic population and African American population (Appendices I-L). To summarize the visual correlations, the majority of the City's community gardens are located in the most densely populated parts of the City, they predominate in tracts that fall in the lowest median rent quartile and they are concentrated in the Census tracts with the highest percentages of African Americans and Hispanics.

Yet another spatial relationship was discovered between the City's urban renewal policies and community garden locations when an outline of urban renewal districts in the Southwest Corridor was overlaid on the base layer of community gardens (Appendix M). This visual relationship corroborates historical accounts of dozens of gardens that

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were built after hundreds of business and homes were demolished in that part of the City. Thus, sampling of community gardens in the Southwest Corridor provided a unique opportunity to examine the intersection between land use policies and the production of community garden space; what Lefebvre would refer to as abstract space.

Although these GIS analyses highlighted interrelationships among demographic variables, they still did not explain *why* gardens are clustered in tracts with particular demographic characteristics. In order to examine the dynamics behind each relationship, a GIS-based sampling method was used to select five gardens from each of the five thematic clusters that emerged from the GIS analysis: population density, median rent, Hispanic population, African American population and urban renewal districts.

Five additional 'outlier' gardens were added to the sample due to their unique socio-spatial attributes, accounting for a total of 30 gardens in the sample (figure 9). For instance, the Leland Street garden was incorporated into the sample because it is the City's only neighborhood garden where individual plots are not assigned to gardeners. In fact, the garden has no plots. A second unique garden was incorporated into the study because it is maintained by school children rather than neighborhood residents. And two gardens were added because they were located in districts that were not represented by the above-described sampling methods: Charlestown and East Boston. And finally, one garden was added because it is heralded as the City's largest Italian garden.

The purpose of sampling gardens from demographically distinct neighborhoods was not to infer causal relationships between society and garden space for all of Boston's gardens, but rather, to gain a deeper understanding of socio-spatial relationships in specific contexts. In each of these thematic clusters, a random sampling method was used

to select five gardens as embedded cases. As well, five additional outlier gardens that fell outside of the clusters were selected due to their unique attributes.

The next step was for the researcher to visit each of the selected gardens in the early morning or the early evening when gardeners are most likely to be out and about. If a gardener was not present in the garden at that time, the nearest neighbor technique was incorporated to select an alternate garden (i.e. the closest garden within the cluster-area). Note that in areas where clusters overlapped, more than two interviews were conducted to ensure that a range of social variables were captured for each cluster.

Figure 9. Map of Community Garden Interview Sites in Boston.

In addition to the interviews, surveys were conducted of 65 gardeners from

approximately 40 of Boston's community gardens (figure 10). Using the analytic

framework to structure and organize the data generated through the interviews,

photographs, field maps, and the survey, the following themes emerged as having a

strong influence on spatial practices incorporated in community gardens and the

outcomes resulting from these practices: cultural heritage, personal values, and agency

and organizational support structures. The following section explores each of these

themes in relation to community gardens.
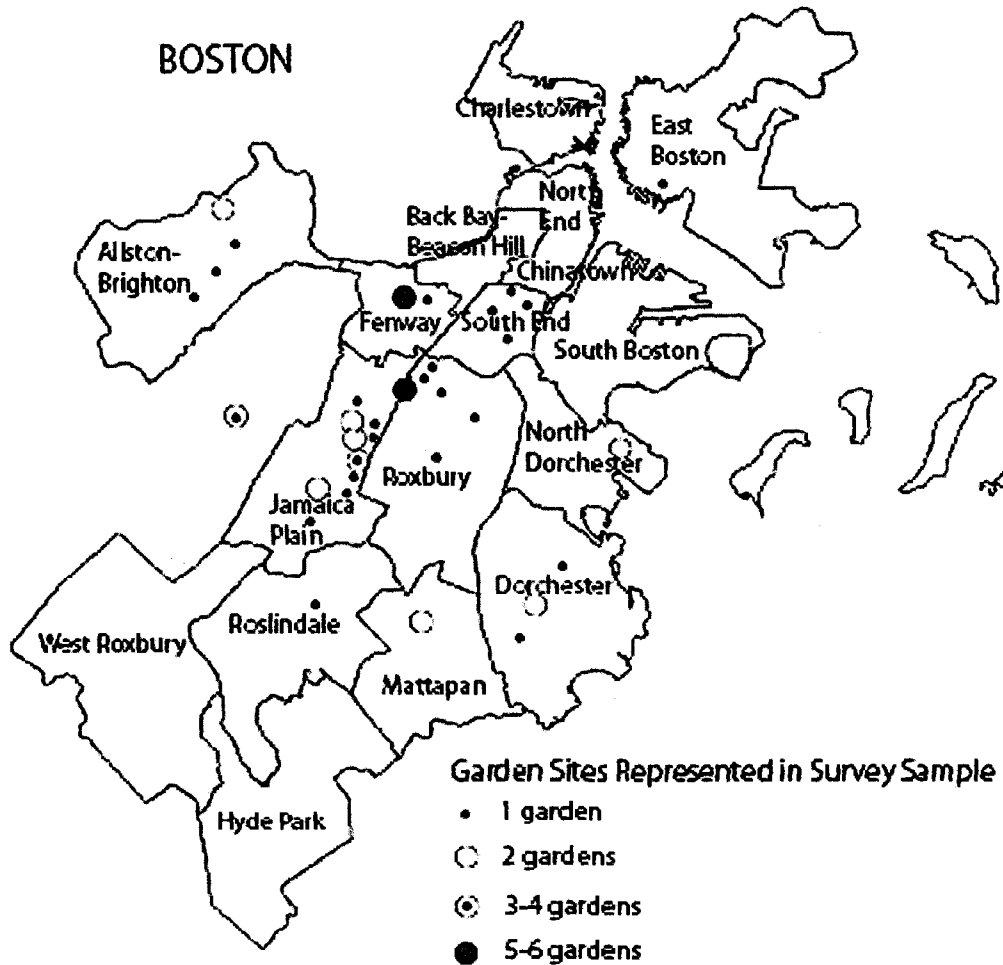
Figure 10. Map of Boston Community Gardens Represented in Survey Sample

Data Analysis Procedures for Interviews

Transcript data from interviews of 32 Boston gardeners, along with direct observations for each garden, were imported into NVIVO 8.1 and coded according to the three main categories in the analytic framework: characteristics, practices and outcomes. Several layers of sub-categories emerged to add further definition to the interview data and direct observation data.

Second, the software's 'classifications' function was used to create a table describing the attributes of each of the interviewees and their respective gardens. Thus, Boston gardeners were classified according to their ethnicity (white, Hispanic, African American, European, Chinese, etc.), relative annual income (below average, average, or above average for Boston), gender (male or female), and population density (low, medium, or high), just to name a few. As well, information about each interviewee's respective garden was added to the table describing the garden or the neighborhood, such as the location of garden, the primary ethnic makeup of the garden, whether the garden was located in a renewal corridor, etc.

Third, using the software's query-builder function, over thirty queries were constructed to cross reference particular interrelationships between various elements from the attributes table and the data from the coding of the interview transcripts. The following are examples of queries that were run:

- Extract node data (coded data) pertaining to 'main motivation to garden' for low-income gardeners from Roxbury, Dorchester, or Jamaica Plain.
- Extract node data pertaining to values held by high-income gardeners.
- Extract node data pertaining to values held by low-income gardeners.
- Extract node data pertaining to plant types that predominate in majority African American or Hispanic gardens.

- Extract node data pertaining to plant types predominating in majority white gardens.
- Extract node data pertaining to perceptions of change held by African American and Hispanic gardeners in neighborhoods experiencing demographic (ethnic) change.

A technique called pattern-matching, as described by Yin (2002), was then used to identify patterns or interrelationships between neighborhoods'/gardeners' characteristics, practices, and outcomes. As an example, using this technique, the data revealed no evident patterns between the population density surrounding each respective interviewee's garden and the type of plants that predominated in their garden or their main motivation to garden. Nor was there an evident pattern connecting individual's motivation to garden and their income. However, a pattern did emerge between the interview respondents' ethnicity and their motivation to garden, as well as the types of plants they cultivated and the techniques that they used.

Using NVIVO's 'models' function, the patterns that emerged by incorporating the above-described methods were used to build a graphic model that illustrated the interconnections between characteristics, practices and outcomes (Appendix M). Each element or feature in the model was linked to all of the data coded under that element. The model ultimately enabled the researcher to explore the interconnections between various societal factors and spatial practices. The following are the major findings, or patterns, that emerged as a result of the application of the above techniques.

Findings

Gardens as Spatial Manifestations of Cultural Heritage

Boston has been physically and socially shaped by immigrants and diverse cultures throughout its history. In Boston's Immigrants, Oscar Handlin traces of various

waves of immigrants that settled the City between 1790 and 1880 (1941). Today, descendents of many of these immigrant groups still have a strong presence in Boston, particularly those of Irish and Italian descent. Two other ethnic groups have also grown to have a major presence on Boston's cultural landscape; Hispanics and African Americans. According to the 2000 Census, these two groups accounted for approximately 40% of the City's population. They also have had a profound impact on Boston's community garden landscape, particularly since a large portion of Boston's gardens were initiated by these populations during the 1970s and 80s.

Of the thirty gardens in the sample, twelve were located in neighborhood areas (clusters of four or more Census tracts) with at least 20% Hispanic or African American populations. In fact, when combined, the percentage of Hispanics and African Americans in these neighborhoods ranged from approximately 40% to 85% (U.S. Census Bureau, 2000). However, interviews with gardeners suggest that some of the gardens are not as diverse as their respective neighborhoods, particularly those located in neighborhoods that are losing their diversity, such as the South End. In fact, between 1980 and 2000, the population of white residents in the South End increased by approximately 10%, while the population of African Americans and Hispanics decreased by 17% (U.S. Census Bureau, 2000).

In addition to African Americans and Hispanics, a number of other ethnic groups have established a footprint on Boston's community garden landscape. Gardens incorporated in this study include one with a large Italian presence in East Boston and two South End gardens predominated by ethnic Chinese from Guangdong Province. As is the case with the Hispanic and African American gardens, the Italian garden in East

Boston and the Chinese gardens in the South End have unique spatial characteristics that reflect their respective cultures. And their respective neighborhoods are experiencing rapid demographic change. East Boston, which was predominated by white, Italian-born residents for most of the 20th century, saw a 21% increase in its Hispanics during the 1990's. Meanwhile, the white population decreased by approximately 25% (Boston Redevelopment Authority, 2003).

In order to elucidate how demographic change and other societal forces are impacting ethnic gardens, four ethno-cultural gardening traditions in Boston are examined in-depth: African American gardens, Hispanic Gardens, Italian gardens and Chinese gardens. Sam Bass Warner discusses each of these traditions in his book To Dwell is to Garden (1987). This research picks up where Warner left off in 1987 and examines recent changes with regard to Boston's ethnic gardens.

African American gardens. In the 5 gardens sampled from predominantly African American neighborhoods, four maintained a majority of gardeners of African American descent, while the fifth in the sample had a diverse ethnic mix of gardeners. Distinct spatial practices incorporated by gardeners in African American gardens pertained mainly to what is cultivated and the techniques incorporated.

With respect to plant types, the African American gardens consist mainly of vegetables, including pole beans, string beans, okra, sweet potato, tomato, cantaloupe, corn, collard greens (and other greens), beets and summer squash. Of these, sweet potato, okra and collards appear to be unique to the African American gardens. Flowers were also present in several of the garden plots, including sunflowers, marigolds and pansies, but the majority of space in African American gardens was taken up by vegetables. As

one African American gardener noted, "I plant the same things that my mother and grandmother did and I plant them in the same way...mostly things I can eat."

A striking difference between African American gardens and non-African American gardens is that most of the crops are planted in mounded rows (figure 11). Warner postulates that this practice stems from a southern agricultural tradition whereby mounded rows are used to create irrigation channels (1987).

Figure 11. Collard Greens, sweet potato, okra and beans planted in mounded rows in a Dorchester community garden (Photo by author).

Given that many of Boston's gardeners have their roots in the South, this may be a reasonable assumption. However, not all African American gardeners in Boston plant using mounded rows. One interviewee noted that some African American gardeners incorporate raised beds, a practice that was likely picked up from other gardeners.

Another spatial practice common to African American gardens was the presence of a communal barbeque pit or grill. Interviewees from predominantly African American

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gardens, as well other gardens with an African American presence, suggest that informal gatherings and barbeques are an integral component of neighborhood life. Furthermore, the community gardens are often the only available public spaces where this practice can be materialized. As one gardener stated, "We always have something going on in the garden...barbeques, meetings, volunteer days...activities are pretty informal."

While the presence of a public grill and the practice of gathering informally are not necessarily unique to African American gardens, it is worth noting that only about half of the gardens in the total sample provided neighborhood-access barbeque facilities.

In terms of organizational structure, African American gardens tended to be less formal than those predominated by white gardeners. They generally have coordinators in lieu of formal Board members and decisions are made on an informal basis. Also, tasks associated with maintaining the garden, such as maintenance of common areas, are carried out by volunteers. In contrast, the gardens in predominantly white neighborhoods tended to have complex Board structures with a Chair, Secretary, Treasurer and formal sub-committees charged with specific tasks, such as maintenance of common areas. According to one interviewee, gardens in white neighborhoods tend to be more formal because most were initiated as 501(c)(3)s, which typically require a formal board structure. In contrast, a large portion of African American gardens date back to the 1970s and 80s when formal board structures were less common.

The fact that gardens predominated by whites tend to be more formal has ramifications for African American neighborhoods undergoing demographic change. Foremost, African Americans that were interviewed expressed a strong desire to keep

their associations' organizational structures informal and many feared that new gardeners might impose new rules and new organizational structures. As one interviewee noted,

> Some gardens are very organized, but this one is very laid back because of its ethnic makeup. The few whites here always want to know who is in charge and what the rules are. This is a change from the traditional [African American] gardener's mentality, here.

Hispanic-Latino gardens. Only three gardens in the study had a predominantly Hispanic presence. As with African American gardens, Hispanic gardens have a unique spatial flair that is manifest in what is planted and what techniques are used. Plants that predominate in these Hispanic gardens include pole beans, bush beans, *frijoles* (white and black beans), *gandula* (pigeon peas), pepper (long, bonnet, chili, *jabañero* and Italian), tomato, eggplant (purple and white), butternut squash, cucumber and *tomatillo*. Flowers are also found in some plots, primarily marigold and chrysanthemum. In terms of herbs, cilantro is a mainstay of Hispanic gardens, as are basil, oregano and lemongrass.

In terms of techniques, plots are commonly cover-planted with one crop, typically beans. Beans are often rotated with butternut squash or another crop that comes up after the beans have been harvested. In many cases, Hispanic gardeners maintain two plots; one for a cover-crop and another with a mix of vegetables, including tomatoes, peppers, herbs and eggplant. Yet, unlike African American gardens, corn and potatoes are rarely found in Hispanic gardens. One Hispanic gardener claimed that they don't plant corn and potatoes because they are cheap to buy. With respect to tools, several of the Hispanic gardeners used the traditional koa, a flat hoe that is commonplace throughout Latin America. One gardener said that he refrained from using a machete to maintain the common area, mainly because of the reaction that it might draw from his non-Hispanic neighbors. He said that in Latin America, the machete is the do-all of agricultural tools.

In terms of neighborhood practices carried out in Hispanic gardens, informal

celebrations are an important component of neighborhood life, just as they are in African

American neighborhoods. In fact, two of the Hispanic gardens in the study maintained

structures for holding celebrations, known as *casitas*, which had a barbeque grill and

picnic tables (figure 12). Although the third Hispanic garden in the sample was too small

to maintain a *casita*, members of this garden gather with friends in nearby gardens for

celebrations and informal gatherings. As one gardener of Puerto Rican descent noted,

> We do a lot of informal celebrations [in the garden]...barbeques on the
> Fourth of July, Mothers' Day, Fathers' Day and Labor Day. We usually put
> several grills together under the shelter and cook a pork shoulder or an ox
> tail. There are lots of barbeques and social events. Most...start with groups
> of people getting together, but they are open to anyone who wants to join in.

Figure 12. *Casita* used for holding celebrations and events in Hispanic
community garden in Dorchester. A neighborhood grill sits next to the
casita (Photo by author).

Chinese gardens. Although only two gardens in the study were distinctly Chinese

in their membership, both happen to be cultural landmarks in Boston with respect to how

cultural practices are manifest in garden spaces. One of these gardens, the Berkeley Street

Garden, is one of Boston's largest gardens, with approximately 140 plots. Approximately half of these plots are cultivated by ethnic Chinese from Guangdong Province. In the other garden, Unity Towers, eleven out of the fourteen gardeners are ethnic Chinese.

It is not just the plant types that makes these gardens unique, but more notably, the physical form of the gardens. As one interviewee of Chinese descent explained, Chinese gardens start out with small seedlings planted in beds. As the seedlings grow, a latticework, or frame, is built around the seedlings to accompany the growth. By season's end, the garden takes the form of a wooden-slat house enclosed on the top and the sides (figure 13).
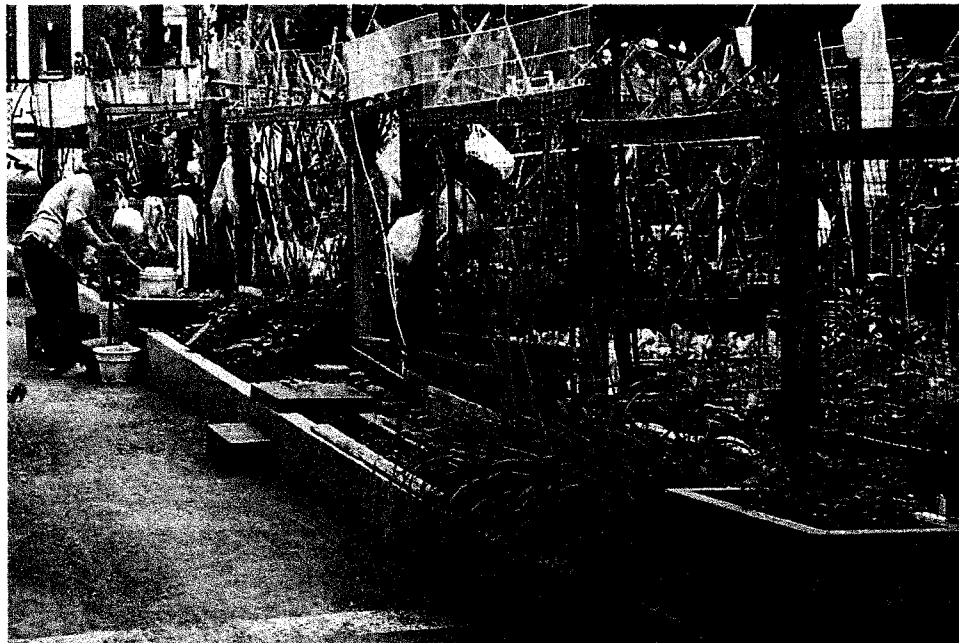
Figure 13. Plant frames used in Berkeley Street Community Garden to grow vegetables upward (Photo by author).

Hanging from the wire mesh and slats that make up the ceiling and sides of the frame are fuzzy melons, Asian cucumbers, wax gourds, winter squash and various other melons. In the shade of the frame, Bok choi, green onions, hot peppers, Chinese Spinach, arugula, peas, cilantro, basil, eggplant, lemongrass, chives and other Chinese greens and

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herbs are often planted. And woe is the Chinese garden without flowers, herbs and ornamentals surrounding the frame. The interviewee noted that many of the flowers and herbs serve medicinal functions, though he wasn't sure which ones.

Both the plant varieties and the use of frames are products of traditional Chinese gardening practices that the so-called 'Fathers', or first generation Chinese, brought with them when they emigrated to the United States. Yet, as the Fathers (and Mothers) from the Berkeley Street Garden slowly die off, their plots are being taken over by new gardeners. These new gardeners are typically young, white professionals who recently moved to the neighborhood. In fact, according to the interviewee, the percentage of Berkeley Street gardeners of Chinese descent has decreased from about 75% to 50% in just the past five years. So too has the number of gardeners that incorporate traditional Chinese techniques. This is of concern to many of the Fathers, for they fear that many important cultural traditions will be lost, along with the opportunity to expose third-generation ethnic Chinese to these traditional practices. As the interviewee noted,

> As the population gets older and the elders leave the garden for a variety of reasons, the garden will change aesthetically. More people will grow flowers and different crops as opposed to Asian crops. Unless we can engage the younger Chinese, the garden will continue to become more and more of a flower garden.

As the Berkeley Street Garden has become more diverse, certain tensions have arisen between the ethnic Chinese gardeners and the new wave of gardeners that have moved into the neighborhood. Many of the tensions result from a language barrier which makes it difficult to communicate across cultures. As a result of this barrier, most Fathers do not participate in garden meetings. Subsequently, their voice is often not reflected in decision-making. To add to the complexity of social relations in the garden, the leadership, which is made up of mostly white gardeners, is often at odds with both the

Fathers and the newer gardeners. The interviewee noted that the leadership does not necessarily represent the values of the older Chinese gardeners. At the same time, they are skeptical of the motivations of the new gardeners moving in. The result is that leadership decisions do not reflect the values of either group and tensions are perpetuated.

The diversification of the garden has yet another consequence; it is chipping away at the traditional social fabric of the neighborhood. For the Chinese women in particular, the garden provides a space for networking and socializing, which is traditionally bound by strict parameters in traditional Chinese culture. The interviewee from the Berkeley Street garden suggested that the garden space helps to eliminate many of the taboos in Chinese culture, namely that women are discouraged from being social in public places. The garden provides a safe context where women are allowed to socialize without stigma or social norms pulling them back. However, as the garden becomes more diverse, the social structure of the garden is changing to the point where many ethnic Chinese gardeners feel uncomfortable participating. As a result, the garden is losing its function as social center for many of the ethnic Chinese in the neighborhood.

But not all of the tensions in the Berkeley Street Garden are a result of newcomers moving into the neighborhood and the garden. There are tensions between different age cohorts of Chinese gardeners, as well. The first-generation Chinese tend to be reticent to adopt the rules imposed by the predominantly white Board members, while the second-generation Chinese are generally more open to change. This has created a generational rift between the Chinese gardeners. As this internal struggle over values plays itself out in the garden, the Chinese community is becoming increasingly divided. In this manner, the social organization of garden space reverberates back on the neighborhood.

Italian gardens. While Boston's Italian population has largely assimilated with the

cultural norms of society-at-large, there are still neighborhoods where Italian culture is

prominent, such as the North End and parts of East Boston. In fact, one of Boston's

oldest community gardens, the Joseph Ciampa Community Garden in East Boston, is

famous for its distinctive Italian form. Yet, even though the garden still has a strong

Italian presence today, the neighborhood has experienced a rapid influx of other ethnic

groups, mainly Hispanics, over the past two decades (Census 2000). As the old guard of

Italian gardeners slowly dies off, new gardeners, mainly white, have taken their place.

In spite of the demographic change which has descended upon the neighborhood

and the garden, many traditional Italian practices have been preserved. Unlike African

American gardens that incorporate rows, Italian gardens are typically planted very

compactly in raised beds and, as with the Chinese gardens, trellises and plant frames are

used to allow the plants to grow up rather than outward (figure 14).

