SECTION FIVE

Community Health and Policy Perspectives

It is clear that urban agriculture is about more than just producing food. Urban agriculture is about building community, reconnecting people to their culture and spirituality, improving neighborhood and individual health, and supporting food sovereignty and justice for farmers and communities. These intangible outcomes are very difficult to quantify for planners, funders, and government officials, but this does not make them less real or important.

In chapter 13, Cohen and Wijsman present case studies and strategies for blending practice and policy changes so that policy supports successful practices. In a field as diverse and rapidly evolving as urban agriculture, this dialogue between policy and practice is necessary and highly productive for the future of urban-agriculture practices. No one set of policies will be conducive for all cities, hence the need for a rich literature of case studies, historical examples, and recommendations for best practices in different situations.

Chrisinger and Golden, in chapter 14, review the current state of our knowledge about urban agriculture and public health and then describe possible policy and practices that work through urban agriculture to improve human

health. Various practitioners and audiences will find this work useful in considering how to design health interventions, tailor evaluations, or form reasonable expectations about the effects of urban agriculture in their own communities.

In chapter 15, Day Farnsworth provides clear recommendations for organizing food policy councils effectively as well as insights into what types of policies are needed in different contexts. Her work points directly to food production, whether by insects, animals, or the soil. Her point is clear, that food production can be facilitated by a non-food-production organization that locates production in a larger context.

In chapter 16, de la Salle reviews linkages between urban agriculture, the built environment, and population health. Her case studies, review of design approaches, and discussion of best practices provide options for practitioners seeking to improve community health through the built environment and urban agriculture.

The chapters in section five seek to provide guidance for addressing and incorporating these associated benefits of urban agriculture into planning processes. Clearly we need better metrics for outcomes such as improved human health. Through more holistic metrics we can relate health to systems change and the collective impacts of many organizations, institutions, and individuals working on food systems issues. This section of the book provides concepts and examples of activities related to how circumstances, social expectations and pressures, and other institutional spheres, like the legal system and hopes for public health, influence the people doing urban food system activities.

CHAPTER 13

The Coevolution of Urban-Agriculture Practice, Planning, and Policy

NEVIN COHEN AND KATINKA WIJSMAN

INTRODUCTION

After a century of relative inattention to the food system (Pothukuchi and Kaufman 2000), many cities have developed plans and policies to legalize, rationalize, and institutionalize urban agriculture, and to support innovations in food production (Hodgson, Campbell, and Bailkey 2011; Mukherji and Morales 2010; Thibert 2012; Cohen 2012; McClintock 2014). These plans and policies have been influenced by the practices of urban farmers and gardeners, and in a coevolutionary process plans and policies have shaped their practices. Together, practices, plans, and policies support innovative urban-agriculture systems and thus change what is considered the normal, acceptable, and fair way of using space in the city and producing food. As a result, over the past decade food production has become more fully embedded in urban spaces, daily activities, and government programs, including those not traditionally connected to the food system.

This is evident in New York City, which has one of the largest and most diverse urban-agriculture systems in the United States (Cohen, Reynolds,

and Sanghvi 2012; Altman et al. 2014). A case study of the coevolution of urban-agriculture practices and plans in New York City illustrates the entanglements of urban-agriculture practitioners, advocates, planners, and policy makers; innovative food production practices that have changed the meaning of urban agriculture; and innovations in practice by city government that have supported urban agriculture. The New York case shows that farmers and gardeners, advocates, and government planners and policy makers can steer systems like urban agriculture by identifying and supporting innovative and sustainable practices, while simultaneously challenging undesirable practices that have become entrenched because of institutionalized rules and norms (Loorbach 2007).