Figure 14. Intensive planting of tomato, herbs and flowers in East
Boston's Joseph Ciampa Community Garden (Photo by author).

Companion planting is also practiced to produce complimentary vegetables and to reduce pests. As an example, most Italian plots have tomatoes and basil planted in close proximity. Also notable in the Italian gardens are the statuettes of religious and other figures. A statuette of a pig was found in one Italian plot; an ancient Italian tradition according to the gardener who maintained the plot.

The vegetables grown by Italian gardeners in the Joseph Ciampa garden include Tomato (Roma), Italian zucchini, Italian pepper, greens (escarole, endive, chard, etc.), onions, beans (pole and bush) and cucumber. Common herbs include basil (sweet and Italian), parsley, oregano and often cilantro. Fruits are also a hallmark of Italian gardens. Ciampa boasts an arbor of grapes, several fruit trees, raspberry patches and even figs which have to be buried in the winter to prevent frost damage. Flowers are also ubiquitous in the garden plots, particularly the rose of Sharon, Echinacea, sunflower, begonia, morning glory, impatiens, petunias, chrysanthemum, dahlias and mums.

While participation by Italian gardeners has dwindled over the years, many of these traditions have been preserved by individuals that are not of Italian descent. In the Ciampa garden, non-Italians plant Italian roses, they incorporate companion planting of basil and tomato and they grow vegetables on lattices. As Warner points out, the cultural practices of ethnic gardeners are often adopted by others who are intrigued by the culture, the nature of the tradition, or simply have developed a taste for a product of another culture (1987). The result is that many Italian traditions have been preserved by gardeners from diverse cultural backgrounds. In fact, it could be argued that Italians' distinct preference for tomato and Italian basil has been assimilated into other cultural traditions and are these plants are now found in nearly all vegetable gardens in Boston.

Personal Values Manifest in Gardening Practices

While one's cultural and ethnic heritage is often physically manifest in their community garden spaces, especially for 'ethnic gardeners', it is not necessarily the main motivating force that drives individuals to garden. In fact, when asked what their primary motivation to garden was, only one interviewee, who was of ethnic Chinese descent, mentioned cultural heritage as a key factor. The remainder of the interviewees cited other motivations, including enjoyment and relaxation, environmental ethic, helping others and sense-of-community.

The implication is that personal values may actually be more influential as motivational forces than their cultural heritage. Moreover, cultural heritage appears to be an underlying factor that shapes one's values. With that in mind, the following section examines some personal values that motivate individuals to participate in community gardening and how these values help to shape their garden spaces. These personal values include enjoyment and relaxation, food, environmental ethic and the common good.

Enjoyment and relaxation. Although community gardening is often referenced as a social activity that builds community networks, strengthens neighborhoods and fosters cultural identity (Hynes 1996, Shukoske 2000, Smith et. al. 2003, Warner 1987), the number-one motivation to garden cited by interviewees and survey respondents was *personal* enjoyment and relaxation (table 1). In fact, 30% of survey respondents listed that as their primary motivation, along with 38% of interviewees. Furthermore, a number of interviewees mentioned enjoyment and relaxation as a secondary motivation.

Table 1. Boston community gardeners' primary motivation to garden based on survey questionnaire results (n = 64).

Primary Motivation to Garden	Response Frequency	Percentage of Respondents
Produce your own food	16	25%
Enjoyment/relaxation	19	30%
Personal health and well-being	0	0%
Socialize with neighbors	0	0%
Earn income by selling produce	0	0%
'Greening' of urban space	8	12%
Being part of a club or group	0	0%
Teach others about gardening	4	6%
Learn new skills	3	5%
Other	14	22%

Gardeners' need for enjoyment and relaxation is often be manifest in how they 'produce' their garden spaces to suit their personal preferences. For some gardeners, namely white gardeners, that means creating private spaces that enable them to escape from the pressures of daily life. In fact, one white gardener in this study intentionally isolated his plot from the others in the garden by surrounding it with hedges and ornamentals (figure 15). This gave his plot the look and feel of a private patio. When asked why he did this, the gardener said, "This is my refuge where I escape from the pressures of the world…sometimes I just need to get away from people so I can relax." For other gardeners, the socialization opportunities that the garden provides are the main source of enjoyment. One gardener noted, "The garden provides me with a great opportunity to connect with my neighbors." He added that socializing with other gardeners is what got him involved in the garden in the first place. Now he serves as the garden's social chair and his main objective is to make the garden more inviting to neighborhood residents and visitors. Last year he even hosted a public tour of the garden so that others could enjoy it.

Figure 15. Victory garden plot surrounded by tall hedges and
ornamentals to create a sense of privacy (Photo by author).

Regardless of what the source of enjoyment and relaxation was for gardeners, it is
worth noting that over half of the white gardeners interviewed cited personal enjoyment
and relaxation as their primary motivation to garden, while only two of the ten 'ethnic'
gardeners interviewed cited personal enjoyment and relaxation. Connecting with
community and producing food appear to be the main motivations for African American
and Hispanic gardeners.

Gardening for food. The vast majority of the gardeners interviewed for this study
indicated that the techniques that they incorporate and the plants that they grow are
influenced by their desired outcome(s), whether that outcome is food, relaxation,
exercise, peace of mind or a combination of factors. Yet, the following illustrates that for
some individuals, their desired outcome is interrelated with their ethno-cultural
background and values. In particular, the production of food was cited as a key outcome
for Hispanic, African American and Chinese gardeners in this study.

When asked what their single greatest motivation to garden was, one-third of the gardeners interviewed indicated that it was food production. Approximately two-thirds cited food as at least of secondary importance. The interview findings closely reflect the survey responses, whereby 25% of the overall respondents selected food as their primary motivation out of the ten options listed. The interviewees also revealed that there is not one particular aspect of food that motivated them. Instead, various aspects of food were cited as being important. Some pointed to the fact that produce from their garden helps reduce the grocery bill, while others pointed to the fact that they at least know where there food comes from. And a few even mentioned the health and environmental benefits of growing organic, garden-fresh vegetables.

Albeit various aspects of food motivated individuals to garden, a pattern began to emerge from the data when it was parsed according to cultural background. Food was more often cited as a motivation for Hispanic and African American gardeners than it was for white gardeners. Food was the primary motivation to garden for 56% of interviewees of African American and/or Hispanic descent, as compared to 31% of whites. And it was the primary motivation for 46% of Hispanic and African American survey respondents, compared to only 22% of whites.

As might be expected, the field maps corroborated that Hispanic and African American gardens in the study sample were predominated by food crops. In contrast, gardens in white neighborhoods generally had a greater mix of flowers, herbs, ornamentals and food crops. One Jamaica Plain gardener noted that you can judge the ethnic composition of a garden just by looking at the ratio of flowers to vegetables, inferring that whites plant more flowers than other groups. While this individual was

perhaps speaking tongue-in-cheek when he said this, field maps indicate that predominantly Hispanic and African American gardens tend to have 70% or more of their cultivated areas planted in vegetables. White gardens, on the other hand, generally have closer to a 50/50 mix of food crops and flowers/ornamentals.

Thus, the findings from the interviews, survey and field maps all suggest that food plays a particularly important role for various ethno-cultural groups. Hispanic, African American, Italian and Chinese gardeners all tend to plant foods that are common to their respective cultures. As one African American noted, "I grow things that my mother grew when I was growing up in the South." An Asian gardener suggested that, "[p]eople here plant [Asian] vegetables that are hard to find at the market." And a Hispanic gardener exclaimed, "Sure, I grow things that produce a lot to make it worthwhile. You are never losing from the garden!"

Yet, while producing one's own food is clearly an important value for some, this value appears to be interrelated with other values, such as preserving cultural traditions, saving money and producing healthy, organic produce. Analysis of survey data did not reveal any statistically significant interdependencies between food as a motivation to garden and other factors, such as socioeconomic class or even ethnicity (the latter due to the small sample size). Instead, the interview data suggest that peoples' values around food are so interrelated with their personal values that it is difficult to separate them. So, once again, individual and social characteristics converge to influence what people plant, the practices they incorporate in garden and the outcomes they realize.

Green values and gardening for the common good. Although approximately a third of interviewees and survey respondents cited personal well-being and/or relaxation

as their main motivations to garden, 28% of interviewees and approximately 20% of survey respondents cited altruistic motivations, including greening of the environment, educating others about gardening and fostering sense-of-community. Perhaps more importantly, each of these motivations was uniquely manifest in how individuals practiced gardening. For example, all three interviewees that identified with the environment used organic techniques, such as composting, intercropping and natural pest control. In contrast, only half of the gardeners interviewed overall used organic techniques. When asked why they used organic techniques, one gardener responded, "I want to provide some sense of a 'green reference' for my kids." Two others suggested that they wanted to provide a refuge for people and wildlife. One added that she wanted to reduce her footprint on the planet.

Two individuals that said they used gardening as an educational tool to expose youth to gardening. Incidentally, both ran youth educational programs centered on the garden; one ran a non-profit and the other a school garden. They said that gardening provides a unique hands-on opportunity for youth to see nature in action and experience the beauty of growing one's own food. In the words of one, "I enjoy working with youth and seeing first-hand how gardening builds their sense of self-esteem and wonder."

While both had committed significant personal time and resources to educating youth, they indicated that they had to rely on donations of land and resources just to sustain their gardens. As a result of constantly being on the lookout for resources, both individuals had less time to dedicate to gardening and educating the children. In the words of one, "[t]he challenge is really finding land to expand the gardens so we can have long-term commitment to food production...and to the youth who garden here."

Finally, five gardeners indicated that they were involved in their community garden primarily as a result of their wanting to do something good for the neighborhood. Incidentally, four out of five of these individuals were garden coordinators. One indicated that she started the garden because she wanted to provide the neighborhood with a community space and she didn't want to see the land developed. In her words,

> ...community development is a passion of mine and the garden seemed to be a great neutral space to bring people together so they can create and experience the cycles of life. That's how it started. Community development is my life's work, and gardening is the medium.

Because coordination takes up so much their time, and since their primary focus is on the community and not themselves, all four expressed that their own garden plots were neglected as a result. In spite, each of their respective gardens conveyed an inviting presence to the neighborhood. In fact, all of these gardens hold annual events and celebrations aimed at bringing neighborhood residents together in the garden. Albeit not as many residents participate as they would like, these gardens have more diverse participation than many other gardens in their respective neighborhoods.

The Influence of Agencies and Organizations on Boston's Garden Landscape

Cultural heritage and personal values may influence the spatial practices that individuals and groups incorporate into their gardens, but interviews with gardeners highlighted another key force that has helped to shape Boston's community garden landscape; public and non-profit support. Both sectors have had a major impact on where community gardens have taken root in the City, as well as how individual gardens are physically structured and the outcomes that individuals and neighborhoods realize. The

following examines how the public sector, namely the City of Boston, and non-profit organizations have influenced the form and function of Boston's community gardens.

Public sector support: As was previously discussed, the City of Boston has historically supported community gardens. The Morton Farm, the Victory Gardens and the Revival Gardens represent key events in the evolution of Boston's community gardens. All of these events had strong municipal support.

Today, over half a dozen municipal agencies support community gardens, including the Boston Redevelopment Authority, School Department, Housing Authority, Department of Neighborhood Development and the Department of Parks and Recreation. In fact, these public entities own over a quarter of the properties on which Boston's community gardens are located. Furthermore, the City administers a number of programs that support community gardens, including the Department of Neighborhood Development's Grassroots Fund, which allocates community development block grants to community gardens and other public spaces, and the Community Garden Seed Grant Program administered by the Parks Department and the Department of the Environment. The City also delivers free compost to gardens (City of Boston 2008).

While these anecdotes suggest that the City has supported community gardens for over a century, this study sought the perceptions of interviewees and survey respondents about the level of support provided by the City.

Overall, most of the gardeners interviewed said that the City was generally supportive of their gardens, albeit most were not aware of the full range of programs and services that the City provides, save for their delivery of compost to community gardens, the provision of water for some and access to land for others. A few gardeners, including

one who planted in a Boston Housing Authority-maintained garden said that the City had been very supportive. Only a few expressed that they felt that the City could do a lot more to help out. One individual from a city-owned garden said,

> The city has cut back a lot of funding and support for the garden and is gradually putting the responsibility on the coordinators. Now, if people want the water turned on in their garden, or limbs cut off, they have to do it themselves. The City used to provide these services... They don't anymore.

Survey respondents were generally positive about the City's support for community gardens, as well. Sixty-six percent of survey respondents indicated that the resources and services provided by the city were important or very important to sustaining their gardens, while of the remainder of respondents were largely neutral. Only a few felt that the City was not helpful. Overall, these figures suggest that gardeners have a positive perception of the City.

Therefore, City support for community gardens has influenced Boston's community garden landscape in many ways. Foremost, past programs and policies have helped to created space for gardens in many neighborhoods, particularly in the Southwest Corridor and the South End. Furthermore, the City continues to maintain ownership of dozens of parcels on which gardens are located. So, from a land use perspective, the City has had a major impact on Boston's current-day community gardens.

Non-profit sector support: While the City serves many functions for community gardens, many argue that Boston's thriving community garden sector is really a result of the hard work of local citizen groups and non-profit organizations that coalesced over the last thirty-five years (Dowty 2005). In fact, if it weren't for the efforts of local coalitions such as the former South End Gardeners and Boston Urban Gardeners in the 70s and 80s, there might not be dozens of gardens in the South End and the Southwest Corridor, today.

Many of these gardens were catalyzed as a form of resistance against government policies, such as the plan for the inner beltway in the late 1960s. Now, dozens of organizations and associations support community gardens across the City.

Betsy Johnson, Boston gardener and past President of the American Community Gardening Association, feels that the non-profits have done far more to support Boston's gardens than the City. She points to the fact that the land trust that she works for holds more land in the South End than the Boston Parks Department. What's more, she claims that resources provided by the City only account for a fraction of what it actually costs to maintain the gardens (Dowty 2005). Most of the funding and resources for maintaining the gardens are raised by non-profits and through membership fees.

Furthermore, Johnson notes that over half of Boston's community gardens are owned by non-profit organizations, such as the Boston Natural Areas Network (BNAN), the South End Lower Roxbury Opens Space Land Trust (SELROSLT) and Dorchester Gardenlands (Dowty 2005). But it is not just land-tenure that the non-profit sector provides to community gardens. Organizations like BNAN provide training and materials to gardeners throughout the City. Garden Futures launched a Master Urban Gardeners Program in 2002 to train gardeners in skills ranging from raising seedlings to composting and natural pest control. As of today, hundreds of Boston's community gardeners have graduated from this popular program, which is now administered by BNAN.

A number of other organizations also provide resources and training to Boston gardeners, such as the Trust for Public Lands, Audubon, Northeastern University, Revision House, The Food Project, Boston Foundation, Earthworks and the Boston

Horticultural Society. Over the years, these organizations have formed a vast network

that has galvanized public support for Boston's community gardens.

When asked how helpful non-profit organizations had been in sustaining their

gardens, both interviewees and survey respondents responded positively. Eighty percent

of the survey respondents indicated that non-profit organizations were important or very

important to sustaining their gardens. And interviewees cited various outreach programs

and services that BNAN, SEOSLROSLT and other non-profits provide. As one gardener

pointed out,

> SELROSLT subsidizes the garden and holds the land. The Boston Natural areas
> Foundation makes grants available that the leadership can apply for and BNAN
> provides training and assistance with pest management and gardening techniques.

"What more could you ask for? We have a pretty sweet deal in this place!" said

another gardener referring to the fact that BNAN provides them with a permanent

easement to the land on which the garden sits.

So, while the City helped to make land available for some community gardens,

non-profit organizations have galvanized neighborhood and citizen groups to form

gardens on these lands. And they have outright purchased many of these gardens. With

the continued support of non-profits, the majority of Boston's gardens have managed to

sustain themselves. Only a handful of gardens have folded over the past three decades.

Impacts of Social, Economic and Demographic Change

While this research has largely depicted Boston's community gardens at a static

moment in time, it is important to remember that they are constantly in flux along with

the demographics of the City. Demographic data cited earlier suggests that Boston as a

whole is getting more diverse over time, both socioeconomically and culturally. Yet,
certain inner-city neighborhoods that have come into vogue over the past two decades are
actually becoming less diverse. These neighborhoods are attracting predominantly upper-
income, young, white professionals. As this new class of residents settles into these
neighborhoods, lower-income and minority residents are gradually being forced out by
escalating rents (Medoff et al. 1994). The question is; how have these and other changes
impacted Boston's community gardens, the gardeners and the surrounding neighborhood?
The following seeks to answer this question from the viewpoint of community gardeners.

Gardeners' Perceptions about Change

What is perhaps more significant than the unique cultural practices carried out in
African American, Hispanic, Chinese and Italian gardens is the fact that many of these
practices appear to be disappearing in neighborhoods where ethnic minorities are giving
way to upper-income, white professionals. In fact, over half of the gardeners interviewed
perceived socioeconomic and demographic change to have a major impact on their
garden. In Jamaica Plain, Fenway and South End, in particular, gardeners noted that their
neighborhoods were getting less diverse as the rents went up. In the words of one
gardener from Jamaica Plain, "[t]he biggest issue is how rising housing prices [are]
homogenizing the neighborhood and they are driving out people that have lived here for a
long time." Another sniffed, "...white yuppie scum are taking over the neighborhood."
He added that as the area's neighborhoods become less diverse, so do the gardens.

When asked how demographic change impacted the garden, an elder South End
gardener noted that that the practices of old are being lost as the new gardeners come in.

She described the old days when Hispanics in the neighborhood came together for social gatherings in the garden's *casita*. She said that, "[t]he garden was more of a centerpiece back then...but that has changed." The *casita* is no longer the center of social life in the neighborhood. And long gone are the days when the Hispanics in the neighborhood gathered there for celebrations, barbeques and meetings. Now most of the Hispanics are gone and the new gardeners are so busy that they rarely have the time to talk with one another. Several other gardeners from Jamaica Plain noted similar changes. As Hispanics left their neighborhoods, celebrations were less frequent, meetings became more formal and flowers replaced their culturally significant plants like cilantro, hot pepper and beans.

Although these sentiments were echoed by gardeners in a few neighborhoods, not all of those interviewed felt that their garden's diversity had suffered as a result of demographic change. In fact, one gardener noted that while the neighborhood around the garden had become less diverse over the past two decades, the garden was actually more diverse than it used to be. The interviewee credits this to the garden's forward-thinking coordinator who actively solicited participation of ethnic minorities in the neighborhood. She said that if it weren't for the coordinator, the garden would be just like some others in the area, "...yuppified..." The coordinator believes that the garden is the great equalizer of neighborhoods in transition and that garden associations must actively foster diversity.

Even though this particular coordinator was able to engage diverse participation in the garden, several other gardeners from Jamaica Plain, the South End, Mission Hill and Mattapan indicated that they were finding it difficult to engage minorities in their gardens. One added, "[w]e have tried reaching out to Asians and West Africans in the neighborhood, but they do not want to get involved...some plant their own gardens in

their yards." Another gardener asked about possible strategies for engaging Hispanics since, "[e]very year the garden is getting richer and whiter along with the neighborhood."

In spite of the picture of change painted by these anecdotes, not all of Boston's neighborhoods are losing diversity. The 2000 Census shows that a number of neighborhoods saw an increase in minority populations between 1980 and 2000. In fact, according to the 2000 Census, Dorchester, Roslindale, Roxbury, Mattapan and East Boston all marked increases in African American and/or Hispanic populations (table 2).

Table 2. Population Change by Race in Select Boston Neighborhoods
(Source: City of Boston 2001).

	1980	2000	Net Change
Dorchester			
Hispanic	8%	12%	4%
African American	24%	36%	12%
East Boston			
Hispanic	3%	39%	36%
African American	0%	3%	3%
Mattapan			
Hispanic	5%	13%	8%
African American	79%	77%	-2%
Roslindale			
Hispanic	4%	20%	16%
African American	4%	16%	12%
Roxbury			
Hispanic	13%	24%	11%
African American	76%	63%	-13%

Gardeners interviewed in many of these neighborhoods indicated that diversity in their gardens was alive and well. In fact, one Roxbury gardener said that her garden had become more diverse over the past ten years because it closely reflected the composition of the neighborhood, which had also gotten more diverse.

Not only have some gardens been able to maintain their ethnic diversity, but they have also maintained many traditional cultural practices carried out in the gardens. In

fact, when walking through Dorchester, and Mattapan, and Lower Roxbury, one quickly notes how very social the gardens are. Residents chat in small groups in the garden, kids play in the common spaces and the grill is likely to be wafting fragrant smoke of barbecued pork on any given weekend evening. In fact, a couple of Boston's Hispanic gardens still maintain their traditional *casitas* where neighborhood residents gather.

The lesson here is that demographic change is not a uniform force. To infer that cultural practices are being lost all over Boston as a result of demographic change would be inaccurate. This research simply reveals that certain neighborhoods, particularly those experiencing rapidly escalating rents, may be losing their cultural diversity, along with important cultural practices and traditions that are materialized in garden spaces and once served to unite the neighborhood.

Perceptions of the Future

Aside from the forces of demographics and cultural change, there are a number of other forces of change that gardeners have to reckon with. The two biggest perceived challenges to sustaining community gardens into the future are maintaining a healthy garden organization and strong leadership. In fact, nearly one-third of the gardeners interviewed suggested that the most pressing challenge they faced was sustaining their garden organization. With escalating costs for water, materials and supplies, several gardeners noted that sustaining their garden is getting harder. Moreover, they pointed to the fact that they could no longer rely on the City to provide services and resources and that they had to find them on their own, either by increasing garden membership fees or by soliciting grants and other external sources. In spite of this challenge, the majority of

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gardeners interviewed felt confident that their garden organizations would rise to the challenge and find resources from within to sustain their gardens.

Another challenge related to sustaining the garden organization is sustaining the leadership. One-third of survey respondents indicated that lack of leadership and coordination could pose difficulties for their garden in the near future. With people's lives busier than ever, garden organizations are finding it harder and harder to find people to commit to the role of coordinator. Often times, those that do take on leadership roles are not the best of leaders. As a result of poor leadership, one gardener said that nothing ever gets done in the garden. She explained the leadership challenge as follows,

> A few years ago, there was a coup d'état and the coordinator was ousted. She was somewhat of a dictator and was very controlling. A new group took over the garden with the intention of having a committee-run garden. But another dictator took over and it has been a soap opera ever since. Personalities really took the foreground. For a couple of years, nothing got done, because people were fed up.

Another gardener noted that "The leadership can't seem to maintain activities, grants, or volunteer-work in the garden. They talk the walk, but don't walk the talk."

Without strong leadership and coordination, community garden organizations are challenged to find resources to sustain their gardens. One gardener noted that maintaining membership in the garden is near impossible when the leadership is not supportive of its members and is less-than inspiring to potential new members. She illustrated this when she described how her garden organization has whittled away over the years due to poor leadership. Now, nobody wants to be involved in the garden, to the point where she worries that they will not be able to sustain it in the near future.

Overall, the message from gardeners was that land tenure is not the biggest threat to their garden's future, since the majority of Boston's gardens are held in land trust.

Rather, gardeners perceived lack of good leadership and strong organizational structure as being the main challenges, aside from the impacts of demographic change. For, without organization and leadership, community garden spaces eventually revert back into the weeded lots that they once were.

Bringing the Model Full Circle: Linking Outcomes to Characteristics

The above data and analysis elucidates how individual and societal characteristics interrelate with the community gardening practices of individuals and neighborhoods. It is also clear that certain practices lead to particular outcomes. For instance, the cultivation of mainly food crops in Hispanic, African American and Chinese gardens has provided a source of important cultural foods for many individuals, families and neighborhoods. Likewise, the establishment of the *casita* in some Hispanic gardens has provided a central place for neighborhood residents to gather, celebrate their heritage and network with their neighbors. This, in turn, has contributed to tightly knit social bonds in many of Boston's Hispanic neighborhoods.

But, as forces of demographic and social change go to work on the city's social fabric, not all of the outcomes have been positive for community gardeners. Demographic shifts in many neighborhoods have lead to a decline in ethnic gardeners, and subsequently, a loss of culturally significant practices such as the use of the *casita* as the social center of the neighborhood and the loss of important cultural foods such as the Asian fuzzy melon and the tomatillo which is common to Hispanic-Latino culture.

Another negative outcome has resulted from an influx of young, white, affluent residents moving in to some neighborhoods and community gardens. This influx has lead

to a formalization of organizational structures that are responsible for managing the gardens. Although more formalized Board structures may open the door to more grant opportunities and they may be required by some land trusts as a precondition to securing a permanent easement on the garden space, they have the inadvertent effect of dismantling the informal networks that once predominated many ethnic neighborhoods. In fact, several ethnic gardeners who were interviewed lamented the loss of the informal networks that once sustained their respective gardens – networks that fostered a shared sense of responsibility rather than the consolidation of decision-making power.

The question is; how do these and other community gardening practices and outcomes reverberate back onto society, as the analytic framework would suggest? The answer is elusive, as it is difficult to isolate the impact of community gardens on society as a whole. What is evident, however, is that the decline in social practices and the loss of social networking opportunities in many ethnic neighborhoods have resulted in neighborhood socio-cultural systems that are less dependent on social spaces such as community gardens. This has changed the social structure of the entire neighborhood, explained one gardener. "We used to gather more in the garden, but that aspect of the community life is being lost. Now it is hard to get the [Hispanic] kids to engage with the elders in garden." She went on to describe how the youth are increasingly joining gangs to find their social niche. Community gardening is not seen as a 'cool' activity.

A similar trend is occurring in the neighborhoods surrounding the Berkeley Street and Unity Towers gardens, both of which are predominantly Chinese. The neighborhoods surrounding these two gardens are seeing an influx of upper-income, white professionals, many of whom have become involved in the community gardens. As the proportion of

ethnic Chinese declines in the gardens, many long-standing Chinese gardeners have become uncomfortable socializing in the garden space. According to one gardener who was interviewed, Chinese women who garden are becoming increasingly reserved. This poses a challenge for many Chinese women who have few other opportunities to socialize. As a result of this change, the social structure of the neighborhood is beginning to erode. According to one interviewee, this is evidenced by the fact that more and more conflicts are arising between the ethnic Chinese gardeners, some of which welcome the changes taking place in the garden and others who resist the changes.

Yet another outcome of demographic change that appears to link back to the very characteristics of urban society is the connection between diet and obesity. One interviewee noted that there used to be a lot more Hispanics in the garden. However, as participation by Hispanics has declined in the garden, the incidence of obesity among Hispanics has increased in the neighborhood. Thus, he believes that there is a link between gardening and eating habits. As Hispanics get displaced from the neighborhood and from their gardens due to rising rents, they lose access to fresh vegetables from the garden. Cheap, processed foods have now entered their diets, resulting in increased obesity among Hispanics. And, as obesity rates increase in the neighborhood, it becomes even more difficult to engage Hispanics in gardening. And so the cycle continues.

Discussion and Conclusion

Community gardens are not merely reflections of the individuals and groups that cultivate them. Nor are they just products of the neighborhood or urban social fabric surrounding them. And they do not miraculously spring out of maps and plans conceived

by city planners. Rather, community garden spaces are produced by the convergence of multiple societal phenomena, including cultural heritage, societal norms, individual behaviors, land use policies and socioeconomic conditions.

Community garden spaces also have a reciprocal effect on the individuals that cultivate them and on the surrounding neighborhood. Outcomes derived from Boston's community gardens include provision of food for individuals and families, greening of urban space, creation of neighborhood social spaces, development of new skills and preservation of cultural traditions.

However, based on data from 97 gardeners throughout Boston, including both interviewees and survey respondents, the findings from this study suggests that three individual and societal characteristics have particular influence on community gardens' form and function (i.e. spatial practices and individual/societal outcomes). These characteristics are cultural heritage, personal values and public and non-profit support.

With regard public and non-profit support, many credit the City of Boston and the thirty-plus non-profit organizations that support community gardens for making land, resources and technical assistance available to Boston's gardeners. Were not for Mayor White's resistance to state and Federal plans to build a highway through Boston's Southwest Corridor in the 1960s, many of the City's gardens would not exist today. And thanks to the resources provided by non-profits, approximately half of the lands on which Boston's gardens are situated are preserved in permanent easement (Dowty 2005).

While it is true that the City and various non-profit organizations have been integral to the growth of Boston's community garden sector, community gardeners interviewed for this study were quick to point out that the proliferation of community

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gardens in the City is largely a result of the collective efforts of individuals and neighborhoods. They cite a variety of factors that lead them to cultivate community gardens.

One key factor that has helped to shape the form and function of Boston's community gardens is cultural heritage. Interview data reveal that community gardens are used by ethno-cultural groups – including African Americans, Hispanics, Chinese and Italians – to connect them with their cultural roots and to provide them with foods associated with their cultural heritage. In fact, approximately half of the Hispanic and African American gardeners interviewed and surveyed for this study identified food as being their primary motivation to garden, as compared to only one-quarter of whites. In the words of one African American gardener, "[g]ardening helps connect me with my ancestors...I plant the same things that my mother and grandmother did..."

The way in which gardening connects individuals and groups with their cultural heritage is manifest in what they plant and the techniques that they use. For instance, Hispanics in this study typically planted cover crops such as beans and squash, along with pepper, tomato, eggplant and herbs like cilantro. African Americans typically used raised beds to cultivate okra, sweet potato, collards and various other greens. Chinese gardeners almost invariably used plant frames to grow vegetables such as fuzzy melon, Asian cucumber, Bok choi, green onions and various squashes. And Italians used trellises and incorporated companion planting of tomato and basil alongside Italian pepper, squash, purple eggplant and various flowers such as the rose of Sharon.

Community gardens also serve important social functions for certain ethno-cultural groups. Over three-quarters of the African American and Hispanic gardeners that

were interviewed for this study indicated that community gardens serve as the social center of the neighborhood; places where residents can gather for informal events and activities. For Chinese gardeners, community gardens provide a place where women can socialize without the norms of Chinese culture holding them back.

While cultural heritage appears to influence what individuals plant and the techniques they use, the interview data suggest that one's personal values may actually be more influential in motivating people to garden than their desire to stay connected with their cultural roots. For instance, several interviewees suggested that they participate in community gardens primarily for relaxation. Others gardened more out of a need to satisfy their sense-of-community. Still other motivations included a green ethic, a concern for neighborhood youth and a desire to grow healthy, natural vegetables. Some even used their community garden spaces as refuges where they could escape from the stresses of everyday live.

In spite of these and other functions that community gardens play for diverse individuals and neighborhoods, many gardeners worry that forces of demographic change pose a threat to their ability to garden. In particular, gardens in neighborhoods that are becoming gentrified are losing their ethnic diversity as individuals get priced out by rising rents. Boston's South End, whose rents rose faster than surrounding neighborhoods between 1980 and 2000, marked a 10% increase in whites and a 17% decline in African Americans and Hispanics during this same time period (U.S Census Bureau, 2000). According to several gardeners interviewed in the South End, the ethnic composition of the neighborhood's community gardens reflects this demographic shift. The result is that many traditions and cultural functions that are materialized in the gardens disappear as

Hispanics, African Americans and other ethnic groups leave the gardens. As one gardener lamented, "...long-gone is the *casita* that once formed the social center for the Hispanic community here."

Yet, while some traditions and functions are lost, new ones emerge in these neighborhoods. The new guard of gardeners in neighborhoods like the South End, Jamaica Plain, Charlestown, and the Fenway bring with them new traditions and values. These values include educating youth through the garden, beautification, greening of the environment and fostering a sense of community amongst diverse individuals. And, in some cases, new gardeners are assimilating the ethnic and cultural practices practiced by their predecessors. So, while some functions and values are lost in community gardens, along with cultural traditions, new ones are gained that reflect the continual ethnic, cultural and socioeconomic reconstitution of Boston's neighborhoods.

So, what does this mean for the future of Boston's community gardens? The simple answer is that gardens will continue to change in both form and function along with the social and cultural fabric of the city. The caveat is that these changes can create winners and losers. The winners include the new wave of gardeners that gain access to community garden spaces in the heart of Boston. And the losers include all those who are displaced from their gardens, such as low-income, ethnic minorities.

Given this problem, the challenge will be to ensure that diverse residents maintain access to community garden space in the future. The question is; how can community gardens be used as equalizers of neighborhoods in transition to foster cultural diversity instead of functioning as forces of homogenization?

Ensuring Future Access to Community Garden Space

There are a number of interventions and actions that would help ensure access to community gardens by diverse individuals. Based on the findings from this research, one key action will be to catalyze new gardens in neighborhoods where there are few gardens, such as East Boston and South Boston. East Boston, in particular, is in need of garden space. A number of Hispanics that were displaced from their gardens in Jamaica Plain and the South End have moved to East Boston, but most of the gardens in East Boston are already at full capacity, thus leaving many ethnic gardeners without a space to cultivate.

Perhaps through the consolidation of resources, new outreach programs could be established to help new residents in East Boston and other neighborhoods initiate new gardens. Such programs could assist with securing resources and technical assistance and help neighborhood groups to organize. Although BNAN and the City of Boston already perform many of these functions, they also recognize that they cannot address the needs of all of Boston's neighborhoods. As a result, some neighborhoods do not get as much support as others.

In order to expand the reach of their programs, BNAN and other non-profits will have to work together with various City agencies, educational institutions and even the private sector to make community garden space and new resources available in garden-poor neighborhoods. Most important, they will need to garner public support. To generate this support, diverse stakeholders will need to be engaged in the process of envisioning, planning and implementing new community gardens throughout the City.

There are also a number of policy options that might be incorporated by the City to make garden space accessible. Such options might include converting existing public

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spaces to community gardens, building infill gardens where development is not possible, incorporating rooftop gardens on public buildings and instituting zoning policies that help rather than hinder the creation of gardens on lands held in limbo by certain restrictions.

While the above measures focus on new gardeners, there are also a number of measures that can be taken to maintain diversity in *existing* gardens that are undergoing demographic transition. In such gardens, the leadership may need to actively reach out to diverse individuals in the surrounding neighborhood and beyond to get them involved in the garden. This will require an intentional effort that goes far beyond the posting of flyers and the creation of a website. Community gardens need to actively connect with key community leaders so that they can reach out to their constituents. Most important, they will have to establish trust with residents in the neighborhood. As one gardener in this study demonstrated, if you establish trust and actively seek to inspire and engage diverse people, the garden can indeed become the great equalizer of neighborhoods.

In sum, the above measures could do a lot to maintain ethnic, cultural and socioeconomic diversity in Boston's community gardens. However, if these measures are to be effectively implemented, the City of Boston and its many garden-supporting organizations will need to have a deep understanding of how neighborhood change impacts community garden spaces and how the people who rely on them to play out their everyday routines. This research merely elucidates a few of the key factors that drive the form and function of Boston's community gardens. Yet, it provides a starting point if we are to succeed at ensuring access to community garden space by diverse residents in a period of rapid socioeconomic and demographic change.

CHAPTER V

HAVANA CASE

Introduction

The growing of food in Cuba's urban areas helped the country to weather the food

crisis that resulted from the loss of imports after the collapse of the Soviet Union in 1989.

During the 1990s, hundreds of cooperatively-managed gardens emerged throughout the

City due to a series of agricultural policy reforms that gave citizens usufruct rights to

land, allowed them to produce food for personal consumption and authorized them to sell

surplus through a system of agricultural markets. However, now that the food crisis in

Cuba is largely over, and caloric intakes have returned to pre-1989 levels, there are new

indications that Cuba is shifting its focus away from large urban agricultural cooperatives

towards the cultivation of private gardens. In just the last five years, several of Havana's

larger agricultural cooperatives have been converted to other land uses as land values

increase (Cruz and Medina 2003). Meanwhile, the Cuban government has begun

promoting food production in small parcels and patios around peoples' homes.

Therefore, this chapter examines how the form and function of Havana's urban

gardens have changed in the face of recent agrarian reforms. Data for this chapter are

derived from statistics provided by the Cuban Ministry of Agriculture and interviews

with 11 urban gardeners and two government officials. The goals of this research are to

gain a better understanding of how agricultural practices are changing in Havana and

insight about the future of urban agriculture from the perspectives of the City's gardeners.

Background

Agricultural Policy Reform and the Rise of Havana's Urban Agriculture Sector

Throughout the greater part of the 20th century, small-scale cultivation of foodstuffs was virtually non-existent in Havana, Cuba and other urban centers on this 111,000-square kilometer Caribbean archipelago just 150 kilometers Southeast of Key West, Florida. However, when the Soviet Union began curtailing exports to Cuba in 1989, Cuba was launched into a period of economic crisis and food insecurity referred to as the 'Special Period'. The phrase 'Special Period in times of peace' refers to a series of economic and policy reforms that the Cuban government made in response to the economic crisis that began in 1989 and extended through the mid 1990s (Premat 2003).

During the early years of the Special Period, the average, daily, per-capita caloric intake dropped from approximately 3,000 calories per day to less than 1,900 (Cruz and Medina 2003). The government initially tried preventing economic collapse resulting from food shortages by legalizing the U.S. dollar in hopes of staving off rapid inflation that was driving down the value of the peso. In spite of this effort, nearly 75% of the country's food imports disappeared and foreign investment in agriculture and other sectors was severed (Cruz and Medina 2003). The Cuban government had no alternative but to implement a series of agrarian reforms aimed at national food self-sufficiency.

Perhaps the most notable reform was the shift in state support from high-input agriculture to low-input, labor-intensive agriculture. The state did so by providing seeds, materials and technical assistance to individuals, families and organized groups to get them to produce food (Rosset and Medea 1994). Nearly every unused space in cities like Havana, Santiago and Cienfuegos were put into production through state-sponsored

programs. Additionally, the government relaxed restrictions on the sale of produce by authorizing limited free markets[1]. Growers were allowed to sell their surplus through a system of private and state-run markets whereby the prices were set by supply and demand rather than through state-regulated pricing structures (Cruz and Medina 2003). For the first time under socialist rule, Cuban producers were allowed to use vacant, state-owned land for food production. Furthermore, they could retain whatever food they needed for household consumption and sell any surplus (Bourque and Canizares 2000).

Many credit Fidel Castro's brother, Raúl, for championing urban agriculture's as a means of feeding Cuba's urban population. He crafted many of the reforms that promoted cultivation in Cuba's urban areas and gave individuals and groups access to land, seeds, materials and technical assistance. Support was funneled through the state-run Urban Agriculture Program (UA) that was launched in the early 1990s. The motto of UA was *"se puede"*, which translates to "it can be done." The fact that the highest level of government promoted urban agriculture at the local level suggests that it was of utmost importance to achieving food security (Companioni *et al.* 2002).

Although UA directed national policies pertaining to urban agriculture, it distributed decision-making power from the national level down to the regional, local and neighborhood levels. Regional and municipal sub-directorates of UA were charged with coordinating and regulating specific agricultural activities within their zone of coverage. And Peoples' Councils were instituted at the neighborhood-level to represent producers' interests and administer local projects, priorities and technical assistance (Companioni *et*

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[1] The term *limited free market* is used to describe sales in Cuba's urban agriculture sector. While producers can generally sell agricultural products at fair-market prices, some restrictions do apply to the sale of produce. For instance, the proceeds from the sale of some agricultural products are taxed and certain staples such as milk may have price caps.

al. 2002). Not only did Peoples' Councils support urban agriculture at the local level, but they also promoted urban agriculture in other urban areas (Cruz and Medina 2003).

The government followed suit by enacting additional reforms in the agriculture sector, most notably the restructuring of the land rights system in 1993. Under the new land reform policies, individuals or groups could apply for and obtain usufruct rights to unused urban land for agricultural production (Cruz and Medina 2003). This policy ran against the grain of the pre-1991 agricultural policies, which supported production of food on large state farms and limited individuals' ability to cultivate for personal profit.

Soon after the usufruct land reforms were enacted, the Cuban Ministry of Agriculture (MINAG) established a system of private and state-run markets that enabled producers from agricultural cooperatives and private farms to sell surplus produce for profit (Bourque and Canizares 2000). This sanctioning of agricultural markets represented a bold move towards a national market-based economy. As a result, over 70% of food sold in Cuba came from sales at agricultural markets inside the country by the mid 1990s. In contrast, prior to 1991, the majority of food filtered through state-run institutions and was distributed via a rationing system (Martin 2002). In effect, Cuba had had weaned itself off of food rations provided from abroad to a system for distributing food that was produced within the country.

Other reforms aimed at further decentraling the urban agriculture sector included the creation of local financing mechanisms, placement of local seed houses, the provision of materials and supplies and the provision of technical assistance to neighborhood groups and urban cooperatives. Although these supports were provided through UA, they were administered locally through the Peoples' Councils (Companioni 2002) (table 3).

Table 3. Comparison of Pre- and post-Special Period agrarian reforms

Pre-Special Period Policies (1959 – 1991)	Post-Special Period Policies (1991 – present)
Policy Framework	
Agrarian Reform Laws (RA): After taking control in 1959, Castro instituted agrarian reforms that put the means of production back into the hands of Cuba's residents. The reforms, which focused on the production of food for the common good, came in several waves.	**Urban Agriculture Program (UA):** The Cuban Ministry of Agriculture instituted UA in the early 1990s to set a precedent for urban agriculture. The program provided individuals and groups with access to seeds, materials, land, and technical assistance.
Land Ownership	
Seizing of Private Land: In the first wave of agrarian reforms, the government seized privately-owned lands in Havana's hinterlands and transformed them into state enterprises, as well as a number of short-lived producer cooperatives.	**Usufruct Land Rights:** Resolutions 289/90 and 24/91 in the 1990s gave certain individuals and groups usufruct rights to vacant urban land for agricultural production. By the mid-'90s, thousands of individuals and groups gained land rights.
Food Distribution System	
Food Redistribution System: Food produced by state-run enterprises was distributed through a national system of food rations. Producers were given a portion of the harvest to feed their families and, and in some cases, they were paid a wage by the state.	**Agricultural Markets:** Decree 191/94 allowed private producers and agricultural cooperatives to sell surplus produce at market prices with a few restrictions. As a result urban agriculture became the largest job growth sector in Cuba by the mid-'90s.
Decision-Making Authority	
National Institute for Agrarian Reform: Starting in the 1970s, Cuba's agricultural production was regulated and controlled by this government body which was set up to enforce Cuba's Agricultural Reform Laws.	**Peoples' Councils:** The government institutionalized these neighborhood-level grassroots bodies in 1994 to represent producers' interests and to coordinate the provision of resources and technical assistance at the local level.
Organizational Structure	
State Farms: Also as part of the first wave of Fidel's post-revolutionary agrarian reforms, a network of centrally managed state farms was created. The philosophy behind state farms was that production of food should be for the benefit all, and not for the sole benefit of individuals.	**Basic Units of Agricultural Production (UBPC):** Bylaw 142/93 gave organized groups the right to form, own what they produced and sell any surplus for a profit. This cooperative structure, known as the UBPC, was intended to gradually replace state farms throughout the country in the 1990s.

Evolution of New Organizational Structures for Havana's Gardens

The transfer of authority from the state down to the local level and the sanctioning

of the sale of produce for market prices lead to the evolution of new organizational

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structures for managing urban gardens, as well as new forms of production (i.e. uses of space). Both reforms were designed to capitalize on the new freedoms granted by the state with regard to the production and sale of produce. The following emerged as common organizational structures and production practices for Havana's urban gardens.

Private Gardens. Private gardens are generally the smallest urban gardens, the majority of which are maintained by citizens with usufruct rights to a parcel of land. When the Cuban government passed the usufruct land reform decree, thousands of people applied for and obtained permission to cultivate plots near their homes. A few gardeners were even granted legal ownership of small plots. Most of the produce grown in private gardens is consumed by the producers, although some is sold at roadside stands.

The common types of private gardens in Cuba are *parcelas* and patio gardens. *Parcelas* are small plots granted in usufruct to individuals, families or groups for food production. They are typically planted with fruits and vegetables on less than 1000 m^2 (Premat 2003). Patio gardens, on the other hand, are planted in dooryards and on any available spaces around peoples' homes (figure 16).

Figure 16. Havana gardener in her patio garden (photo by author).

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Patio gardens generally have a variety of food crops, ranging from fruits and vegetables to goats, chickens and fish. The main difference between *parcelas* and patio gardens is that the latter does not require usufruct land rights.

Neighborhood Gardens. These gardens are typically planted in the more densely populated areas of Havana proper. As is the case with *parcelas*, neighborhood groups can gain usufruct rights to vacant lots for the purpose of cultivation. Responsibilities for maintaining neighborhood gardens are generally divided amongst the participants. In some cases, food from neighborhood gardens is shared freely with neighborhood residents or with local organizations such as food kitchens (Fuster, 1/14/06). In other cases, the members who participate in the garden divide the harvest equally.

Because neighborhood gardens are typically small, ranging from a few hundred to a few thousand square feet, intensive cultivation is usually used. Furthermore, because they are planted mainly for self-sustenance, a variety of crops are grown, including greens, squash, beans, tomato, tubers, plantains and various fruits (figure 17).

Figure 17. Neighborhood Garden in Havana Vieja District (photo by author)

Credit and Service Cooperatives (CCS). CCSs provide private producers and organized groups with shared access to credit, machinery, seeds, technical assistance and markets. Each member of the CCS pays a small portion of their earnings from the sale of produce in exchange for access to this government-facilitated access to credit and services. However, unlike other cooperative structures, individual members of CCSs, as well as member farms, remain private (Royce 2004).

Although the legal framework for CCSs was established during the first wave of agrarian reforms in 1959 to provide a mutual-aid system for producers, they flourished during the Special Period. A diversity of producers that cultivated a range of staples ranging from vegetables to poultry tapped into CCSs to gain access to credit and services.

Worker Gardens. These pseudo-cooperatives, known as *autoconsumos*, were set up to feed individuals employed at work centers and state-run institutions. Typically, the produce grown in these gardens, located adjacent to workers' place of employment, is used to feed workers during the day. In some cases, workers can take produce home to their families. Duties associated with maintaining these gardens are shared amongst the workers. For example, some workers are placed in charge of weeding or planting, while others are responsible for harvesting, cleaning, and meal preparation.