COEVOLUTION OF PRACTICE AND POLICY

Practices are simply the routine things people do to achieve various goals. They consist of three elements: (1) competencies, or the knowledge of how to do things; (2) material items, including technologies and infrastructure; and (3) meanings, or the ideologies, goals, and cultural understandings that make certain practices acceptable and normal (Shove 2003; Shove, Pantzar, and Watson 2012). The practice of growing food in the city, for example, requires horticultural knowledge and other competencies; space, soil, water, and other material resources; and a cultural milieu that makes gardening and farming in the city appropriate, desirable, and normal. Practices may consist of discrete actions, like the act of cultivating vegetables, but are typically part of interconnected bundles of practices (Warde 2005), such as cooking, composting, and selling, that affect each other.

Practices are ubiquitous and largely habitual activities, and though mundane, they can have significant impacts and influence policies by creating demands on infrastructure, public space, natural resources, and public funds. For example, domestic cooking, refrigeration, and dish washing account for one-quarter of household electricity use in the United States (Canning et al. 2010), while food waste from cooking and eating practices amounts to 14.5 percent of municipal waste streams (US EPA 2014). The practice of urban agriculture, bundled as it is to other urban practices, can therefore have a significant effect on a city's sustainability.

Changes to practices like urban farming and gardening do not occur merely as a result of the aggregate choices of individuals. Rather, they result from changes to the three practice elements made by policy makers, practitioners, advocacy groups, and consumers who support new knowledge and competencies, reconfiguring material elements like infrastructure and increasing the acceptance of alternative practices by reshaping their meanings and helping them become normal. New programs or economic incentives can also "recruit" additional practitioners (Shove and Walker 2010) to engage in practices like farming that diverge from the status quo. These efforts can make what might be considered deviant but sustainable practices (e.g., beekeeping or rooftop farming) normal and everyday.

The actors involved in creating and normalizing innovative practices are diverse. For example, government officials may support community gardening networks practicing specific methods of food production or fund new types of urban farms through municipal programs that provide land, material, and tools to gardeners and farmers. Individuals and advocacy groups may start urban-agriculture projects and engage in innovative practices, like offering beekeeping classes, running community-supported agriculture programs, or developing housing with rooftop farms, which then prompt policy responses. Even individuals change policies through their everyday practices, as they raise chickens, prompting health code changes, or take over vacant lots to farm them, prompting new policies allowing food production on public land.

Deviant practices also influence policy change by providing examples of different opportunities to achieve broad public policy goals (Healey 2012), thus influencing the development of plans and policies. Urban-agriculture plans and policies are not created de novo by government fiat but more commonly respond to the practices of farmers, gardeners, and others in the urban-agriculture system. As new practices enroll practitioners and become normalized, government policies and programs often support and stabilize them, creating lasting transformations to urban-agriculture practice as well as to the many related practices that are bundled to farming and gardening. On the other hand, physical, institutional, and informal structures and practices may restrict new practices from flourishing (Loorbach, Frantzeskaki, and Thissen 2011). For example, growing spaces may be limited, agency rules and practices may be entrenched, and other habits and activities may constrain the ability

of new practices to take hold. Dynamics between institutional and cultural structures and norms on the one hand and the power of practitioners on the other hand to shift practices notwithstanding existing systems enable some practices to expand while constraining others.

COEVOLUTIONARY PROCESSES TO SUPPORT URBAN AGRICULTURE

Three examples from New York City's urban-agriculture system illustrate how practices, plans, and policies emerge in interconnected processes. The first shows the entanglements of different actors in the practice of finding and allocating new space for gardens and farms, and the role of practice in changing policies. The second involves innovative practices and supportive policies that have broadened the notion of how and where urban agriculture can be practiced. The third illustrates how practice innovation in both urban agriculture and government can establish a role for agriculture in two key urban systems conventionally unrelated to food—affordable housing and stormwater management—and in so doing connect the practice of growing food across municipal agencies.