Worker gardens in Havana are generally planted intensively and are therefore referred to as *intenisvos*, or intensive gardens. Intensive gardens incorporate the use of *canteros*, or raised beds. Worker gardens average less than one hectare in size and require high labor inputs to implement organic methods. They are generally planted on good soils, although some require composting and raised beds (Companioni *et al.* 2002).

State Farms. State farms are a network of state-run enterprises that employ workers dedicated to agricultural production. Each farm worker receives a stipend for their labor, as well as a food ration and housing. Like CCSs, the legal framework for state farms was established prior to the agrarian reforms of the Special Period. But, as new organizational structures evolved in the early 1990s, participation in state farms began to decline. In order to make them viable, the government implemented a series of new reforms that provided incentives for individuals to participate. As a result of these reforms, workers on state farms can now earn a percentage of the farms' profit in addition to a base stipend, food ration and housing (Bourque and Canizares 2000).

Cultivation techniques used on state farms range from intensive gardening to extensive production of fruit trees, ornamentals and sugarcane. Most state farms also incorporate animal husbandry and poultry production, since a portion of the food produced on state farms is used to sustain the farmers that work on them.

Basic Units of Cooperative Production (UBPCs). The government authorized the formation UBPCs in 1993 as a first step to phasing out the state farms and replacing them with a cooperative structure managed by citizens (Alvarez 2000). Unlike state farms, however, UBPCs elect their leaders, maintain usufruct rights to the land and sell what they produce, albeit most of the harvest is sold to the state (Bourque and Canizares 2000, Grogg 2007). Although the number of UBPCs in Havana has diminished over the past five years, they continue to employ thousands. Each employs between 10 and 90 people, with individuals earning between 400 and 1200 Cuban pesos per month ($20 – $60 U.S.).

The majority of Havana's UBPCs are organoponic gardens; gardens located on infertile soils with poor moisture retention and therefore require irrigation and the

addition of organic matter in raised beds (Companioni *et al.* 2002) (figure 18). They range in size from one hectare to several hectares and require intensive labor to cultivate (Fuster, 1/14/06). UBPCs typically have a diversity of crops and incorporate a range of cultivation techniques. Vegetable crops include lettuce, tomato, beans, yucca, pepper, squash, chard, celery, cabbage, spinach and herbs (Cruz and Medina 2003). Fruits include plantain, guava, banana, mango, oranges, passion fruit, star fruit, malanga and lemon. Because of Havana's limited space, a number of UBPCs also maintain nurseries specializing in the production of fruit, vegetable and ornamental seedlings. And most UBPCs have chickens, ducks, pigs and geese for self-consumption.

Figure 18. Members of a UBPC-managed organoponic garden in Havana place composted material on raised beds (photo by author).

Approximately a dozen of Havana's UBPCs are classified as *alto-rendimientos,* or high-yield organoponic gardens with high production levels (Murphy 1999). These high-yield gardens maintain less crop diversity than organoponic gardens, since their primary focus is on mass production (Companioni et al. 2002).

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Changing Social and Physical Organization of Urban Agricultural Space

There is no doubt that the agrarian reforms of the 1990s had a major impact on Havana's urban landscape. As a result of the government's granting of usufruct land rights and their sanctioning of agricultural markets, urban agriculture succeeded in providing food and income for tens of thousands of urban residents, making it the largest job-growth sector during the 1990s (Koont 2004). In fact, between 1991 and 1996, the amount of land in production in Havana doubled to nearly 10,000 hectares and the number of cooperative gardens grew to several hundred (MINAG 1996). Although accurate data on the number of private gardens in Havana in the early 1990s does not exist, the number is thought to have grown to over 26,000 by 1996 (Chaplowe 1996).

In terms of the cultivation practices that were adopted during the Special Period, production moved away from the mechanized, high chemical-input agriculture of the 1960s, 70s and 80s to more labor-intensive agricultural production. As the supply of fossil fuels declined, raised beds, composting, intercropping and low-impact tillage replaced pesticides, chemical fertilizers and tractors (Rosset 1994). And crop production shifted away from sugarcane and other export crops to diversified cultivation of fruit, vegetables, poultry and small animals for self-consumption or for sale at local markets. Crops like lettuce, cabbage, beans, tomato, squash, and cucumber became commonplace in Havana's gardens in the 1990s (Cruz and Medina 2003).

In spite of the success of urban agriculture in the 1990's, many still wonder what its role will be in the new millennium, particularly since the food crisis was largely over by 2000 and the average caloric intake of Cuban residents had returned to pre-Special Period levels (UN-FAO 2004). Furthermore, Cuba's alliance with new trade partners

such as Venezuela, China and Mexico stop-gapped the shortages of the 1990s

(Colantonio and Porter 2006).

In light of these trends, new indications suggest that certain components of urban

agriculture may be in decline. The following section highlights recent trends in the urban

agriculture sector – particularly the shift from cooperatives to private gardens – based on

data produced by the Cuban Ministry of Agriculture (MINAG) from 1995 to 2005.

Restructuring of Havana's Urban Agriculture Sector in the 21st Century

The decline of UBPCs and Worker Gardens. According to MINAG statistics,

approximately 9,300 hectares of land in Havana were in vegetable production in 2005,

about 700 fewer hectares than were in production a decade prior (MINAG 2005a). Cruz

and Medina suggest that much of this loss is attributed to the consolidation of urban

farms and gardens (2003). Particularly hit hard were the UBPC cooperatives.

MINAG statistics cited in table 4 below indicate that of approximately 292

UBPCs that were established in the 1990s, only 44 remained in 2005 (MINAG 1996,

MINAG 2005a). Cruz and Medina suggest that the reduction in the number of UBPCs

was largely due to new demands for scarce space in Havana as other sectors of the

economy grew post-Special Period. Moreover, they content that a number of UBPCs lost

their land tenure status, since they were located within state facilities that shifted

emphasis to other economic activities, particularly tourism and trade (2003).

Table 4: Change in number of UBPCs and Worker Gardens, 1996 – 2005
(Sources: MINAG 1996, MINAG 2000, MINAG 2005a)

	1996 Total Number	2005 Total Number	Net Change
UBPC's	292	44	-248
Worker Gardens	400	226	-176

The number of worker gardens also experienced a decline during this time period. According to 2005 statistics from Havana's *Empresa Horticola Metropolitana,* a subdirectorate of MINAG, the number of worker gardens dropped from 400 in 1996 to 226 in 2005. What's more, this decline translates to a loss of over half of the land in production by worker gardens. Again, Cruz and Medina attribute this decline largely to the growth of the Cuban economy in other sectors (2003).

The rise of *parcelas* and patio gardens. In contrast to the loss of UBPCs and worker gardens, the number of private *parcelas* and patio gardens in Havana rose sharply as residents became aware of the benefits of planting food close to home. According to MINAG statistics (1996, 2005a), the number of *parcelas* nearly doubled in Havana between 1996 and 2005[2]. In fact, as table 5 illustrates, the number of *parcelas* grew by over 1,000 between 2004 and 2005 alone. These gardens, which effectively utilize small fragments of land, have helped to backstop the loss of UBPCs and worker gardens as space has become more valuable in Havana (Alvarez 2000).

Table 5: Change in Number of Patio Gardens and *Parcelas,* 1996 - 2005
(Sources: MINAG 2004, MINAG 2005b)

	1996 Total Number	2004 Total Number	2005 Total Number	Net change
Patio Gardens	–	34,545	35,162	617
Parcelas	–	13,325	14,346	1,021
Combined Total	26,000	47,870	49,508	23,508

Further evidence that patios and *parcelas* may be supplanting urban agricultural cooperatives lies in the fact that the Cuban government instituted 'The Official Movement of Patios and Parcels' in 2000, an effort aimed at increasing production in

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[2] Prior to 2000, data on the number of patio gardens and *parcelas* was grouped under one category, *huertos populares,* or popular gardens. While data broken down to the level of patio gardens and *parcelas* does not exist prior to 2000, MINAG statistics indicate that there were 26,000 popular gardens in 1996.

small spaces around peoples' homes in lieu of using larger spaces in the City. While the cultivation of fruits and vegetables for private consumption and/or sale appears to contradict the socialist values espoused by the state, Premat notes that officials have been cognizant to frame the 'Official Movement' to connote communitarian values rather than values of individualism and capitalism (2003).

In sum, while the specific causes of the shift from larger cooperative gardens to private gardens are not well documented in the literature, this shift has major implications on how space is used in Havana (Premat 2003). Thousands of individuals who participated in worker gardens and UBPCs have lost access to their shared land in the last five to ten years. Meanwhile, thousands of urban residents have taken up gardening in and around their homes. The question is; how has this shift impacted Havana's urban gardeners? To answer this question, the following section examines individual gardeners' perceptions about recent changes in the urban agriculture sector and its potential future.

Research Methods

Field Instruments

Because statistics pertaining to the number, type, structure, and productivity of Havana's urban gardens are often incomplete and difficult to verify, the goal of this section is to build a better understanding of Havana's urban agriculture sector through the eyes of individuals who work in it. The information is derived from personal interviews of eleven urban gardeners in Havana conducted in January of 2006. An interview protocol consisting of 30 structured questions was followed and personal interviews were conducted by the author. Field notes were taken in lieu of taped recordings with the

agreement that all interviewees would remain anonymous. An official with the

Asociación Cubana de Téchnicos Agrícolas y Forestales (ACTAF) provided

transportation and access to the majority of gardens where interviews were conducted.

This official was present during all interviews, but did not actively participate in the

interviews at the researcher's request.

The interview subjects were selected to cover as diverse a geographic sample as

possible from Havana's 15 urban districts and interviews were conducted of gardeners

who represented diverse forms of urban agricultural production, as well as organizational

structures. Below is a map depicting the location of each of the interviews (figure 19).
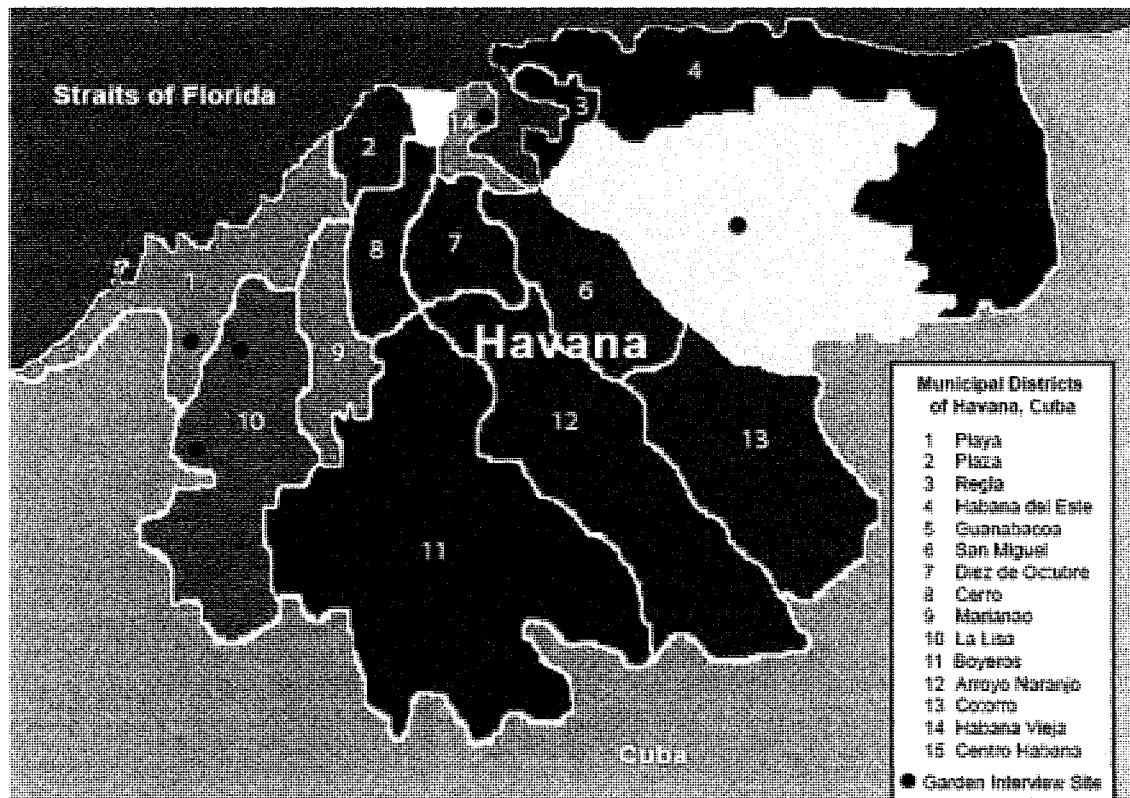
Figure 19. Map of community garden interview sites in Havana. Map base courtesy of the
Asociación Cubana de Téchnicos Agrícolas y Forestales (ACTAF).

In terms of organizational structures, interviewees included four gardeners from UBPCs, four from private gardens (two of which were members of CCSs), one from a state farm, one from a worker garden and one from a neighborhood garden. In terms of production practices, interviewees represented three organoponic gardens, one high-yield organoponic garden, one seedling greenhouse, one tree nursery, one *parcela*, one patio garden, and three gardens that incorporated multiple modes of production.

Information provided by the interviewees is descriptive in nature and pertains to how urban gardening has impacted them personally. Interviewees were specifically asked their perceptions and insights about the future of the urban agriculture sector. The following summarizes the key findings from the interviews.

Data Analysis Procedures

Transcript data from interviews of 11 gardeners from Havana, along with direct observations for each garden, were imported into NVIVO 8.1 and coded according to the three main categories in the analytic framework: characteristics, practices and outcomes.

Using the software's 'classifications' function, a table describing the attributes of each of the interviewees and their respective gardens was built based on supplemental information from field maps, direct observations, and photo documentation. Gardeners were classified according to their district of origin, main motivation to garden, monthly income from gardening, perceptions about the future of gardening (negative, neutral, or positive), and whether they grew up in a rural or urban setting. Likewise, information about each interviewee's respective garden was added to the table describing the garden, including the location of garden, the garden's date of initiation, the organizational

structure (i.e. cooperative, state-run, private, etc.), the primary mode of production (seedling nursery, horticulture, fruit production, mixed vegetables, monoculture, etc). Then, using the software's query-builder function, 22 queries were run, including:

- Extract node data (coded data) pertaining to 'main motivation to garden and type of organizational structure.

- Extract classification data (data from attributes table) pertaining to gardeners' income and the type of organizational structure.

- Extract classification data (from attributes table) pertaining to gardeners' income and form of production.

- Extract node data pertaining to perceptions of the future of urban agriculture and type of organizational structure.

- Extract classification data pertaining to upbringing (rural/urban) and form of production.

Based on the data that was sorted according to the above queries, pattern matching was used to identify common themes or trends. As an example, using this technique, a pattern emerged between the interview respondents' primary motivation to garden (i.e. food or income) and the organizational structure that their garden was classified under. As well, a pattern emerged between gardens' organizational structure and gardeners' perceptions of the future of urban agriculture. Lastly, the patterns that emerged through the incorporation of the above-described methods were used to build a graphic model that illustrated the interconnections between characteristics, practices and outcomes. Each element or feature in the model was linked to all of the data coded under that element. The following are the findings drawn from the analysis of the data.

Analysis and Findings

Primary Motivations for Gardening

Each interview subject was asked what their primary motivation for gardening was, as well as secondary motivations. As one might expect, six of the eleven interviewees cited the opportunity to generate income as their primary motivation, and three others suggested that it was a secondary motivation. Overall, the interviewees who stated that income was either a primary or secondary motivation made between 300 to 1,150 pesos per month, up to three times the average wage paid by a state-subsidized job. As one interviewee noted,

> I helped start this garden back in 1991 so that my family and others who wanted to join the cooperative could sustain themselves...we earn more here than what the state pays.

Four of the eleven interviewees noted that that they planted primarily for food. If any surplus was produced, they sold it through Cuba's system of agricultural markets or through informal means. As one interviewee stated, "Gardening is a great way to empower people to produce their own food...[and] it helps generate income to support our families."

Of note, three of the four private gardeners cited food as their primary motivation to garden (one had a seedling nursery). In contrast, all four members of UBPCs identified income as their primary motivation. As one interviewee from a UBPC noted, "...our goal is to earn money. The higher our productivity and the fewer the number of gardeners are, the higher our profits." Thus, while the production of food for self-consumption appears to be an important motivation for private gardeners based on this sample, income appears to be the main motivation for those who participate in UBPCs.

Although food and income were cited most often by the interview subjects as the primary motivations to garden, interviewees noted that gardening plays other important roles, such as fostering a sense of independence, personal satisfaction, a feeling of helping others, and opportunities for socialization with neighbors. Of these other roles, independence was cited by three individuals as a secondary motivation to garden. Two others suggested that feeling good about helping others were strong motivations. Lastly, personal satisfaction and opportunities for social interaction were also identified as being important.

In general, however, these factors were considered secondary benefits that result from doing what needed to be done in order to survive (i.e. they are secondary to food and income). As one interviewee noted, "My family gardens for food because they have to, not because it is fun."

Various Forms and Functions Incorporated for Urban Production

Because the eleven interviewees represent a diversity of garden types, which reflect the particular motivations of the gardeners, the following describes the physical structure and contents of each of their gardens, as well as what becomes of the produce.

Four of the eleven interviewees participate in organoponic gardens ranging in size from 0.25 to 3.5 hectares. Three of these gardens are managed by UBPC cooperatives, while the other is classified as a worker garden. All four organoponic gardens maintain a diversity of crops, including cabbage, beans, tomatoes, squash, pepper, spinach, lettuce, carrots, onion, and other staples. Each uses intensive production practices, including composting, raised beds, worm culture intercropping and other natural pest controls. Two

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even had sections dedicated to the production of fruit trees, seedlings, herbs, medicinals, ornamentals, animals and poultry. One is classified as a 'high-yield organoponic.' This particular garden, managed by a UBPC, produces greens for sale to state institutions.

With regard to income, workers from the UBPC-run organoponic gardens earn from 500 to 1,100 pesos per month. As the Director of one noted, "Skilled producers earn a little over a 1,000 pesos per month. Less-skilled workers earn as few as 500 pesos."

Also represented in the interview sample are four private gardens maintained by families or individuals. One of these gardens is a half-hectare *parcela* for which the cultivator maintains usufruct rights. She uses organic methods such as composting, worm-culture, intercropping, and natural pest control, since she cannot afford to purchase fertilizers or insecticides. She pays two seasonal workers 40 pesos per day to help cultivate tomatoes, peppers, cucumbers, squash, and other vegetables. In spite of these expenses, she can make several thousand pesos per month by selling a portion of her produce through the CCS that she is a member of. The rest she keeps for her household.

Another independent producer in the interview sample maintains a quarter-hectare patio garden. Most of her yard is planted with vegetables, herbs, medicinals and fruit trees, but she also raises chickens, ducks and fish in her patio-area. The food produced in her patio is primarily used for household consumption, although she conceded that she sells produce to the state and through her private kiosk located along the main road next to her home. She earns several hundred pesos per month through these outlets.

Of the other two private gardeners interviewed, one maintains a quarter-hectare plot granted to her husband due to his service during the Cuban Revolution. Now that he is too old to work in the nursery, she has taken over and plants ornamentals on the plot

and sells them to through a CCS. Her profit margin is only a few hundred pesos per month because she has to pay two workers 30 pesos per day to help with the nursery.

The final private producer interviewed has usufruct rights to a small patio garden where he and his brother grow plantains, guyaba and mango. The fruit is grown for household consumption, although they have not been able to harvest much the last couple of years due to pest damage. As the interviewee noted, "We are currently waiting for technical assistance from the Ministry of Agriculture. Without it, we may have to give up on the fruit orchard."

An increasingly popular form of production in Havana is the tree nursery. One interviewee who represents a 21-member UBPC raises seedlings of ornamentals, fruit trees, and vegetables in a greenhouse. Due to the scarcity of land in Havana, the nursery is located on one-hectare parcel that was once used as a trash dump. Rather than growing produce, The UBPC maximizes its profits by intensively growing seedlings and selling them to other gardens. In spite of the small space, the UBPC members earn anywhere from 500 to 1150 pesos per month.

Another gardener from a worker farm was interviewed during his lunch hour (figure 20). This individual dedicates one hour each day in the quarter-hectare garden located next to a state-run enterprise that employs 12. The garden, which incorporates raised beds and natural pest control, maintains mainly lettuce, cabbage, carrots, onion and parsley. The produce from the garden is used to provide meals for the workers during the day and any that is left over is divided amongst the workers. Each employee is expected to help maintain the garden, tasks which include tilling, seeding, weeding or harvesting.
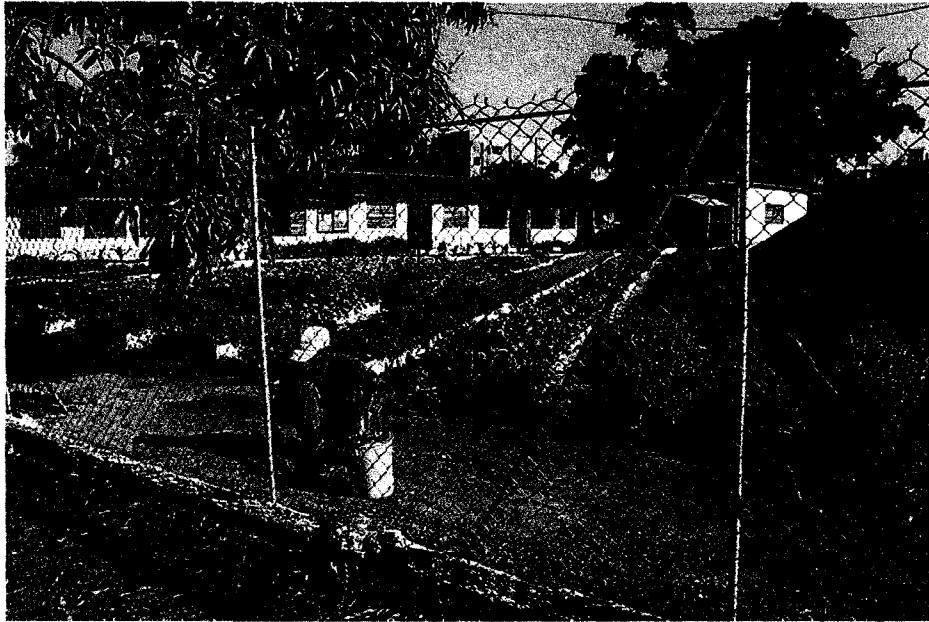
Figure 20. Employee of state-run enterprise helping to maintain the enterprise's worker garden (photo by author).

Since most of Havana's gardens are private, state-run, or cooperatively-managed, the coordinators of one of Havana's few neighborhood gardens in the inner-city were interviewed. The two coordinators initiated the 0.1 hectare garden in Havana's historic district because they wanted to help the neighborhood out and provide food and services to those in need. The garden maintains five 30-foot beds of greens, including lettuce, cabbage and spinach. Although local resident are free to pick lettuce and greens from the garden, the coordinators sell most of the produce to a nearby work center. Most of the proceeds go to supporting neighborhood activities.

Finally, because state farms have played an important role in the production of food throughout Cuba's socialist history, an official with of one of the few remaining state farms in Havana was interviewed. The seven-hectare state farm that he directs employs 45 workers to plant staple fruits and vegetables. Each of the workers receives a base monthly salary of 250 pesos, along with food, housing and a portion of the profits

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made by the farm. Although the workers do not typically earn as much as UBPC members, they are guaranteed a base wage and housing for their family.

Therefore, based on the 11 interviews, it appears that food and income are the primary motivations for people to garden. Further, because gardeners have limited access to resources, they have become adept at finding a niche that allows them to maximize their productivity, whether that be through the production of staple crops for household consumption or raising of seedlings for sale. In this regard, Havana's gardeners structure and shape the garden spaces based on their own personal needs and according to what is allowed under Cuba's agrarian reform policies.

Perceptions of the Future of Urban Agriculture

While the interviewees made it clear that urban gardening continued to play a vital role in Havana today, they also had concerns about the future of the urban agriculture sector. The following are some of the opportunities, obstacles and threats to the sector that they perceived.

Five interviewees identified potential changes in land tenure status as a threat. The general sense was that the government could take the land from them at any time and convert the land to other uses. Of note, four of the five individuals who identified lack of security of land tenure as a potential threat were from UBPC cooperatives. In fact, one noted that several plots formerly utilized by UBPCs had already been usurped by the government for the development of new industries. He said, "...land rights are not guaranteed to members of UBPCs. The government can take the land at any time."

As well, five interviewees identified changes in regulations that currently allow producers to sell their produce for profit as a future threat. The general fear was that the government could impose new regulations on the sale of produce now that the food crisis is over. Changes to existing regulations could reduce profits and thereby reduce individuals' incentive to garden. Most concerned were the private producers. In fact, three out of the four private producers identified changes in regulations pertaining to the sale of produce as their primary concern.

Four interviewees identified lack of support by the government and non-profit organizations as a problem that would likely continue into the future. In particular, lack of credit, technical assistance with production and pest control, and resources for irrigation and composting systems were identified as deficiencies. One interviewee noted, "[u]nless the government helps me with pest control, it's not worth harvesting the fruit!"

Another suggested that the fact that there are 50,000 *parcelas* and patio gardens in Havana – twice as many as there were a decade ago – might explain why there is not enough technical assistance to go around. This individual worried that if the number of private gardens in Havana continued to grow, the government would not be able to support the thousands of individuals turning to cultivation of *parcelas* and patio gardens.

In short, while the government is largely responsible for making space, resources, materials and markets accessible to gardeners, there is a strong sense amongst Havana's gardeners that the government could retract these supports at any time. Already, members of a number of Havana's UBPC cooperatives have seen their gardens converted to other uses by the government. This has caused an environment of fear and distrust amongst

gardeners throughout the city. At the same time, gardeners are thankful for the supports that the government still provides to the urban agriculture sector.

Linking Outcomes Back to Individual and Societal Characteristics

The outcomes resulting from the rapid rise of Havana's urban agriculture sector include the creation of new jobs, increased earnings, improved food security and greater economic freedom for individuals. While these outcomes were largely facilitated by the agrarian reforms enacted by the government in the 1990s to stave off food crisis in the wake of the collapse of the Soviet Union, they essentially let the genie of free-marketism out of the socialist-economic bottle. In effect, Cuba's economic engine and its people have been transformed by the government's authorization of free markets in the urban agriculture sector.

As Havana's residents discovered that they could earn several times the standard state wages by cultivating gardens in the 1990s, an estimated fifty-thousand residents turned to urban cultivation for a livelihood (Cruz and Medina 2003). Other economic sectors quickly followed suit by allowing free-marketism to take root, including music and the arts. Today, Cuba's residents appear to have developed an appetite for the lifestyle often associated with a free-market economy: cell phones are now available to the general public, automobile sales are on the rise and credit cards are making inroads into Cuba. These commodities would not be affordable to most Cuban residents of Cuba if it were not for the ability of urban gardeners, artists, and others to sell their products for fair–market prices.

Yet, in spite of the apparent rise of free market capitalism, of which urban agriculture is on the forefront, there are signs that the Cuban is not quite ready to open up all of its economic sectors. According to a recent report published by the Brookings Institute, Raúl Castro recently announced that there will be some structural changes in Cuba's economy in the near future, but that the economy will continue to follow a socialist trajectory (Desai 2008). The question is; now that Cuban's have gotten a taste of capitalism, will it be possible for Raúl to stuff the genie back into the bottle?.

Discussion and Conclusion

Urban gardening in Havana arose out of residents' acute need to sustain themselves after the fall of the Soviet Union and the loss of the majority of the County's food imports. Literally thousands of vacant plots and parcels in Havana were converted to gardens in the early 1990s. If it were not for major agrarian reforms enacted by the Cuban government during this time of crisis, the urban agriculture sector would not have been as prolific a feature of Havana's landscape as it is today. In particular, the government's granting of usufruct land rights and their sanctioning of agricultural markets provided thousands of urban residents with access to land and an incentive to cultivate for personal gains. These reforms effectively shifted the focus of agricultural production in Havana from a system of communally-oriented state farms to cooperative and private gardens.

Various organizational structures emerged to capitalize on these and other agrarian reforms. *Parcelas* and patio gardens rapidly multiplied when the government began granting usufruct rights to small parcels of land. Consumer Credit and Service Cooperatives gained popularity as individuals and groups sought access to government-

facilitated capital and resources to ramp up their production. Neighborhood gardens sprouted in built-up areas to help stop-gap nutrient deficiencies at the local level. And nearly 300 UBPC cooperatives were initiated as producers realized that they could gain significant profits by pooling their resources and their labor. State farms and worker gardens even modified their rules to enable workers to grow food for household consumption and glean a share of the profits for any surplus sold.

Not only did the organizational structures for Havana's gardens change to reflect the decentralization of power from the state level down to the local level, but the forms of production also changed. Agriculture shifted from mechanized, high chemical input production to mainly labor-intensive, organic production. Rather than planting extensive, export-based crops such as sugarcane, producers turned to staple crops that supported their own household consumption habits or could be sold locally.

After the Special Period was over, however, the Cuban government began usurping lands on which UBPC cooperatives and worker gardens were located. Approximately half of these gardens have been converted to other uses in the past ten years. Colantonio suggest that this conversion is a result of a new demand for scarce urban land by newly emerging economic sectors, such as tourism and trade (2004). Cruz and Medina believe that these and other economic sectors have drawn members of cooperatives away from urban agriculture (2003). Either way, the fact remains that over half of the land in production by cooperatives and worker gardens was lost to other uses.

Meanwhile, the number of private gardens, namely *parcelas* and patio gardens, more than doubled during this time-period (MINAG 2006). Premat attributes this to a

new emphasis placed on the production of small parcels in and around peoples' homes, manifest in the government's 'Official Movement of Patios and Parcels'.

This shift in emphasis from cooperative agriculture to private production signals a major change in how land is used in Havana. In spite of the scope of the change, very little focus has been placed on how this shift will impact Havana's urban gardeners or what they perceive the future of urban agriculture to be. Therefore, the eleven subjects interviewed for this study were asked their perceptions of recent changes in the urban agriculture sector and how these changes could impact the future. All eleven expressed serious concerns about the future direction of urban agriculture in Havana.

Those that were members of UBPCs and worker farms were mainly concerned that the government would change the land tenure laws and eventually take their land away from them, as has happened to a number of gardeners from other cooperatives. In contrast, private producers interviewed who planted in small parcels in and around their homes were concerned that the government could change the laws that currently allowed them to sell their produce at local markets.

So, what does this mean for the future of Havana's urban gardeners? For one, gardeners seeking to earn an income from urban cultivation may need to find alternatives to UBPCs and other cooperative structures. One alternative will be for them to cultivate small land holdings around their homes. However, to do so effectively, they will need to learn all aspects of production, something that UBPC members do not currently have to do as a result of shared responsibilities. Second, they will have to learn to cultivate their own markets, either through direct marketing to urban residents or by selling produce to the state.

For individuals concerned primarily with food production, they may have to learn to get by with less technical assistance, particularly since the rate of growth of *parcelas* and patio gardens is outstripping the capacity of state agricultural extensionists (Fuster 11/14/06). Gardeners who maintain *parcelas* may be at particular risk, since the government does not guarantee them usufruct rights to their parcels in perpetuity.

With regard to production practices, there is no telling what the future holds. Although organic production has been a mainstay for Havana for nearly two decades, Cuba's new leader, Raúl Castro, announced in 2007 that the country would have to bolster its food production to further reduce its dependency on food imports. With world food prices at an all-time high, many speculate that this could mean a return to the use of chemical fertilizers and pesticides to boost food production (Grogg 2007).

Given the current food crisis, Cuba's urban agriculture sector will most likely continue adapting to the needs of urban residents and the policies of the country's leaders. Urban agriculture will no doubt remain a prominent feature of Havana's landscape, regardless of how it manifests itself. In the words of one Havana gardener, "I will continue to garden as long as I need food for the table."

CHAPTER VI

CROSS CASE ANALYSIS

Case Comparison Overview

One of the central objectives of this research is to determine if the particular

relationships between individual-societal characteristics and community gardening

practices and outcomes are applicable across locations and cultures. Based on the

research findings from case studies of Boston, Massachusetts and Havana, Cuba, it

appears that a range of individual and societal characteristics influence how community

garden spaces are produced, which is to say, how community gardens are physically

structured and utilized by individuals and neighborhoods. Such characteristics include

cultural norms, socioeconomic conditions, daily routines, personal values and political

and organizational support structures.

In Boston, for instance, individual and societal characteristics that exert particular

influence on community garden form and function are cultural norms, personal values

and political and organizational support structures. In Havana, however, catalyst for the

City's thousands of community gardens were the agricultural policy reforms of the

1990s. And the particular needs of producers – particularly food and income – drive the

physical form and function of Havana's community gardens.

So, at the very broadest scale of analysis, this research suggests that community

garden spaces in Boston and Havana are shaped by political forces, cultural norms and

the values and needs of individual gardeners. Yet, the particular way in which each of

these societal characteristics and forces interact with community garden spaces, and help to shape the form and function of community gardens, are unique to each city. Moreover, the manner in which these spaces exert influence back onto the urban social fabric also differs.

Therefore, given that the individual and societal characteristics and forces that lead to the production of community garden space in Boston and Havana have much in common, yet are distinct terms of how they interact, the following section compares and contrasts various forces of production in the two cities.

Comparing and Contrasting Forces of Production of Garden Space

The Role of the Government

In both Boston and Havana, urban land use policies have played a pivotal role in making garden space accessible to the public. In fact, laws were put into effect in both cities that gave gardeners usufruct rights to land for the purpose of cultivation. And both cities have historically supported agriculture over other land uses, such as development of business and transportation infrastructures.

In Boston, the first land use policies that supported urban community gardening were enacted during World Wars I and II, when the Boston Parks Department authorized portions of several of the City's public parks to be used for food production to support the war effort. Thousands of gardeners began cultivating Victory Gardens on public lands, albeit most of these gardens reverted back to their original uses after each respective war.

Perhaps the most significant event in terms of its influence on Boston's community garden landscape was the demolition of the Southwest Corridor by state and

federal transportation authorities in the 1960s. If the City had not opposed this plan, and thus helped to block construction of a highway spur in this corridor, the majority of the community gardens in Boston's Southwest Corridor would not exist, today. It is no coincidence that soon after the demolition of the Southwest Corridor, the 'Massachusetts Gardening and Farm Act of 1974' was passed, thus giving individuals the right to cultivate vacant, public land until a 'higher' use was determined by the municipality. This piece of legislation essentially opened the door for dozens of community gardens in Southwest Corridor, as well as other vacated parts of the City.

In spite of the impact of this legislation had on the burgeoning community garden sector, and the various other supports that the City has provided over the years, a number of community activists and organizational leaders in Boston argue that the resources provided by the City at present represent a mere fraction of what it costs to maintain the City's community gardens. In fact, Betsey Johnson, past president of the American Community Garden Association, claims that her own land trust owns more gardens in the South End than the Boston Parks Department (Dowty 2005). Thus, while the City is not necessarily and adversary of community gardens, many feel that it has not provided a whole lot in the way of resources and support to the City's 200 community gardens.

In Havana, the agricultural reforms of the 1990s were the catalyst that provided urban residents with legal access to land for cultivation. Prior to these reforms, food production by organized groups was virtually non-existent in Havana, save for production on state-run farms. After the fall of the Soviet Union, and the loss of a large portion of the country's food imports, the Cuban Government had no choice but to grant usufruct land

rights to land to thousands of Havana residents to alleviate acute food shortages. During the 1990s alone, hundreds of cooperative gardens were established in Havana.

In spite of the positive effect that the agricultural policy reforms had on Havana's urban agriculture sector, many believe that the Cuban government is currently turning its focus away from urban agriculture and towards industrial development. Cruz and Medina suggest that this has lead to the consolidation of many of Havana's larger cooperative gardens, half of which have disappeared over the past ten years (2003). Furthermore, the Cuban government is promoting cultivation of small parcels in and around peoples' homes in lieu of large parcels which could be put to other uses (Premat 2003).

Therefore, when comparing the two cities, one striking similarity from a policy perspective is the fact that both cities responded to food crisis by providing urban residents with access to land. Boston's food crisis, which resulted from food shortages during World Wars I and II, led to the conversion of thousands of acres of urban parkland to garden space. And Cuba's food crisis, which resulted from a loss of food imports after the collapse of the Soviet Union, spawned thousands of gardens to emerge in Havana in the 1990s.

Yet, it could also be argued that after the food crisis was over for each respective city, government attention was placed elsewhere and garden spaces quickly reverted (or converted) to other uses. The implication is that while land use policy has at times been supportive of urban cultivation in both Boston and Havana, the level of policy support appears to fluctuate over time and according to the particular needs of the time. In times of crisis, land use policies tend to supportive of urban cultivation. But in times of economic growth, policy-makers tend to place their focus elsewhere.

The Role of Cultural Heritage

Based on data from urban gardeners who were interviewed in Boston and Havana, urban gardens provide an important medium by which individuals and groups to connect with their cultural roots. The term culture, however, means different things to different individuals. For Boston gardeners, culture signifies their racial or ethnic background. For Havana gardeners, however, it pertains to their way of life when they were growing up.

In Boston, gardeners tend to associate cultural heritage with their ethnicity and the cultural traditions of their forefathers. Boston gardeners of Chinese, Hispanic, Italian and African American ethnic descent tend to plant the same crops that their parents and grandparents did and they incorporate many of the same techniques. Community gardens also play an important social function for Hispanics, Chinese and African American neighborhoods, in particular. In fact, community garden spaces in such neighborhoods are often the only available spaces where neighborhood residents can hold celebrations, informal gatherings, or simply socialize with neighbors. As a result, they often become the social epicenter of the neighborhood.

Yet, as certain inner-city neighborhoods are increasingly becoming popularized by young, white professionals, many of the lower-income, ethnic gardeners are getting rented out of their neighborhoods and their gardens. This has resulted in the loss of many cultural traditions in neighborhood gardens that are in transition, such as the loss of many gardens' *casitas,* which have historically served as important social gathering places for Hispanic neighborhoods. In the place of this and other traditions that are lost over time, new traditions emerge, such as the planting of flowers in lieu of vegetables and the assimilation of other cultural traditions in individual's gardening practices.

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In contrast to Boston, urban gardeners from Havana tend to associate their cultural heritage with the province where they grew up rather than their ethnic background. Of note, the majority of Havana's urban gardeners are from rural provinces or they have family members in rural provinces. Those that grew up in the City tend not to participate in urban cultivation because they do not have the necessary agricultural knowledge.

As one Cuban official noted, urban agriculture has effectively created a reversal of class structure. Individuals who grew up in Havana, and whose families were the economic elite before Fidel Castro took power, now refuse to cultivate urban gardens because of the cultural stigma associated with farming. And those that *do* cultivate gardens in Havana tend to have strong ties to rural, agricultural provinces. Furthermore, their parents and grandparents, many of black descent, were typically the field hands for the country's elite prior to the 1950s.

The irony is that the descendents of the former elite who refuse to cultivate in Havana are now forced to rely on the state's system of food rations and government wages. The descendents of Cuba's indentured field hands, on the other hand, can earn up to four times state wages by producing food in the City (Fuster 01/14/06). So, unlike Boston where many low-income, ethnic gardeners have been displaced from their gardens, opportunities to cultivate urban lands in Havana are more often capitalized upon by historically poor, black residents with rural roots. But this may soon change as land becomes more and more of a premium in Havana and the government turns to industry and tourism to fuel the economy (Colantonio 2004).

In terms of how cultural heritage influences how gardens are shaped in Havana, gardeners with private parcels or patio gardens tend to plant crops that they are familiar with and the same way that their parents and grandparents planted them. As one gardener with a patio garden in Havana noted, "[m]y garden here looks just like the one that my family has in the [rural] Oriente."

So, in Havana, it would appear that the agricultural traditions of gardeners of rural descent are reproduced in their urban plots. Those individuals that do not have rural roots simply decline to participate in urban gardens because of the cultural stigma that farming carries with it. In Boston, however, community gardening is *not* generally perceived by white, upper-class professionals to be a lower-class activity. As a result, many individuals who do not identify with rural, agricultural traditions or particular cultural practices participate in community gardens.

Personal Values and Needs

The distinction between one's personal values and their needs is often a fine line. Personal values generally refer to principles or beliefs that guide one's actions, whereas needs refer to something that one requires out of necessity, such as food for survival. However, because values may also function as needs for some, this section addresses them together. Both are intrinsic forces which motivate individuals to garden.

Overall, community interview subjects in Boston associated their primary motivation to garden with strongly held personal values, such as their sense of cultural identity, their desire for healthy, fresh food, personal well being and their sense of community. Although these values were the primary impetus for individuals to cultivate

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urban plots in Boston, a number of interviewees and survey respondents pointed out that they satisfied a variety of personally-held values and needs through participation in their community garden and that their values were so closely intertwined that they had a hard time separating them out.

For some Hispanic and African American gardeners interviewed, their desire to preserve their cultural identity and grow their own food were so interrelated that they often interchanged the two values in their responses to interview questions. For others, gardening provided a way to give back to the community while at the same time it satisfied their need for social interaction. Lastly, for white, upper-income gardeners, gardening often provided a sense of personal well-being while at the same time isolating them from the stresses of daily life.

In Havana, the driving forces that motivated gardeners to cultivate urban plots were much more cut and dried. In fact, all of the gardeners in the study sample identified food and/or income to sustain their families as their primary motivation to garden. The food crisis of the 1990s made it necessary for urban residents find alternative sources of food; urban agriculture just happened to be the source that many turned to. In fact, if it were not for the rise of urban agriculture in Cuba's major cities, the country's residents would not have been able to sustain their daily caloric needs.

That is not to say that other values are not important to Havana's urban gardeners. While basic needs perhaps drove individuals to cultivate gardens Havana, the way in which they cultivate is largely driven by their personal values. As previously noted, a number of gardeners from Havana noted that agriculture is in their blood and that they gardened according to the traditions of their ancestors. The private producers indicated

that they maintained their own gardens, as opposed to joining a cooperative, because they valued the independence and freedom of managing their own garden. Members of cooperatives, on the other hand, noted that income was more important to them than food and that cooperatives provided greater income potential and less responsibility. The gardener who worked on a state-run farm suggested that he did so because he believed strongly in the role of the state in meeting the dietary needs of Cuba's residents. Finally, the neighborhood gardeners indicated that while food production was perhaps their main motivation, they distributed the garden produce to neighborhood residents and sold the surplus to local work centers.

Therefore, on the surface it would appear that Boston's community garden spaces reflect individuals' personal values, while Havana's garden spaces reflect individuals' need to sustain themselves and their families. Yet, the conclusion for both cities is that peoples' needs and their values are often so intertwined that they all exert influence on the form and function of urban community gardens. Moreover, the garden spaces themselves react back onto society, thus modifying the very societal forces that created them. In Boston, community garden spaces have come to serve as a social center for many neighborhoods. And Havana, urban agriculture is largely credited with sustaining the country through a period of food crisis.

Conclusion

To echo the words of Henri Lefebvre, community gardens represent a spatial contingency in social life whereby community garden spaces and urban society interact to shape each other (1991[1974]). On the one hand, societal structures, processes and

relations influence the very way in which community garden spaces are materialized by individuals and neighborhoods. Conjointly, however, community gardens serve to modify the very societal relations and characteristics of the urban society that surround them. This is what Soja refers to as the socio-spatial dialectic (1980).

As the cases of Boston and Havana both illustrate, no single individual or societal characteristic drives the form and function of community. Rather, community garden spaces are produced by the convergence of multiple societal characteristics, phenomena and forces, including cultural identity, social norms, personal values, individual behaviors and basic survival needs.

So, in response to the question as to whether the interrelationships between individual-societal characteristic and community gardening practices and outcomes are applicable across locations and cultures, the answer is both yes and no. At the broadest level of analysis, the roles of politics, culture, personal values and needs are all forces that help to shape community garden spaces, as was demonstrated through case studies of both cities. However, the particular way in which each of these societal factors interacts with community garden spaces is distinct to each city, and often times, to each individual garden. Havana's and Boston's gardens evolved under very different social, political and economic systems. Thus, the materialization of community garden spaces by individuals and groups reflects the needs and values that are inherent to each of these systems.

One might ask what the purpose of conducting an in-depth analysis of the interaction between community garden space and society if each city is subject to unique space-producing forces. Quite simply, the purpose is to gain deeper understanding of how space and society interact in particular settings. In contrast to reductionist theory,

which seeks to build models that can be replicated, this research recognizes that all spatial phenomena are the products of the society from which they emerged, for space is a human construct. Thus, if urban planners, architects and community-builders are to foster healthy communities, they must recognize the particular forces that are at play in their city or their neighborhood. Otherwise, even the best of plans are reduced to a series of lines, points and polygons that are mere abstractions of space. Such plans ultimately fail to capture the nuances and needs of society.

CHAPTER VII

DISCUSSION AND CONCLUSION

The Research Questions

This research examines four primary questions: (1) What interrelationships are there between individual and societal characteristics and the way in which individuals and communities physically structure and utilize urban community garden spaces; (2) What outcomes or impacts do particular community gardening practices have on individual gardeners and the surrounding community/neighborhood; (3) How do forces of socioeconomic change impact individual community gardeners, their respective garden organizations and the surrounding community?; and (4) To what extent are the interrelationships between individual/societal characteristics, garden practices and outcomes applicable across locations, cultures and socio-political systems? Given these questions, the ultimate goal of this research is to discern what interventions, policies or actions might help ensure that diverse individuals in cities around the world have access to urban community garden space.

Application of the Theoretical Framework

In order to answer the questions outlined above, this research draws from Henri Lefebvre's notion of 'production of space', a theoretical construct that examines how the physical materialization of space is influenced by a range of societal factors, including cultural norms, class, values, behaviors, race, politics and daily routines. According to

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Lefebvre's construct, space also exerts influence back onto society, thereby helping to shape social relations. Therefore, there is a dialectic relationship between space and society.