COMMUNITY GARDENING PRACTICES AND PUBLIC SPACE

In New York, urban agriculture has grown thanks to the entrepreneurial practices of individual farmers and gardeners, advocacy efforts of gardeners and nonprofit organizations, and supportive public policies and city agency administrative actions. While community gardens and urban farms have always existed in New York City, the number of gardens expanded in the 1970s as the city's fiscal crisis and disinvestment in low-income communities of color resulted in property abandonment and cutbacks in municipal services. Residents of these neighborhoods took over vacant properties, sometimes illegally, cleaned them up, and turned them into community gardens. Throughout this period, the practice of "guerrilla gardening," occupying and gardening abandoned sites, was normalized through the creation of a municipal program in 1978 called Operation GreenThumb, which provided gardeners with material resources, technical assistance, and recognition by the city.

A significant shift happened two decades later when Mayor Giuliani attempted to sell the city-owned community garden sites to developers to build housing (Elder 2005) but was met with political opposition and legal challenges to save the gardens. A lawsuit by the attorney general created an opening for the New York Restoration Project (NYRP) and the Trust for Public Land (TPL) to raise money to purchase some 163 gardens that were to be put up for auction, and in response the city sold them to the two groups and relented on selling most of the others. The outcomes of this battle included galvanizing support for garden preservation by the city's urban-agriculture, environmental, and civic organizations as well as increasing the visibility of the community gardens, the plight of which was covered by the media, which in turn increased the political salience of urban agriculture in New York. The purchase of the gardens by the NYRP and TPL transformed these garden spaces by providing professional management and permanent tenure, thus shifting the practice of gardening from an activist, grassroots practice to a more established and permanent aspect of city life.

The normalization of community gardening led to policy changes to support and expand the city's urban-agriculture infrastructure. Urban gardens and farms, once treated as a temporary use of city parcels slated for development, have been described in recent city strategy documents (a City Council policy platform called FoodWorks and the administration's sustainability strategy, PlaNYC) as important land uses and valuable activities. In 2010, the city adopted rules to provide renewable licenses for community gardens on public land and an extensive public review process that makes evictions less likely (Cohen, Reynolds, and Sanghvi 2012). The City Council enacted Local Law 48 of 2011, requiring the city to create an online public database of vacant city-owned property that includes an assessment of each parcel's suitability for urban agriculture. Subsequent to the bill's enactment, the city administration identified more than one hundred properties as potentially suitable for urban agriculture, while a second city program, Gardens for Healthy Communities, coordinated by the Department of Parks and Recreation and its GreenThumb program, made twenty plots of land available and provided program support for community groups to turn them into community gardens.

These policy changes, coupled with growing interest nationally in the practice of urban agriculture, have in turn led the New York City Community

Garden Coalition, which advocates on behalf of community gardens, and 596 Acres, which helps communities gain access to vacant public land, to get the city to dedicate even larger amounts of land for food production. Rather than simply focusing on preserving existing gardens, these organizations have urged community control of vacant land, land control as a political right, and the overall expansion of urban agriculture. In the case of allocating land for urban agriculture, practices and policy making have coevolved, with actions of gardeners, advocates, and entrepreneurs helping to shape policy and public plans, providing new opportunities for the creation of gardens and farms.

SUPPORTING DIVERSE URBAN-AGRICULTURE PRACTICES

Just as the actions of policy makers, urban gardeners and farmers, and urban-agriculture advocates have helped make more land available for food production, three different types of innovative agricultural practices have broadened the notion of producing food in New York City: (1) practices that span different spatial dimensions, including rooftop farms, building-integrated agriculture, and distributed plots of urban farmland; (2) innovations in permanency, or temporary and movable farms and gardens; and (3) an expanded notion of farming practice that includes addressing the racial, gender, ethnic, and class disparities that make urban food systems unjust.

Spatial innovations

New York City is considered a leader in rooftop agriculture, an example of an innovative practice of turning novel spaces into farms and greenhouses. Over the last few years, numerous rooftop-agriculture projects have been developed in New York City, where there is substantial potential for continued expansion because an estimated three thousand acres of flat rooftop space exist on buildings with the structural integrity to carry the weight of a rooftop farm (Ackerman 2011). The actors that have taken to these roofs are diverse and their projects offer multifunctional benefits. Rooftop spaces have been converted to therapeutic gardens in an assisted-living facility for formerly homeless adults; housing developers have built rooftop greenhouses into their affordable housing projects for job creation and health promotion; en-

trepreneurs have started for-profit rooftop farms; and grocers and restaurants are growing food on their roofs for their customers.

In the case of rooftop agriculture, entrepreneurship and innovative practices preceded policy making. Because of its popularity and potential as an economic development opportunity for the city, plans and policies followed the growth of this innovative practice of food production and now aim to support and expand it. For example, shortly after the creation of Brooklyn Grange rooftop farm, a nearly one-acre farm on a roof in Long Island City, Queens, and proposals for hydroponic rooftop greenhouses in Brooklyn, the City Council adopted Local Law 49 of 2011, which amended the building code by adding greenhouses to the list of rooftop structures (such as water tanks and ventilation equipment) that do not count toward building height limits (provided that the greenhouses occupy less than one-third of a roof's area). In addition, an amendment to New York City's zoning text was approved in 2012 that excluded rooftop greenhouses atop commercial buildings from the lot's floor area and height limits, and public funds have subsidized rooftop greenhouses and farms. These measures taken by New York City have been justified in planning documents like FoodWorks as a means to put unused space to productive use; to create jobs and economic value; to provide roof insulation, thus reducing energy consumption; and to capture and absorb rain, thus reducing pollution from stormwater overflow.

Innovations in temporality

Innovative urban-agriculture practices have also treated the temporality of farming differently. Rather than thinking of farm sites as permanent, these projects view agriculture as less place dependent, with production moving through the city to unoccupied locations as the use of space evolves. Moveable agriculture is not a new phenomenon, as abandoned lots have been turned into gardens during previous periods of economic disinvestment. However, their contemporary occurrence no longer reflects a makeshift or "guerrilla" option but is being considered a strategy of property owners and developers. Some developers have embraced temporary urban agriculture as a way to put their sites to productive use while scheduled development projects are on hold.

In New York City, Riverpark Farm is an example of interim urban agriculture (Cohen, Reynolds, and Sanghvi 2012). The farm grows vegetables in milk cartons filled with soil for the adjacent restaurant of celebrity chef Tom Colicchio, who helped fund the project. Although Riverpark neither required government approvals nor stimulated overt changes to public policy, the project has contributed to reenvisioning farms as temporary uses of properties by making the idea of urban agriculture possible in many more spaces in the city; demonstrating the benefit of temporary urban agriculture as a residential amenity; and showcasing and testing the design concept of growing food on a production scale using little more than soil-filled milk cartons. The low-technology farming method has allowed for the easy movement of the "farm" (which has happened several times since its inception, as different areas of the development site underwent construction), required horticultural innovations, and in turn spawned a new company (Rooftop Seeds) that supplies seeds adapted to challenging urban growing conditions. This New York example started at the entrepreneurial level, but in cities like San Francisco, officials created a formal policy allowing developers to avoid having to renew development approvals by allowing interim farms on their temporarily undeveloped sites.

Social justice practice innovations

Many urban-agriculture practitioners have broader goals and objectives that guide their work than merely growing their own food. Although important on its own, food production is seen as a means to address other social, environmental, economic, and health problems facing communities, such as access to healthy and affordable food; intergenerational relations; the creation of safe spaces; empowerment and mobilization; education and training; job growth and local economic development; biodiversity and habitat improvement; stormwater management; and soil improvement (Cohen, Reynolds, and Sanghvi 2012). As such, a single urban-agriculture practice can contribute to multiple benefits, involve a number of individuals and institutions, and serve as a mechanism for social and political change through empowerment.