This research merely distills Lefebvre's 'production of space' construct into a simplified analytic framework for examining socio-spatial relations in urban community gardens. Specifically, Lefebvre's triad of abstract, imagined, and lived space are reworked into three elements in the new analytic framework; individual and societal characteristics, individual and neighborhood spatial practices, and individual and neighborhood/societal outcomes in the context of Boston and Havana's community gardens (see Methods Chapter for a detailed description of how the framework was established). Furthermore, these elements are examined based on gardeners' perceptions of change over time.

While previous research has borrowed from particular aspects Lefebfre's body of theory, no studies to my knowledge have incorporated a holistic framework for structuring and organizing data pertaining to how space and society interact and function to shape each other. As Richard Gottdiener suggests in his book on the social production of urban space, Lefebvre's framework is purely theoretical in nature; it doesn't go so far as to describe how one can examine socio-spatial relations (1994).

In fact, previous research on how space is produced and consumed by society view space merely as a product of society and not a shaper of society. The point is that the social processes that lead to how space is physically materialized cannot be separated from the effects of space itself reverberating back onto society. Community gardens are not merely defined *by* neighborhoods; they also serve to give identity *to* neighborhoods.

And the impacts or outcomes of community gardens transcend beyond just those that garden in them. Entire neighborhoods can be impacted by community gardens, and in some cases, their demise.

In terms of the applicability of the framework to both cases, Boston and Havana, the same analytic structure was replicated for the analysis of interview and field data. The analysis was initiated by categorizing the data into the three general categories. Additional sub-categories were added to the framework for each case study as new themes emerged from the data.

The framework provided a useful tool for organizing and structuring the field data collected in each of the case study cities. In both cities, interconnections between individual and societal characteristics, practices and outcomes were established based on the analysis of empirical data collected in the field, essentially confirming that space is both a product of society, as well as a producer of social relations.

The biggest challenge of incorporating the model, however, was categorizing the various observed phenomenon into one of the three legs of the model. For example, land use policies that contributed to the creation of community gardens in Havana and Boston could be thought of as both characteristics of society – in that they are based on existing structures – as well as practices that are materialized on paper in the form of plans and plot maps. In spite of the difficulty in classifying certain observed phenomenon, this apparent fuzziness between the three elements of the triad suggests that they *are* all interconnected, which is the main point of this research.

Overall, the analytic framework proved to be a helpful tool for building a deeper understanding of the unique nature of socio-spatial interactions in each respective city.

Summary of Research Findings

Case studies of Boston, Massachusetts and Havana, Cuba suggest that community

garden spaces are indeed the products of societal relations, characteristics and processes.

In Boston, cultural traditions, personal values and institutional and organizational support

structures play vital roles in helping to shape community garden spaces. In Havana, urban

agricultural policies and individuals' basic need for food and income for food and

survival appear to drive the form and function of urban gardens.

The case studies of Boston and Havana also illustrate how society itself is

impacted by outcomes that are derived from community garden spaces. In Boston, for

instance, community gardens helped to alleviate national food shortages during both

World Wars and they served as a symbol of civic resistance against the government in the

1970s. In Havana, urban gardens helped the country to weather the food crisis of the

1990s. As a result, the urban agriculture sector grew to become the country's largest

economic growth sector during that time-period (Koont 2004).

In spite of these and other benefits that community gardens have provided to

individuals and groups in Boston and Havana, this research highlights various processes

of social, economic, political and demographic change that are impacting individuals'

ability to access community garden spaces.

In Boston, certain neighborhoods that are experiencing escalating rents are

experiencing a decline in ethnic minority populations. The consequence is that

community gardens in many of these neighborhoods are becoming less diverse in their

participation and important cultural traditions are being lost, such as the use of the *casita*

as a social gathering place for Hispanic neighborhoods. In fact, many gardeners

interviewed in Boston feel that demographic change is creating a class of winner and a class of losers in some neighborhoods. The winners are the new wave residents that gain access to garden space in neighborhoods undergoing demographic transition, namely young, white professionals. And the losers are often low-income, ethnic minorities that get displaced from their neighborhoods and their garden as rents in these neighborhoods get driven up. In other neighborhoods, however, gardens are actually becoming more diverse. Thus, the forces of change are always uniform across Boston's urban landscape.

As is the case with Boston, forces of political and economic change appear to be threatening gardeners' access to community gardening spaces in Havana, as well. Now that the food crisis of the 1990s is over, and daily caloric intakes have returned to pre-crisis levels, the Cuban government appears to be turning its attention away from agriculture and towards new economic sectors to satisfy residents' basic needs. Meanwhile, the number of larger, cooperative gardens has declined over the past ten years, as the lands on which they are situated are slowly being converted to other economic uses, such as tourism and industry (Cruz and Medina 2003).

To offset the loss of cooperative gardens, the government recently began promoting cultivation of parcels and patios around peoples' homes; parcels that are generally unsuitable for development (Premat 2004). In spite of their efforts to promote urban cultivation in small parcels and patios, the shift from cultivation of large, cooperatively-managed gardens to small, private gardens has raised concerns amongst some of Havana's urban gardeners. Not only do cooperative gardeners fear losing their garden spaces to other uses, but many wonder how the government will possibly be able

to support the thousands of individual gardens that are likely to emerge in Havana as the government promotes production in and around people's homes.

Therefore, given the unique forces of socioeconomic, political and cultural change that are at play Boston and Havana, and the impact that these forces have on community gardens, the challenge will be to ensure that diverse urban residents from both cities maintain access to community garden space in the future. The hope is that through a greater understanding of how societal characteristics and forces help to shape community gardens in specific contexts, and the outcomes that these gardens have for individuals and society, this research will provide insight to potential policies and interventions could be implemented to ensure that diverse individuals have access to community garden space in both the developing and industrialized worlds.

Possible policies and interventions that might help to ensure access to garden space by diverse gardeners in Boston include consolidation of resources amongst nearly 40 of the City's garden supporting agencies and organizations, creation of outreach programs to help garden-poor neighborhoods initiate new community gardens, modification of restrictive zoning policies that currently make it difficult to initiate gardens on certain parcels of land and implementation of new communication strategies to engage diverse individuals and groups in existing community gardens.

In Havana, there are also a number of policies and strategies that could help promote urban gardening by organized groups. Foremost, the government could provide larger, cooperative gardens with longer-term leases to assuage fears that the gardens could be converted to other uses at the whim of state officials. As well, the government could help small parcel and patio gardeners form associations that function much like

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Credit and Service Cooperatives (CCSs). Such associations would not only help small producers to leverage credit, tools, resources and assistance, but they would promote networks of mutual aid amongst the city's thirty-thousand private gardeners. Perhaps most important, the government could promote its large, organic gardens as tourist attractions, given that many are considered to be international models of local production in the wake of recent food shortages and escalating fossil fuel prices.

Albeit the goal of this research was to gain a better understanding of the interactions that take place between community garden space and society in the face of change – and thereby identify potential policies and actions that might help to ensure that diverse individuals maintain access to community garden space in Boston and Havana – one unintended outcome was the insight that was gained as to how society-at-large produces and consumes space.

Broader Societal Implications of Research

In some respects, community gardens can be thought of as microcosms of the city, since many of the same societal processes and social relations that are carried out at the city-scale are produced, or replicated, in the spaces of community gardens. Conversely, certain socio-spatial interactions that take place in the confines of community gardens are reflected in the spatial practices of society-at-large. Thus, a deeper understanding of the social production of community garden spaces could provide valuable insight about particular societal characteristics and forces that contribute to current-day land use patterns.

Take for instance the often-maligned phenomenon of suburbanization around American cities that has occurred over the past fifty years. Scholarly literature on suburbanization often emphasizes the role that population growth, rising incomes and advancements in the automobile had in contributing to the out-migration of middle-class residents from the urban core to the ever-expanding periphery of the city (Bruekner 2000).

While these factors certainly helped to set the stage for suburbanization, and may have contributed to urban sprawl, narrow focus on these three factors largely ignores the role that personal values, individual behaviors, societal norms, culture, basic needs and public policies played in influencing individuals' decision to move outward from the urban core. Thus, if the research on the social production of community garden spaces teaches us anything, it is that space is the product of multiple societal phenomena. So, suburbanization and sprawl are not merely outcomes of rising incomes. And they did not arise simply as a result of the generation of new spending power by a new class of wealthy urban residents. And they are not the absolute products of urban plans and policies that are put into action by engineers, architects and builders. Rather, suburbanization and sprawl are a result of a combination of these factors, and more.

At a broader scale, the very way in which cities worldwide grow, and the way in which urban society physically manifests itself on the landscape, is a result of the convergence of societal phenomenon. In American cities, peoples' desire for larger homes and larger lots are contributing factors to modern-day land-use patterns. Past policies such as urban renewal and redlining that marginalized certain groups contributed to land use patterns. And cultural traditions of certain individuals and groups, such as the

use of community garden space for social functions, also help to shape the way in which land is used. In developing-world cities, pervasive poverty, poor infrastructure and the feeling of desperation by many urban residents all contribute to land use patterns.

But, just as these and other societal characteristics and processes help to shape urban spaces, the ever-changing forces of society will continually shape and reshape space. In American cities, the suburbs of decades past may become the slums of the future if fuel prices continue to rise. Likewise, traditional spatial practices that disappeared in some neighborhoods may someday become rekindled by others. And, in the developing-world, emergence of new markets may lead to the creation of new cities in the matter of months.

The fact is that socio-spatial relations are not static moments in time, which makes them even more complex to comprehend. Yet, if we do not try to comprehend them, society will continue to perpetuate the failures of the past, such as urban sprawl, environmental degradation, urban slums, racial segregation and neighborhood decay.

By exploring the role that culture, individual behaviors, personal values, policies, basic needs and other factors play in the production of community garden spaces, planners and policy-makers in cities around the world just might new gain insight as to how they can cultivate cities and neighborhoods that meet the needs of diverse residents.

Lest we gain a deeper understanding of the societal forces that shape space and the spatial forces that help to shape society, the Master Plans, plot maps and land use policies of planners, architects and policy-makers will continue to serve as mere abstractions of space that fail to capture the ever-changing dynamics of space and society. This research on the production of community garden spaces in Boston and Havana

simply provides a starting point for generating new knowledge on how humans produce and consume the spaces around them. It provides insights as to the drivers behind current urban land use patterns and how these drivers vary from city to city and neighborhood to neighborhood. Important new questions arise from this research, including what happens to gardeners that lose access to their community garden plots, what impact does demographic change have on the physical urban landscape as a whole, and what have other cities done to ensure access to community garden space? Until these and other questions can be answered, community gardens will continue to be contested spaces.

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APPENDICES

APPENDIX A

DIRECT OBSERVATION AND FIELD MAPPING PROTOCOL

Project Title: Human-Societal Influences on Community Gardening Practices and Outcomes

Project Goal: Determine how human-societal characteristics influence community gardening practices and outcomes.

Field Method: Direct observation, photo documentation and field mapping.

- Direct observation shall include up to 30 minutes of observation of social interactions taking place within the confines of the garden. Also observed are the physical context of the garden and the setting.
- Photo documentation shall involve photographing both the physical and social contexts of the garden: plant types, techniques incorporated, garden design, physical surroundings, human interactions in garden space, etc.
- Field mapping shall involve drawing a rough field map of the garden to record the dimensions of the garden, plant diversity, plot differentiation, physical structures within the garden, etc.

**Goal/Purpose of Observation:** Observe and record the physical structure, neighborhood context, and production type of community garden (i.e. vegetable vs. ornamental), as well as examine social interaction that takes place between garden organization members as well as non-members.

Time of Observation:

Date of Observation:

Notable Physical Descriptors:

Diagram/Map of the Setting:

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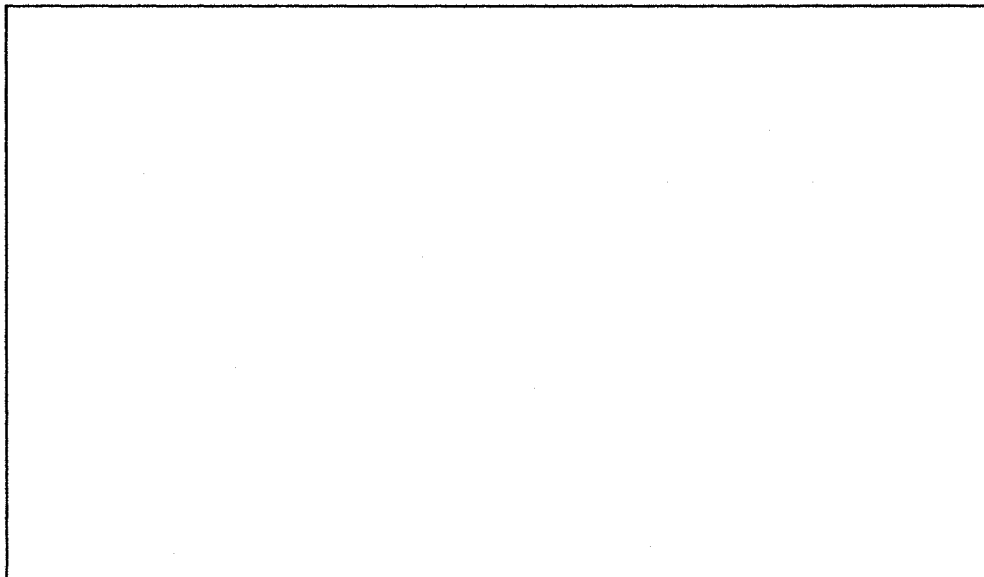
INTERVIEW PROTOCOL (ENGLISH)

Project Title: Human-Societal Influences on Community Gardening Practices and Outcomes

Project Goal: Determine how human-societal characteristics influence community gardening practices and outcomes.

Field Method: Focused Interview

Purpose of Interview:

- Gather background on the community gardens and community garden organizations in Boston
  - identify impetus for the formation of individual gardens and garden organizations
  - identify process, events, or actions that lead to the initiation of community gardens
  - trace the historical evolution of individual community gardens to the present
- Gather background information on individual garden organization leaders.
- Examine how the leadership capacity of individual garden organizational leaders has impacted the sustainability of the community garden.
- Gather background information on the garden organization.
- Determine how internal attributes of community garden organizations have impacted the sustainability of community gardens.
- Determine what external institutional and policy structures have contributed to the development and sustainability of community gardens and the garden organizations.
- Gather garden leaders' perceptions of future challenges and desired support structures to help sustain their community gardens.

Target Audience: Interviews will be conducted of 30 community garden participants in Boston, 5-7 in Havana, and 5-7 in a small to mid-sized city in the Northeast.

Garden Name:

Date:

Interviewee:

A. Background on Garden (history, size, number of plots, plant types, etc):

1. When was the community garden initiated? (what year or approximate time period?)

2. How did this garden get started? (i.e. what event or action that lead to its initiation?)

3. Who were the movers and shakers that helped to keep the garden going over the years? (e.g. individuals, grass roots organizers, external organizations/agencies, etc.)

4. How many plots are there in the garden?

5. How does one obtain a plot in the community garden? Is there a waiting list?

6. Are there yearly fees individuals pay to obtain/maintain a plot? What do these fees used for? (i.e. land rent, water hookup, materials, etc.)

7. Have the fees increased in past 5-10 years? Do you think that this fee is fair?
8. What types of plants are typically planted in this garden? (e.g. flowers, vegetables, etc.)

9. Has soil contamination, or other factors, limited what is grown in the garden? If yes, how?

10. Do you use any specific gardening techniques for:
a. Preparing the soil/fertilizing the garden?
b. Controlling pests?

11. Who owns the land that the garden is planted on (i.e. privately owned, city, org., etc.)?

B. Garden Subject's Interaction with Garden Space:

12. How long have you participated in this community garden?
    o How far do you live from the garden?

13. Have you been involved with other community gardens?
    o Does anyone else in your family garden?

14. Why did you become involved in this particular community garden?

15. Where did you get your gardening experience?

16. What are the main reasons why you to participate in the community garden?
    (i.e. source of healthy food, supplemental income, personal enjoyment, to connect with neighbors or the community, neighborhood beautification, sense of connectedness with the land, personal health/well-being, learning experience, to be part of a group or club, etc.)

17. What is the greatest benefits that you receive as a result of participating in the community garden?

18. How would you describe your cultural heritage/background?

19. In what ways, if any, has your cultural heritage influenced your involvement in the community garden?
    - The types of plants that you grow?
    - The gardening techniques that you use?

20. Do people of diverse cultural backgrounds participate in the garden? If so, do you think that cultural heritage influences what individuals grow, the techniques they use, etc.?

21. How would you describe your family's/household's economic situation?

22. Has your economic situation influenced what you grow or the gardening techniques that you use? If so, please explain.

    o What about the economic situation of your fellow gardeners?

C. Organizational Aspects of Garden Space:

23. Is your garden maintained by a neighborhood association or organization?

24. If so, describe your community garden association/organization? (i.e. how is structured?)

25. How are decisions made with regard to garden rules, distribution of plots, etc.?

26. What do you think draws other people to become involved in the community garden organization?

27. Does your community garden put on any annual celebrations or events?

28. Does the garden experience theft or vandalism? What about other gardens in the area?

29. Do you consider your gardening organization to be successful? Why or why not?

30. Has there been a turnover in participation in the garden organization (by both organization leaders and participants)?

31. Describe what you think that the garden organization will look like in five years with regard to participation by individual gardeners.

D. Organizational/Institutional Support Structures:

32. What resources, technical assistance, or training opportunities, if any, has the organization utilized? Who provided them? Who provided the resources, assistance, or training?

33. In what ways, if any, do people help each other out in the garden?

34. What additional resources, technical assistance, or trainings do you think would increase your garden association/organization's ability to sustain the garden?

35. Where do you think that financial, material, and technical resources will come from in order to sustain the garden in the next few years?

36. What is the biggest challenge facing this garden?

37. What outside forces, if any, are impacting or could impact the well-being of your community garden? (i.e. growth and development, highway construction, change in policies, etc.)

38. What is your garden organization doing (or could it do) to address these outside forces?

39. Has your community garden organization/association helped you by answering questions, finding resources, providing assistance, or other ways? If so, please explain.

APPENDIX B-2

PROTOCOLO DE ENTREVISTAS

Título: Influencias Humanas y Sociales: Huertas Comunitarias de Boston y Havana.

Objetivo del Proyecto: Investigar como las caracteristicas socio-culturales se puede influir la practica de huertas comunitarias.

Metodología de Campo: Enfocado en las entrevistas.

Propósito de la entrevista:
- Colectar información de fondo acerca de las huertas comunitarias y las organizaciones de huertas comunitarias en Boston y en la Habana
    - Identificar cual es el empuje para la formación de huertas individuales y organizaciones de huertas.
    - Identificar los procesos, eventos o acciones que llevan a la iniciación de huertas comunitarias.
    - Examinar evolución histórica de huertas comunitarias hasta el presente.
- Colectar información de fondo acerca de los líderes de cada organización de huertas.
- Examinar como la capacidad de liderazgo de los líderes de cada organización de huertas ha impactado en la sostenibilidad de las huertas comunitarias.
- Determinar como los atributos internos de las organizaciones de huertas comunitarias han impactado la sostenibilidad de las huertas comunitarias.
- Determinar cuales estructuras externas institucionales y burocráticas han contribuido al desarrollo y sostenibilidad de las huertas comunitarias y las organizaciones de huertas.
- Colectar información acerca de las percepciones de los líderes de las huertas sobre los retos futuros y las estructuras de apoyo deseadas para sostener las huertas.

Público de interés: Las entrevistas serán entregadas a 21 líderes de huertas comunitarias en Boston y la Habana.

Tiempo de la entrevista: _____

Fecha: _____

Lugar: _____

Entrevistador: _____

Entrevistado: _____

Locación/contexto físico: _____

Estatus de anonimidad del entrevistado:_____

Documento o transcripción de la entrevista solicitada por el entrevistado (SI/NO):

Instrucciones específicas del entrevistado: _____

A. Información acerca de la comunidad de huertas:
1. ¿En qué año inicio la huerta comunitaria?

2. ¿Cuál fue el evento, acción o la condición que llevó a la iniciación de la huerta comunitaria?

3. ¿Cuál persona, organización o entidad fue el principal responsable para iniciar la huerta?

4. ¿Cuál es el tamaño aproximado de la huerta en unidades cuadradas?

5. ¿Cuantas parcelitas hay en la huerta?

6. ¿Qué se cultiva en la huerta? (flores, vegetales, etc.)

7. ¿Cómo están divididas las parcelas en las huertas?

8. ¿Cómo se obtiene una parcela en la huerta?

9. ¿Hay gastos anuales que los participantes tiene que pagar para obener una parcela (e.g. agua, etc.)?

10. ¿Se usa algunos tecnicos para:
    a. Preparar la tierra?
    b. Sembrar?
    c. Fertilizar la huerta?
    d. Controlar plagas?
    e. Coshechar?
    f. Otra?

11. ¿Quién es el dueño del terreno donde queda la huerta?

B. Información acerca de los participantes de las huertas:
12. Porque se involucro en esa huerta comunitaria?

13. ¿Hace cuanto tiempo que usted ha participado en esta huerta comunitaria?

14. ¿Cómo adquirió su experiencia horticultura?

15. ¿Cuales son los beneficios que recibe ud. al resulto de su participación en la huerta?

16. ¿Como se describe su herencia cultural?

17. ¿Piensa que eso afecta lo que ud. siembra y como se siembra en la huerta?

18. ¿Como se describe su situación economica?

19. ¿Piensa que eso afecta lo que ud. siembra y como se siembra en la huerta?

20. ¿Cuales de los siguientes razones ud. Considera la razon mas importante para participar en la huerta comunitaria? (por ejemplo)
    o Para sostenerse con alimentos
    o Para ganar dinero
    o Para disfrutar
    o Para conectar con sus vecinos
    o Para su salud o bien estar
    o Para aprender
    o Parte de un grupo o club
    o Otra

C. Información acerca de la organización e huertas:
21. ¿Es su huerta mantanida por una organización o asociación local? (si contesta positive, continua con las preguntas 28-39)

22. Describa su organización de huertas comunitarias en términos de su propósito principal y como funciona.

23. ¿Cuales son los factores que han llevado a los residentes de la comunidad a involucrarse en la organización?

24. Describa los pasos obligatorios que una persona necesita para hacerse participante de su organización de huerta.

25. Describa como la organización de la huerta toma las decisiónes con respecto a las reglas de la huerta (e.g. uso del espacio en la huerta, etc.)

26. ¿Piensa usted que su organización de huerta es exitosa? ¿Porqué si o porqué no?

27. ¿Han habido cambios de participación en la organización de huerta?

28. ¿Han habido cambios de los lideres en la organización de huerta?

29. ¿Cuáles son las caracteristicas de su organización que más han contribuido al sostenimiento de la huerta?

30. ¿Cuáles son los recursos u oportunidades de entrenamiento que hubieran aumentado la habilidad de la organización para sostener una huerta eficáz?

31. ¿Cuáles acciones individual o por grupos han tenido gran impacto en la huerta comunitaria desde que usted ha participado en al organización?

32. ¿Que peinsa será la salud de su huerta dentro de 5 años con respecto a la participación de los cultivadores?

D. Estructuras institucionales y Organizacionales:
33. ¿Cuáles recursos externos, asistencia técnica u oportunidades de entrenamiento ha obtenido los participantes en su huerta para mantenerla?

34. ¿Cuáles instituciones u organizaciones han ayudado a su organización de huerta? Cómo le han ayudado?

35. En la escala de 1-6, en la cual 1 no tiene ninguna importancia y 6 es la más importante, ¿que tan importante cree usted que ha sido el apoyo de las organizaciones en el sostenimiento de la huerta?

36. En la escala de 1-6, en la cual 1 no tiene ninguna importancia y 6 es la más importante, ¿que tan importante cree usted que ha sido el apoyo de las organizaciones en el sostenimiento de la huerta?

37. ¿Cuáles recursos adicionales, asistencia técnica u oportunidades de entrenamiento, si hay, puedan ayudarles con el sostenimiento de la huerta comunitaria en el futuro?

38. ¿Cuáles amenazas externas cree usted que podrían impactar su huerta comunitaria? (e.g. desarrollo urbano, costrucción de carreteras, cambios en las políticas, etc)

39. ¿Como se puedan tratar esas amenazas externas?

APPENDIX C

CONSENT FORM FOR PARTICIPATION IN A RESEARCH STUDY

THE ROLE OF COMMUNITY GARDEN ORGANIZATIONS IN SUSTAINING URBAN GARDEN SPACES: A CASE STUDY OF BOSTON, MASSACHUSETTS

UNIVERSITY of NEW HAMPSHIRE

WHAT IS THE PURPOSE OF THIS STUDY?
The purpose of the study is to determine what organizational characteristics are vital to a community gardening organization's ability to sustain garden plot as well as neighborhood/ community participation. The outcome will be a Doctoral dissertation as well as published articles on the characteristics that lead to organizational 'success' in the community gardening sector.

WHAT DOES YOUR PARTICIPATION IN THIS STUDY INVOLVE?
Through this interview, we are asking for your input regarding your experience participating in a community garden. Through your input, we hope to get a better understanding of the organizational characteristics that enable community gardening organizations to maintain their garden(s) over the long term. We will be asking you approximately 30 questions, which will take approximately 30-40 minutes. Please understand that you do not have to answer any or all of the questions if you so choose.

RISKS:
There are no physical risks associated with your participation in this study and your name will not be used in association with any of the data and you will not be identified in any way in any document that will be released or published.

WHAT ARE THE POSSIBLE BENEFITS OF PARTICIPATING IN THIS STUDY?
This study is intended to enhance the knowledge base around community gardening organizations and identify ways to strengthen organizations through institutional supports and the non-profit sector.

IF YOU CHOOSE TO PARTICIPATE IN THIS STUDY, WILL IT COST YOU ANYTHING?
We assure you that there will be no cost for you to participate in this study.

WILL YOU RECEIVE ANY COMPENSATION FOR PARTICIPATING IN THIS STUDY?
No compensation will be provided to participants; participation in the study is voluntary.

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WHAT OPTIONS ARE AVAILABLE IF YOU DO NOT WANT TO TAKE PART IN THIS STUDY?
You understand that your consent to participate in this research is entirely voluntary, and that your refusal to participate will involve no prejudice, penalty or loss of benefits to which you would otherwise be entitled.

CAN YOU WITHDRAW FROM THIS STUDY?
If you consent to participate in this study, you are free to stop your participation in the study at any time without prejudice, penalty, or loss of benefits to which you would otherwise be entitled

HOW WILL THE CONFIDENTIALITY OF YOUR RECORDS BE PROTECTED?
The researcher seeks to maintain the confidentiality of all data and records associated with your participation in this research. You should understand, however, there are rare instances when the researcher is required to share personally-identifiable information (e.g., according to policy, contract, regulation). For example, in response to a complaint about the research, officials at the University of New Hampshire, designees of the sponsor(s), and/or regulatory and oversight government agencies may access research data.

For our part, we will secure all documents, transcripts, and tape recordings. Subsequent to the transcription of the interview tapes, they will be destroyed and the files will remain protected. The purpose for recording the interview is to ensure that we capture the information that you share accurately. The information that you provide will be analyzed along with the other interviews and the results of the study will be aggregated so that no individuals or communities can be identified in published documents.

WHOM TO CONTACT IF YOU HAVE QUESTIONS ABOUT THIS STUDY
If you have any questions pertaining to the research you can contact the following individual to discuss them:

> Charlie French
> Extension Specialist
> 603-862-0316
> charlie.french@unh.edu

If you have questions about your rights as a research subject you can contact Julie Simpson in the UNH Office of Sponsored Research, 603-862-2003 or Julie.simpson@unh.edu to discuss them.

I,_____ CONSENT/AGREE to participate in this research study

_____   _____
Signature of Subject   Date

APPENDIX D

IRB APPROVAL

UNIVERSITY *of* NEW HAMPSHIRE

December 7, 2005

Charles French
UNH Cooperative Extension
James Hall
Durham, NH 03824

IRB #: 3568
Study: The Role of Community Gardening Organizations in Sustaining Urban Garden Spaces: A Case Study of Boston, Massachusetts
Approval Date: 12/07/2005
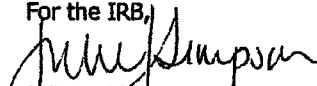
The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved the protocol for your study as Expedited as described in Title 45, Code of Federal Regulations (CFR), Part 46, Subsection 110.

Approval is granted to conduct your study as described in your protocol for one year from the approval date above. At the end of the approval date you will be asked to submit a report with regard to the involvement of human subjects in this study. If your study is still active, you may request an extension of IRB approval.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the attached document, *Responsibilities of Directors of Research Studies Involving Human Subjects.* (This document is also available at http://www.unh.edu/osr/compliance/irb.html.) Please read this document carefully before commencing your work involving human subjects.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or Julie.simpson@unh.edu. Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,

Julie F. Simpson
Manager

cc: File
        Bruce Lindsay

APPENDIX E

BOSTON GARDEN SURVEY

1. Do you have a plot space in a community garden in the Boston area? (please check one response only)

   ☐ yes   ☐ no

   1.a If you answered yes to the question above, what is the name of the garden?_____

   1.b If you answered no to the question above, please skip to question 18.

2. How long have you had a community garden plot space in Boston? (please check one response only)

   ☐ less than 2 years   ☐ between 5 and 10 years
   ☐ between 2 and 5 years   ☐ more than 10 years

3. How much time do you spend in the community garden each week? (please check one response only)

   ☐ less than 2 hours   ☐ between 5 - 10 hours
   ☐ between 2 - 5 hours   ☐ more than 10 hours

4. What was the biggest motivation for you to participate in the community garden? (check one response only)

   ☐ produce your own food   ☐ greening of urban space
   ☐ enjoyment/relaxation   ☐ being part of a group or club
   ☐ personal health and well-being   ☐ teach others about gardening
   ☐ socialize with neighbors   ☐ learn new skills
   ☐ earn an income by selling produce   ☐ other_____

5. How much money do you invest in the community garden each year for dues, seeds, tools, materials, travel, and other expenses? (please check one response only)

   ☐ less than $50   ☐ between $100 and $250
   ☐ between $50 and $100   ☐ more than $250

6. Which of the following plant types do you grow in your garden plot space? (check all that apply)

   ___ vegetables   ___ herbs   ___ flowers and/or ornamentals
   ___ fruits   ___ medicinals   ___ other _____

7. Which of the following gardening techniques do you use? (check all that apply)

   ___ composting   ___ raised beds   ___ container gardening
   ___ natural pest control ___ trellises or plant frames ___ other _____

8. On a scale of 1-5, how important do you feel resources provided by the City of Boston or state programs have been for sustaining the community garden? (please circle a number on the following scale)

1	2	3	4	5
Not at all important		Somewhat important		Very important

9. On a scale of 1-5, how important do you feel that resources provided by non-profit organizations have been for sustaining the community garden? (please circle a number on the following scale)

1	2	3	4	5
Not at all important		Somewhat important		Very important

10. On a scale of 1-5, how active have the community garden coordinators been in sustaining the garden? (please circle a number on the following scale)

1	2	3	4	5
Not at all Active		Somewhat Active		Very Active

11. On a scale of 1-5, how active is the neighborhood's participation in the community garden?

1	2	3	4	5
Not at all Active		Somewhat Active		Very Active

Please turn survey questionnaire over to answer questions 12 - 18. Thank you!

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12. Do you think that any of the following might pose a challenge for the garden in the future? (check all that apply)
  ___ commercial/residential development   ___ neighborhood change due to increased cost of living
  ___ lack of neighborhood participation   ___ lack of funding or other resources
  ___ lack of leadership/coordination   ___ vandalism or theft
  ___ lack of gov't or institutional support ___ other_____

13. How would you describe your ethnic heritage?_____

14. Do you feel that there is diverse participation in the community garden with respect to ethnic heritage?
      ☐ yes   ☐ no   ☐ not sure

15. What was your total household income, before taxes, in 2006? (please check one response only)
      ☐ Less than $24,999   ☐ $50,000 to $74,999
      ☐ $25,000 to $34,999   ☐ $75,000 to $99,999
      ☐ $35,000 to $49,999   ☐ $100,000 or more

16. Do you feel that there is diverse participation in the community garden with respect to socio-economic background? (please check one response)
      ☐ yes   ☐ no   ☐ not sure

17. Which of the following categories describes your age? (please check one response only)
      ☐ 19 years or under   ☐ 45 to 54 years
      ☐ 20 to 34 years   ☐ 55 to 64 years
      ☐ 35 to 44 years   ☐ 65 years and over

18. If there is anything that you would like to share about your community garden, or about community gardening in general, please use the space below.

Thank you for your time!

Please return completed surveys to the 'survey drop-off table' in the display area
The first 75 survey respondents will receive a free pair of garden gloves!

Sincerely,

Charles A. French

Charlie French
Doctoral Candidate, Department of Natural Resources
University of New Hampshire
Tel: (603) 862-0316
Charlie.French@unh.edu

APPENDIX F

CASE STUDY PROTOCOLS

1. Research Questions:
   a. What specific interrelationships are there between individual and societal characteristics and the way in which individuals and communities physically structure and utilize urban community garden spaces in Boston and Havana?

   b. What outcomes/impacts do particular community gardening practices have on individual gardeners and/or the surrounding community/neighborhood?

   c. Are the interrelationships between individual/societal characteristics, garden practices and outcomes applicable across locations, cultures, and socio-political systems?

   d. How do forces of socioeconomic change – including gentrification, neighborhood succession, industrialization, etc. – impact individual community gardeners, their respective garden organizations, and in turn, the surrounding community?

   e. What interventions, policies or actions could help ensure that diverse populations in cities around the world have access to urban community garden space?

2. Definition of Variables:
   a. Motivations for individuals/neighborhoods to participate in community gardens (e.g. pleasure, food, health, social networking, supplemental income, etc.).'

   b. Individual-societal characteristics (i.e. cultural norms, socio-economics, the environment, politics, etc., influence garden size, structure, content and purpose).

   c. Individual and societal spatial practices (plant types, techniques used, organizational structures, garden-social practices, etc.).

   d. Measures of community gardening impacts/outcomes (e.g. the amount of food produced, dollars generated, personal needs met, number of individuals participating, number of neighborhood networks established, etc.).

3. Case Study Questions:
   a. What motivates individuals and neighborhoods to initiate urban community gardens?

   b. How do individual-societal characteristics – cultural heritage, economic status, educational attainment, and political environment, etc. – influence how individuals or neighborhoods cultivate community gardens?

   c. What, if any, is the relationship between community gardening practices and the outcomes that community gardens have on urban neighborhoods/ gardening groups?

d. What, if any, is the relationship between the motivations that individuals or neighborhoods have for practicing community gardening and the outcomes or impacts that it has on urban neighborhoods/gardening groups?

e. How do changing demographics, social, and economic characteristics influence the outcomes that individuals, neighborhoods and society attain from community gardening?

f. Are there differences regarding the relationship between individual-societal characteristics and community gardening practices and outcomes in different cities (nationally and internationally speaking)? If so, how are these differences explained?

g. Based on the research findings, what recommendations could be made that would enhance the capacity of community garden-supporting organizations/institutions to work more effectively with community gardening groups?

4. Evaluation Criteria to be Considered:
   a. What criteria are appropriate for selecting the community garden sites in Boston and the mini cases in order to maximize diversity of individual-societal characteristics?

   b. What criteria are appropriate for measuring the impacts or outcomes of community gardens, given that community gardens may have a number of functions?

   c. What institutional, political, and legal frameworks might influence – positively and/or negatively – community gardening practices and outcomes?

   d. What criteria are appropriate for comparing community gardening practices and outcomes in a global context?

5. Theoretical Framework: The background information and theory that this research is premised on Henri Lefebvre's 'social production of space' and the socio spatial dialectic, as elaborated on by Edward Soja.

6. Role of Protocol in Guiding the Investigator: The protocols and field methods will be pre-tested prior to their use in the case study cities. This is to ensure that the parameters are strictly followed and that consistent qualitative and quantitative acquisitions and analyses are conducted, thus enabling the triangulation of data sources.

7. Names of Sites to be Visited:
   a. Boston, Massachusetts (30 community garden sites will be sampled)

   b. Havana, Cuba (10 community garden sites will be visited and the interview and observation protocols will be tested there)

8. Field Methods: Cross-case analysis with embedded samples
   a. GIS analysis of demographic variables (Boston)
   b. Field mapping
   c. Direct observation
   d. Personal interviews
   e. Survey questionnaire (for Boston only)

9. Field Testing Methods: Prior to entering the field, an extensive review of the literature pertaining to the economic, cultural, social, political, institutional/legal, and organizational dimensions of community gardening will be conducted. Likewise, literature pertaining to community capitals and urban sustainability will be examined in the context of community gardening. Perhaps most important, members of the dissertation committee will assist in the development of both qualitative and quantitative data collection and analysis techniques.

10. Data Collection Plan/Time Line

Summer 2006:	Complete literature review and defend dissertation proposal
Fall 2006	Develop key informants in Havana and Submit research protocols
Winter 2007	Pilot the field methods in Havana
Winter 2007	Analyze result from Havana fieldwork
Spring 2007	Develop and connect with key informants in Boston
Spring 2007	Conduct survey questionnaire in Boston
Summer 2007	Conduct fieldwork in Boston
Fall 2007	Analyze result from Boston fieldwork (along with other small city)
Winter 2008:	Synthesize results
Spring 2008	Implement survey questionnaire in Boston
Summer 2008	Analyze and synthesize survey results
Summer 2008	Complete first draft of dissertation
Fall 2008	Revise draft and submit and defend final dissertation

BOSTON GARDENERS' SURVEY SUMMARY REPORT

1. **Do you have a plot/space in a community garden in the Boston area? (please check only one response)**

   Yes 65   100%
   No 0   0%   Total Responses: 65

2. **If you answered yes, what is the name of the community garden that you participate in?**

Commonwealth Tenants Assoc.	Jardin La Amistad
Paul Gore/Beecher Street (2)	Penniman Road
Berkley Street (2)	Symphony Road
Fenway Garden (7)	Mltn .Community Garden
Lennox Kendall	Farnsworth House (2)
Southwest Corridor Farm	Clark Cooper (2)
Boynton – McBride (3)	Lucerne-Balsam
Mission Hill CG (5)	Granada Park
Hawthorne St. Youth Garden	Nightengale Garden (2)
Jackson Mann	Peters Park
Lawndale Terrace	Laratime - Hubbard Street (2)
Columbia Point (3)	Phillbrick School garden
Powerhouse Bvd. Garden	Blackwood-Claremont
St. Rose Street	Claybourne St. - Dorchester Gardenland
Brookline Garden (5)	Charles River (2)
Madison Park	Paul Gore Community Garden
Joseph Ciampa	United Neighbors
Som. Community Growing Center	Rutland-Washington

   *3 surveys had no responses and/or unreadable responses
   *21 surveys were from gardeners outside of Boston and therefore were not tabulated with results (gardeners not from Boston were only asked to answer Q's 1 and 19).

3. **How long have you had a community garden space/plot in Boston? (please check only one response)**

   less than 2 years (17)   26%
   between 2 and 5 years (17)   26%
   between 5 and 10 years (12)   18%
   more than 10 years (19)   29%   Total Responses: 65

4. **How much time do you spend in the community garden each week? (please check only one response)**

   less than 2 hours (10)   15%
   between 2 and 5 hours (30)   46%
   between 5 and 10 hours (17)   26%
   Moe than 10 hours (8)   13%   Total Responses: 65

5. **What was the biggest motivation for you to participate in the community garden? (please check only one response)**

produce your own food (16) 25%
enjoyment/relaxation (19) 30%
personal health and well-being (0) 0%
socialize with neighbors (0) 0%
earn income by selling produce (0) 0%
'greening' of urban space (8) 12%
being part of a club or group (0) 0%
teach others about gardening (4) 6%
learn new skills (3) 5%
Other (please specify) (14) 22%
Total Responses: 64

Responses to 'Other':

starting a garden	combination
all of above	all
many reasons	many
waiting and watching something I've planted grow	everything you mentioned to garden
can't decide	not sure
many reasons	many reasons

6. **How much money do you invest in the garden each year for dues, seeds, tools, materials, travel and other expenses? (please check one response)**

less than $50 (17) 28%
between $50 and $100 (31) 51%
between $100 and $250 (10) 16%
more than $250 (3) 5%
Total Responses: 61

7. **Which of the following plant types do you grow in your garden plot/space? (please check all that apply)**

vegetables (59) 94%
fruits (23) 37%
herbs (47) 75%
medicinals (4) 6%
flowers and/or ornamentals (49) 78%
Other (1) 2% <u>wildflowers</u>

8. **Which of the following gardening techniques do you use? (please check all that apply)**

composting (56)	90%
natural pest control (34)	55%
raised beds (25)	40%
trellises or plant frames (25)	40%
container gardening (20)	32%
Other (6)	10%

Responses to 'Other':

organic - no fertilizer or pesticides	crop rotation
intercropping	left blank
transplanting	left blank

9. **On a scale of 1 - 5, how important do you feel resources provided by the City of Boston or state programs have been to sustaining the community garden? (please circle a number on the following scale)**

1 - Not at all important (1)	2%
2 (4)	6%
3 (16)	26%
4 (15)	24%
5 - Very Important (26)	42%
Total Responses: 62	

10. **On a scale of 1 - 5, how important do you feel that resources provided by non-profit organizations have been for sustaining the community garden? (please circle a number on the following scale)**

1 - Not at all Important (1)	2%
2 (3)	5%
3 (9)	14%
4 (13)	21%
5 - Very Important (37)	59%
Total Responses 63	

11. **On a scale of 1 - 5, how active have the community garden coordinators been in sustaining the garden? (please circle a number on the following scale)**

1 - Not at all Active (1)	2%
2 (3)	5%
3 (9)	14%
4 (20)	32%
5 - Very Active (30)	48%
Total Responses: 63	

12. **On a scale of 1 - 5, how active is the neighborhood's participation in the community garden? (please circle a number on the following scale)**

   1 - Not at all Active (5)   8%
   2 (11)   17%
   3 (24)   38%
   4 (12)   19%
   5 - Very Active (11)   17%
   Total Responses: 63

13. **Do you think that any of the following might pose a challenge for the garden in the future? (check all that apply)**

   commercial/resident. dev. (18)   31%
   lack of neighbrhd participat. (20)   34%
   lack of leadrshp coordination (20)   34%
   lack of govt/inst. Support (18)   31%
   increase. cost of living in neigh. (19) 33%
   lack of funding/resources (19)   33%
   vandalism or theft (32)   55%
   Other (6)   10%

   Responses to 'Other'
   lack of sufficient participation by all   water source
   gardeners   neighbors (see comments)
   garden could be moved   Dogs

14. **How would you describe your ethnic heritage?**

   African American (11)   19%
   Hispanic/Latino (5)   9%
   American Indian (2)   4%
   Indian (1)   2%
   Chinese (4)   7%
   White/European (34)   60%
   Total valid responses 57 *(Note that responses by 6 respondents were discarded due to inappropriateness of response)*

15. **Do you feel that there is diverse participation in the community garden with respect to ethnic heritage?**

   Yes (39)   63%
   No (7)   11%
   Not sure (16)   26%
   Total Responses: 62

16. What was your total household income in 2006? (please check one response)

Less than $24,999 (19)	30%
$25,000 - $34,999 (13)	20%
$35,000 - $49,999 (6)	9%
$50,000 - $74,999 (9)	14%
$75,000 - $99,999 (10)	16%
$100,000 or more (7)	11%

Total Responses

17. Do you feel that there is diverse participation in the community garden with respect to socio-economic background? (please check one response)

Yes (40)	62%
No (9)	14%
Not sure (15)	23%

Total Responses: 64

18. Which of the following categories describes your age? (please check one)

19 years or under (0)	0%
20 to 34 years (9)	14%
35 to 44 years (11)	17%
45 to 54 years(15)	23%
55 to 64 years (19)	30%
65 years and older (10)	16%

Total Responses: 64

19. If there is anything that you would like to share about your community garden, or about community gardening in general, please use the space below.

- There is lead in the soil, this discovery curtailed vegetable gardening and interest in the garden fell off.
- WE need money and volunteers!
- The garden has brought together people who otherwise would probably not otherwise have gotten to know each other. We are fortunate to be a permanent site, as we would otherwise be fighting off developers.
- We have a diverse group of gardeners, but difficulty getting everyone to participate in overall common area projects.
- I love my community garden. I love my fellow gardeners.
- Try it, you might like it.
- I've only had my plot since last Fall, and have only met a few other gardeners, So, my input is somewhat uninformed. I wish there were more opportunities to meet the other gardeners. I've never seen them working. But, then, I've only been there on the shoulders of the season. Can't wait to do a full season this year!

- Community Gardens strengthen the fabric of neighborhoods, and bring diverse people together to improve the neighborhood socially and aesthetically. Also, gardens can improve public safety by providing a constant presence outside in the summer, and making a neighborhood feel 'cared for'.
- I am the volunteer coordinator of the Brookline garden. We haven't received any direct threats from the town towards our gardens, but I do worry about the neighbors (high end). There have been complaints that we aren't tidy. Keeping the gardens under weed control and controlling trash (encouraging recycling) hopefully will help.
- A fervent wish to have more time to spend in the garden - this remains a wish.
- Gardeners that are elderly/disabled have to get work - weeding, wood chip distribution, clean-up days done. We rely on volunteers from U. Mass and B.C. High and the City of Boston and City Year to get anything done.
- 9 of 105/20/2008 12:34 PM
- View reporthttp://is4.instantsurvey.com/Report/ViewReport.isp?SurveyId=52356&i...
- Our garden is on land owned by the Mass Dept. of Conservation and Recreation (DCR) which means that needed repairs and maintenance are drastically deferred (The while 5-mile linear park only has 3 staff!
- Our garden needs to have trash pickup for plastic gardening containers, etc. Why can't we put this out to be picked up by regular trash? After all, it is neighborhood trash. Thanks,
- The social aspect was not expected
- I'm honored to participate
- It is good for senior citizens that share time as well as learning how to grow a few vegetables that are enjoyed by their planting their own garden
- More support for fundamentals like physical structure, etc, and ways to address racial and economic differences in the garden.
- It is an opportunity to meet people - gardeners and neighbors - that would not otherwise exist. It is a place to come together. Sometimes a conflict between uses, but generally a great place.
- community gardening is wonderful!
- The outcome of the dew design for Peters park. A letter was written in regards to consideration if all the hard work of volunteers of various ethnic backgrounds to beautify an area in Boston that also is a landmark in Boston but doesn't have a plaque or statue or anything. I like the dog park should also be included beside a fence to cancel some theft/vandalism and disrespect to the gardeners and children playing in the area.
- This is a schoolyard garden and woodland garden
- vandalism to the garden needs to be addressed
- Charles River garden is on MDC land, has very active and experienced coordinators. I came to CRCG because I was displace4d from a previous garden (Cambridge) when the block was developed for affordable housing. All gardeners moved on - the City replaced the community garden but has not advertised that it is there.
- I think it is great!
- much appreciation for networking and facilitation.
- The Charles River Community Garden is not a 'neighborhood'
- Love it!