In New York, some practitioners explicitly use their urban-agriculture projects as a way to address structural oppression and the racial, gender, and class disparities that result in disinvestment, unemployment, poverty, poor health

care, and insufficient access to healthy food (Reynolds and Cohen 2016). Activist urban farmers and gardeners use the spaces and activities related to food production to educate, empower, organize, and engage in political mobilization. For example, Farm School NYC offers educational programs focused on advancing social justice and building self-reliant communities; the farm Granja los Colibries in Brooklyn provides a space for recent immigrants to participate in and lead activities that resist cultural assimilation while teaching about food and health disparities; and La Finca del Sur, a farm in the South Bronx created for and operated by "women of color and their allies," has built its work around women's empowerment through the farm and garden site. These cases and other social justice–focused farms and gardens aim to influence public policy on urban agriculture as well as related policy processes, such as participatory budgeting, land-use planning, and the more equitable distribution of resources among urban-agriculture groups (Reynolds and Cohen 2016).

These examples underline how changing the meanings, competencies, and material dimensions of urban agriculture alters the mix of farming and gardening practices, which in turn influences plans and policies. Rooftop farms, temporary farms, and gardens focused on social justice change our understanding of what a farm is and can accomplish, while new infrastructure, technologies, skills, and knowledge supported by policies make these innovations possible. Rather than taking a narrow view of what urban agriculture is (e.g., community gardens with individual plots or urban farms cultivated by a nonprofit or for-profit business), a more expansive understanding of urban-agriculture practice illustrates the multiple and different advantages that diverse practices can bring to neighborhoods. These innovative practices, in turn, stimulate policies and programs that support and normalize these practices in a coevolutionary process.

INNOVATING GOVERNMENT PRACTICES

Governments (and other stakeholders) contribute to urban agriculture by providing material and financial resources, yet as cities have faced significant economic repercussions from the recession (including declining local tax bases, rising municipal costs, and reduced federal aid), some cities have been reluctant to commit to such investments. Nevertheless, in New York

and elsewhere, innovative practices in government have coevolved with public policies to connect different agencies to support the expansion of urban agriculture, in an effort to achieve the multidimensional benefits that urban farms and gardens provide while addressing multiple public policy issues simultaneously. In New York City, government agencies have changed practices to incorporate farms and gardens into their operations and development projects in support of their missions. Two examples include integrating agriculture into new residential buildings and incorporating urban agriculture into the city's green infrastructure program.

BUILDING-INTEGRATED AGRICULTURE

Urban agriculture can be integrated into the built landscape at multiple scales, and some cities have strategically created incentives for developers to provide growing spaces in their projects. In New York City, two public agencies—the Department of Housing Preservation and Development (HPD), which develops affordable housing, and the New York City Housing Authority (NYCHA), which runs the city's public housing projects and is also developing new affordable housing—have encouraged developers to design new housing with community gardens, production greenhouses, and even a rooftop apple orchard. They have done this through various practice innovations: by writing requests for proposals to encourage innovative designs to support the health of building residents; by funding the added costs of greenhouses and other agriculture-related building infrastructure; and by supporting nonprofit organizations to provide programming so that the agricultural spaces are used productively.

An example in the case of HPD is the request the agency issued for proposals for a 202-apartment affordable housing project in the South Bronx that required respondents to consider incorporating access to nutritious food, physical fitness, and places for social gathering in their proposals. The winning project was a design that included a small apple orchard, rooftop community gardens, and a community kitchen to teach food preparation skills (City of New York 2006). The resulting building, called Via Verde, was made possible by changes in practice within the agency to create an incentive for this type of design, which was in turn encouraged by policy in the form of healthy building design guidelines developed by the city's Department of

Design and Construction, as well as the practices of urban farmers and gardeners who have raised the visibility and popularity of urban agriculture in this low-income community. Via Verde and the efforts by HPD have subsequently resulted in additional building-integrated urban-agriculture projects in the South Bronx and beyond.