CODING CATEGORIES

- **Characteristics**
    - o Garden Phys. Characteristics
    - o Individual Characteristics
        - Ethno-cultural
        - Socioeconomic
        - Personal values
        - Behaviors/daily routines
    - o Neighborhood Characteristics
        - Ethno-cultural
        - Socioeconomic

- **Practices**
    - o Individual
        - What they plant
        - Techniques used
        - Daily Routines
        - Cultural practices
    - o Societal
        - What they plant
        - Volunteering
        - Techniques used
        - Socializing
        - Self Reliance
        - Inclusiveness
        - Helping each other
        - Events & celeb-rations
        - Education
        - Daily Routines
        - Cult. Practices

- **Outcomes**
    - o Individual Outcomes
        - Primary benefit
        - Other benefits/outcomes
        - Challenges
            - Disabilities
   - Time
            - Land security

     o Neighborhood outcomes
- Positive outcomes
- Challenges
  - Access to land-plot
  - Communication
  - Cultural-racial dynamics
  - Development
  - Garden ethic
  - Generational
  - Getting new-diverse people involved
  - Leadership and coordination
  - Neighborhood change
  - Participant turnover
  - Personalities - conflict
  - Real estate costs
  - Resource needs
  - Responsibility
  - Theft & Vandalism
  - Upkeep

Other Supplemental Coding Categories

- Participant info
  - Years in Garden
  - Where they live
  - Role in garden
  - Participation by family members
  - Garden experience

- Characteristics related to Practices and outcomes
  - Individual
  - Other gardeners

- Motivations to garden
  - Individuals
  - Other gardeners/neighborhood

- Organization Structure
  - Yearly fees
  - Sustainability
  - Organization structure
  - Obtaining a plot
  - Decision process and rules
  - Coordinators

- Perceptions of change

- Policies, actions, interventions
  - Municipal/state/Federal
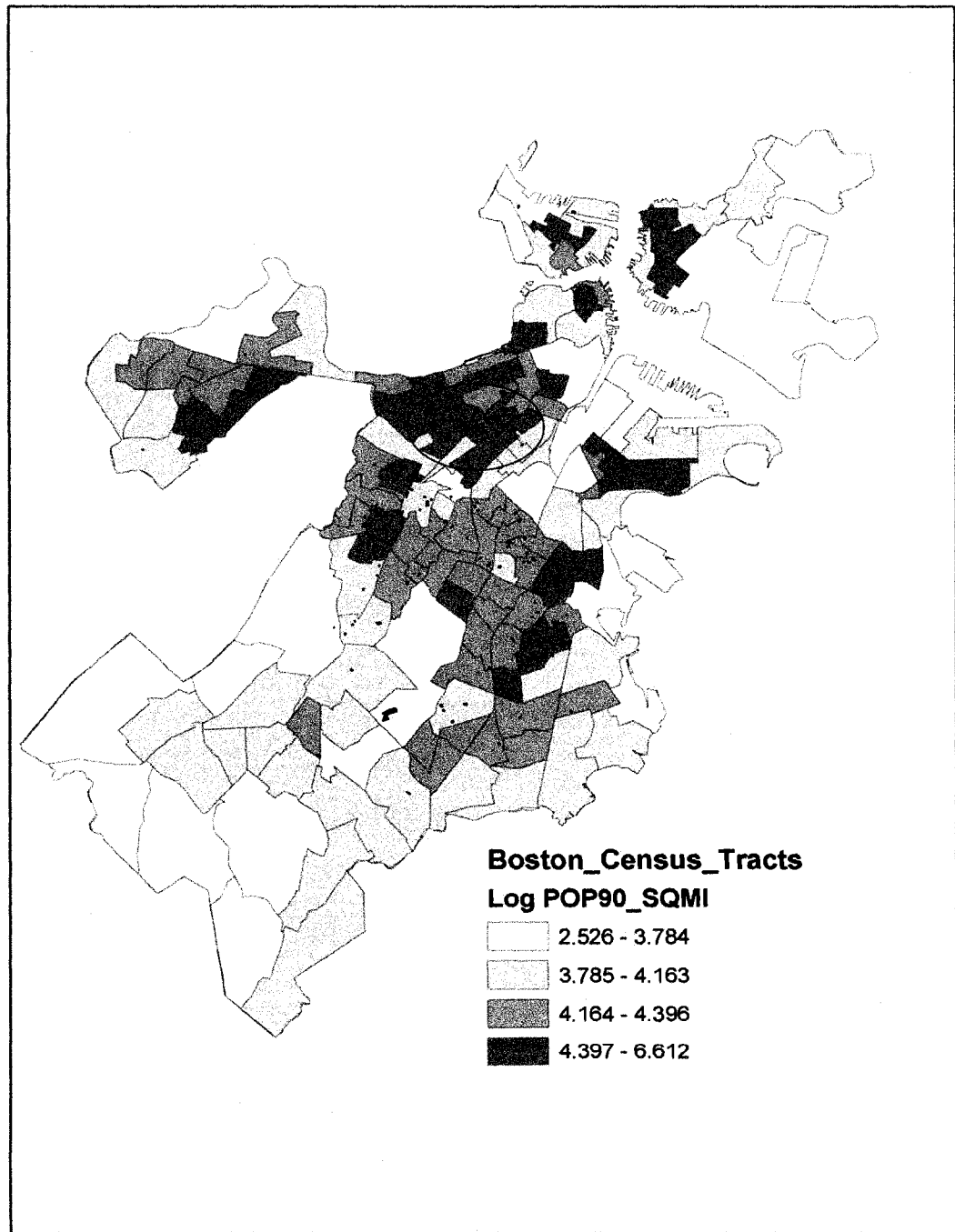 - Non-profits
  - Local associations/other

APPENDIX I

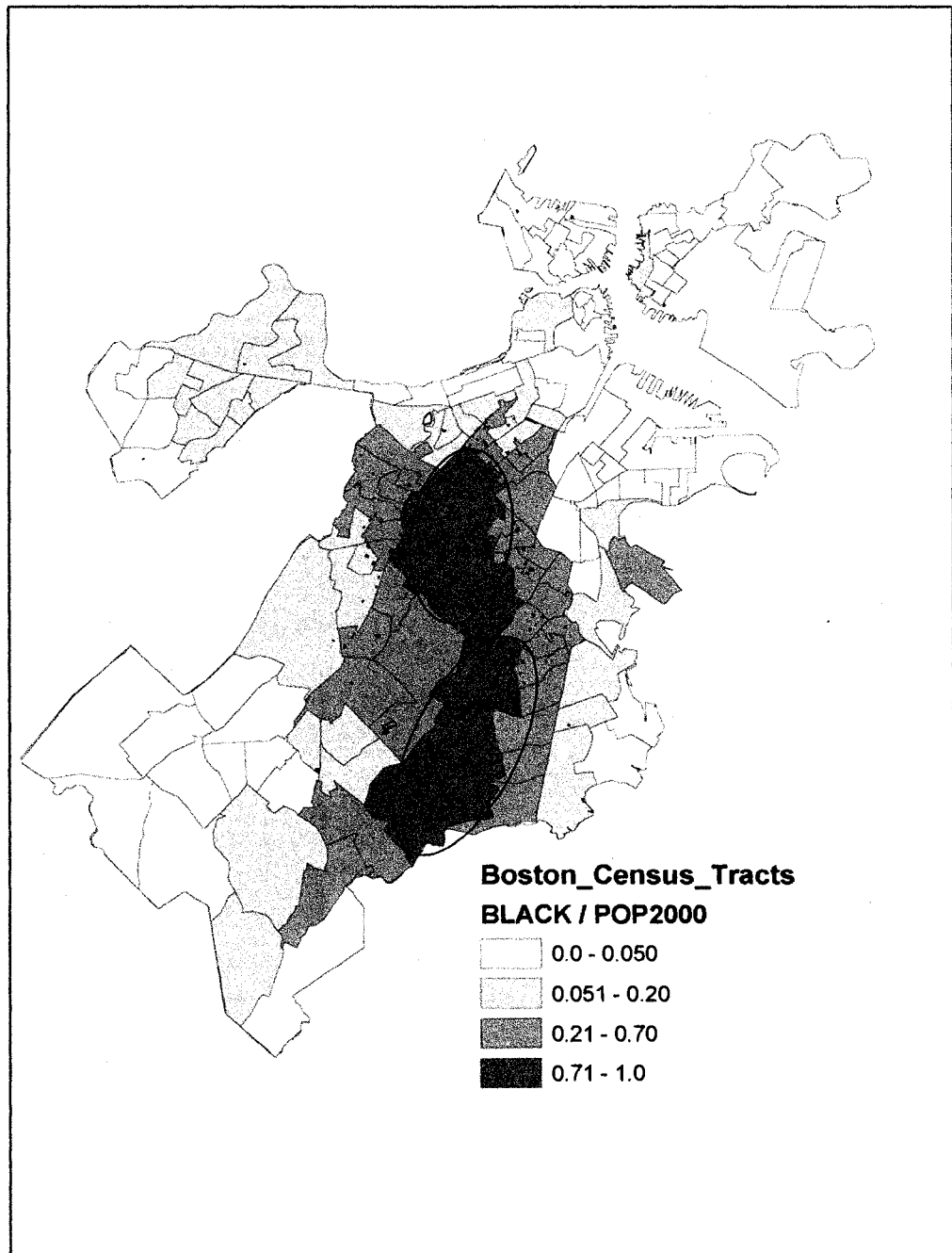## BOSTON COMMUNITY GARDENS AND MEDIAN RENT BY CENSUS TRACT

Boston_Census_Tracts
MEDIANRENT
- 0 - 500
- 501 - 600
- 601 - 700
- 701 - 1001
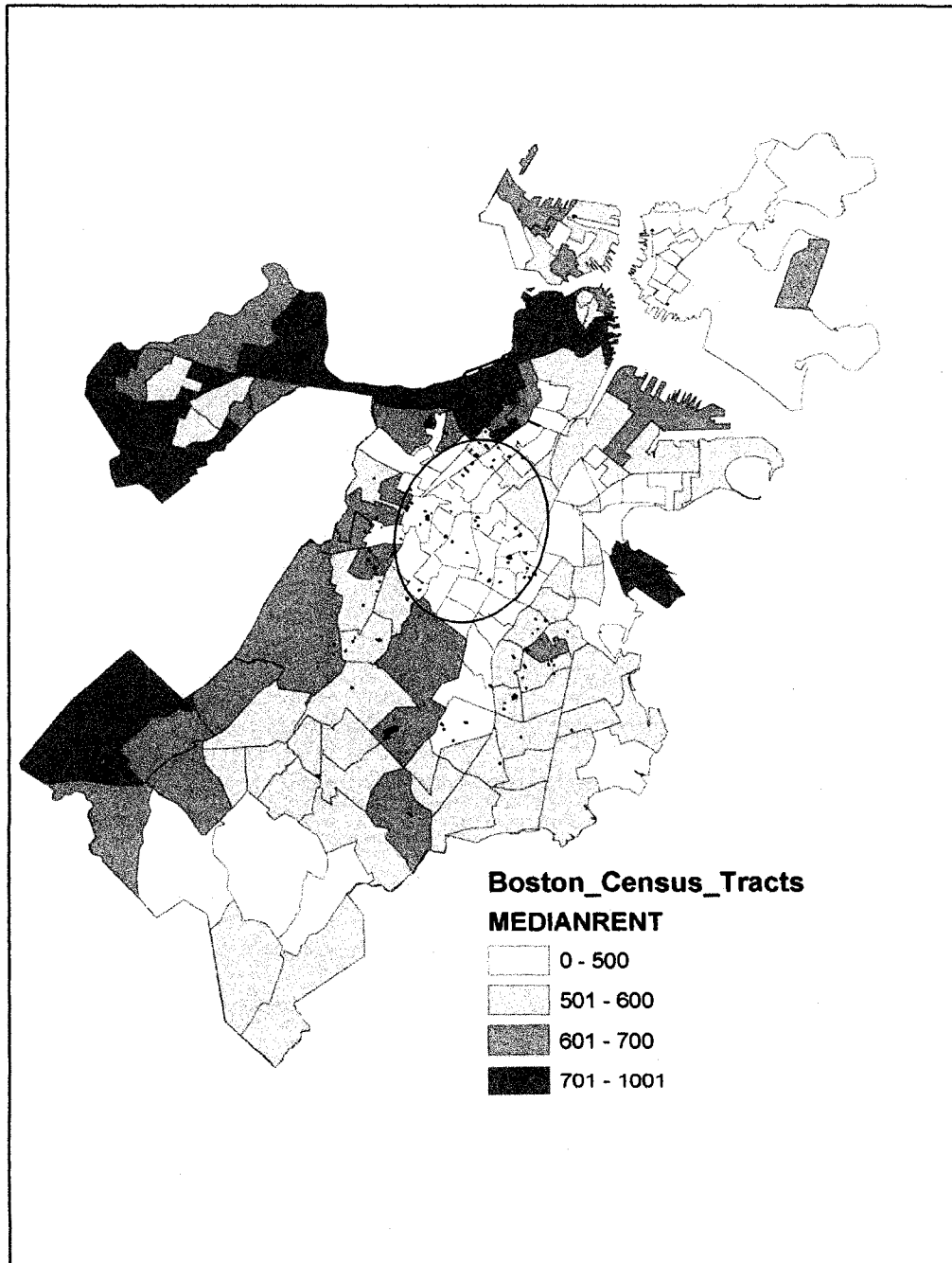
APPENDIX J

BOSTON COMMUNITY GARDENS AND POPULATION DENSITY PER SQUARE MILE (LOG)

Boston_Census_Tracts

Log POP90_SQMI

2.526 - 3.784
3.785 - 4.163
4.164 - 4.396
4.397 - 6.612

APPENDIX K

BOSTON COMMUNITY GARDENS AND BLACK POPULATION BY CENSUS TRACT

Boston_Census_Tracts

BLACK / POP2000

- 0.0 - 0.050
- 0.051 - 0.20
- 0.21 - 0.70
- 0.71 - 1.0

APPENDIX L

BOSTON COMMUNITY GARDENS AND PERCENT HISPANIC POPULATION BY CENSUS TRACT

Boston_Census_Tracts
HISPANIC / POP2000
- 0.0025 - 0.050
- 0.051 - 0.10
- 0.11 - 0.20
- 0.21 - 0.80
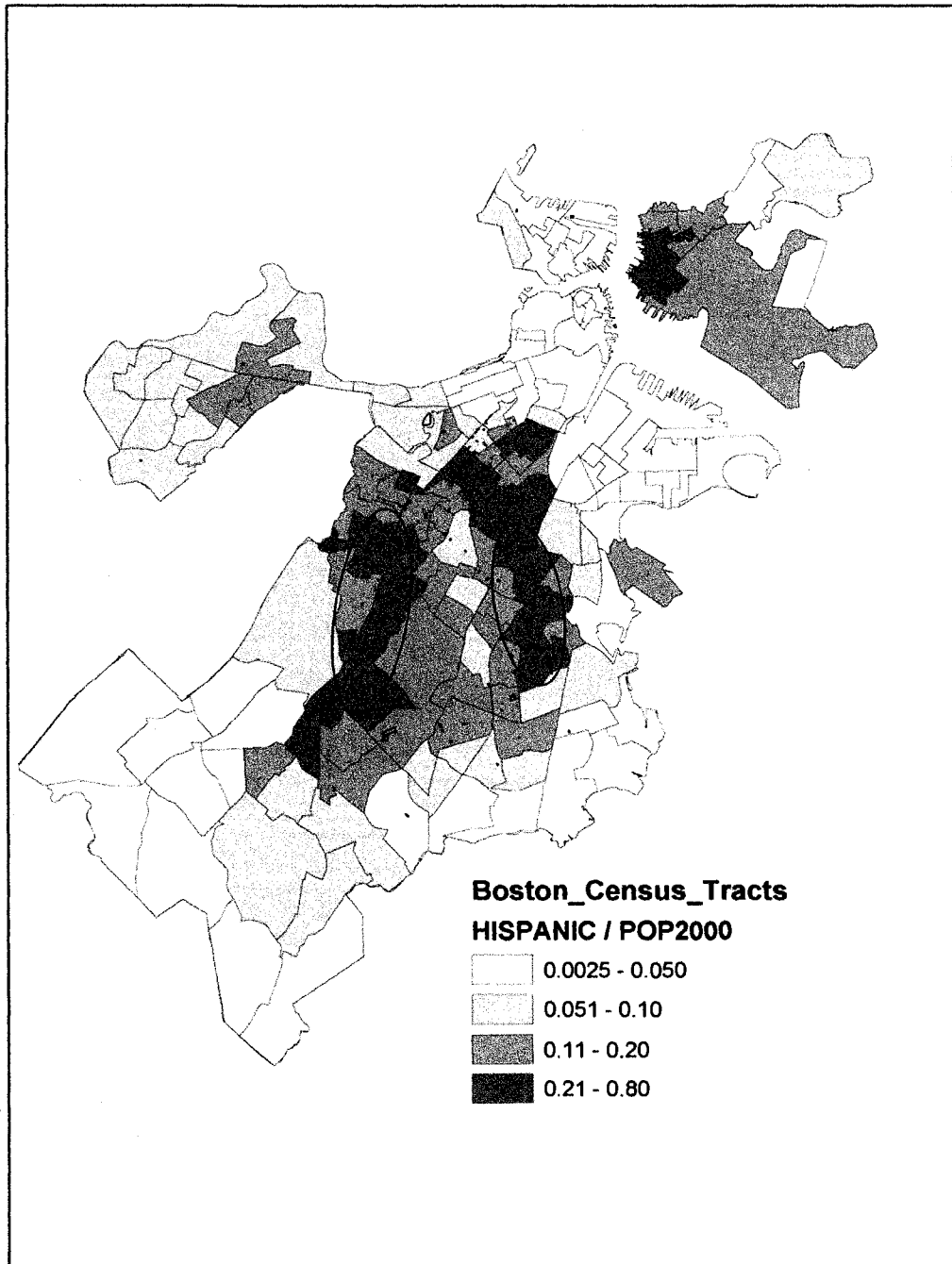
APPENDIX M

BOSTON COMMUNITY GARDENS AND URBAN RENEWAL DISTRICTS

Legend
■ Community Gardens
☐ Urban Renewal District
☐ Southwest Corridor Greenway
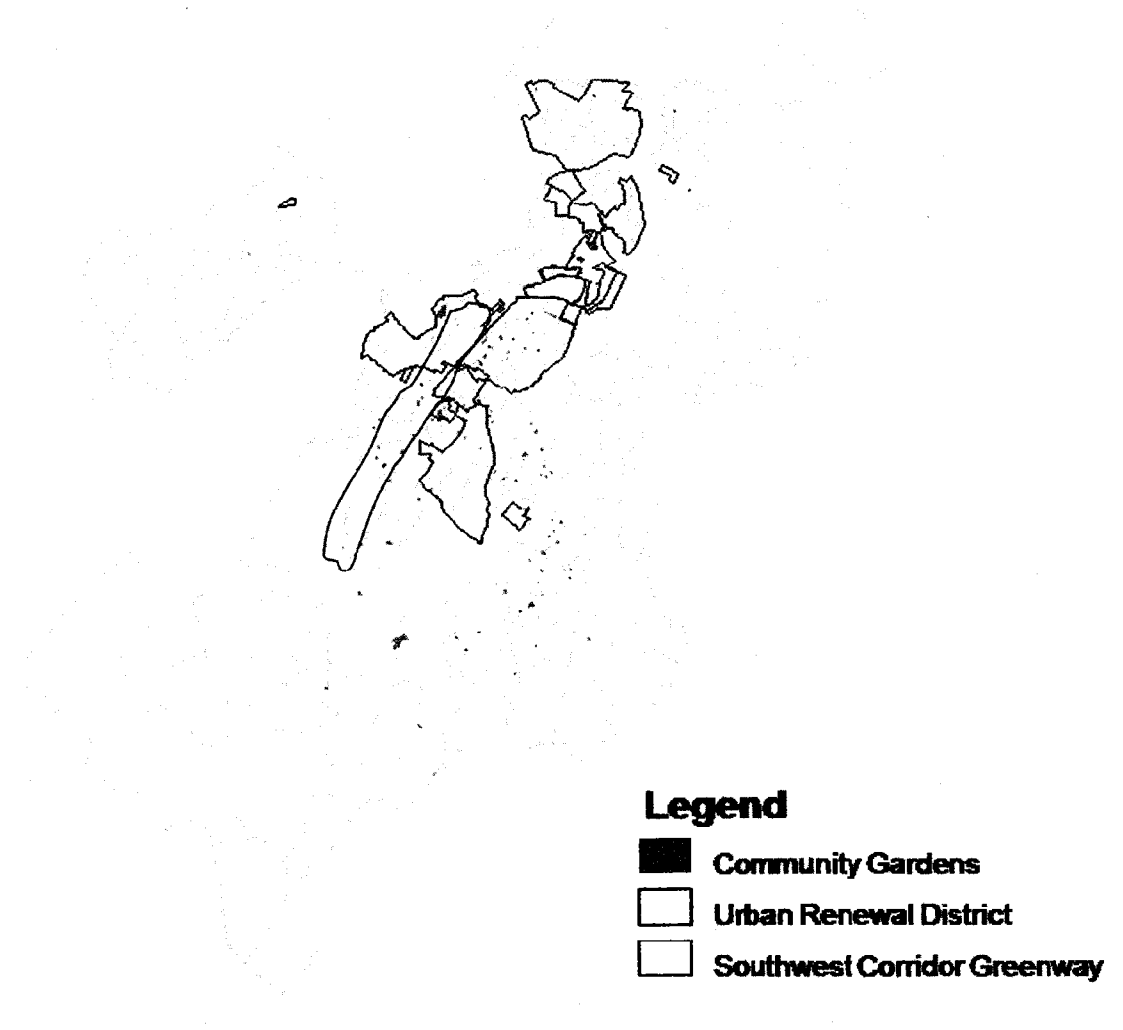
Renewal District boundaries available on the web by the Boston Redevelopment
Authority (BRA) at: http://www.mapjunction.com/bra/

NVIVO MODEL STRUCTURE