The NYCHA has also changed its practices to promote building-integrated urban agriculture. In one exemplary project, it sold a parcel of land on the grounds of a Bronx public housing project to a developer for the construction of Arbor House, a 124-unit affordable housing development. The developer secured funds from city officials, including the Bronx Borough president, to incorporate a hydroponic rooftop greenhouse to grow produce on a commercial basis for the surrounding low-income community (US HUD 2011). Forty percent of the produce grown is to be made available to local residents, schools, hospitals, and markets. As a result of its experience in this project, the NYCHA collaborated with the same developer to build a 364-unit mixed public and affordable housing project in the low-income Ocean Hill–Brownsville neighborhood of Brooklyn, which will include a supermarket and a rooftop greenhouse. In other instances, the NYCHA has collaborated with nonprofit organizations and other city agencies in creating farms that produce fresh vegetables and provide education, job training, and a space and activities that allow public-housing residents to socialize.

The practices of nonprofit organizations, developers, and city officials helped create these new urban-agriculture projects, which demonstrated to agencies like HPD and NYCHA that it is structurally and financially feasible, beneficial, and popular to design urban agriculture into public projects. The shift in practices has contributed to broader food policies, such as the city's anti-obesity plan, which encourages cooperation among multiple agencies to address diet-related health problems through urban agriculture and healthy building design.

URBAN AGRICULTURE AS STORMWATER MANAGEMENT PRACTICE

In another coevolution of practice and policy, New York City's Department of Environmental Protection (DEP) is funding the creation of some urban

farms and gardens through a program to address the water pollution caused by combined sewer overflow (the discharge of untreated stormwater and sewage when it rains). Instead of investing solely in a traditional control method focused on conventional "gray" infrastructure (e.g., expanding water pollution treatment facilities and increasing the diameter of sewage pipes), the DEP opted for lower-tech landscape design interventions ("green" infrastructure) that increase the permeability of the cityscape through parks, landscaped median strips on roadways, and permeable pavement. Urban farms and gardens are a form of green infrastructure that have been funded through a Green Infrastructure Grant Program in which the DEP funds private property owners and organizations to build landscapes designed to capture and retain a minimum of one inch of stormwater from the impervious tributary area (Cohen and Wijsman 2014).

Urban-agriculture practitioners identified the grant program as an opportunity to convince the agency to consider farms and gardens a green infrastructure and have applied for funds. Since 2011, New York City has provided over $1.3 million in funding through this program to four urban-agriculture projects (with two more under consideration), including a one-acre commercial rooftop farm, Brooklyn Grange. However, although the DEP views urban agriculture or edible landscaping as a positive feature of a project proposal because of the co-benefits of food production, the agency's focus is on the ability of a project to reduce stormwater, not the production of fresh vegetables or any other benefits of urban agriculture. This puts the onus on the city's urban-agriculture community to propose new farming projects for funding under this program and to evolve its practices (e.g., entering into long-term leases with property owners, demonstrating organizational capacity, agreeing to track stormwater absorption over the life of the project) to qualify for these funds (Cohen and Wijsman 2014).

This example illustrates that innovations in practice, such as the adoption by the DEP of new approaches to stormwater mitigation or new techniques by farmers such as growing food atop asphalt roofs, contribute to changes in agency policies and programs, and that these policies, often embodied in a strategy like the department's green infrastructure plan, help support and replicate these innovative practices. Plans themselves do not lead to changed practices, nor do innovative practices emerge in a vacuum without policies and

a plan to provide funding and other forms of technical and material support. Policies help change practices but depend on the existence of innovative practices to gain the political traction needed for adoption and implementation. Practitioners and policy makers "enroll" new practitioners, like engineers at the DEP or housing finance specialists at HPD, in support of urban-agriculture practices, broadening the scope of policies supporting urban agriculture and thus solidifying support for the practice.

DISCUSSION

Changes in urban-agriculture practices, planning, and policy making occur simultaneously and in reaction and response to each other. For example, the efforts of farmers and gardeners to take over vacant spaces to grow food has helped build a case for incorporating food production into the urban environment, while new local laws have created a process for doing so, thus legitimizing alternative, bottom-up methods of securing control of city-owned property. Novel farming and gardening practices such as rooftop farms, temporary farms, and farms and gardens dedicated to social transformation have shaped plans and policies by expanding the scope of possibilities and meanings of urban agriculture beyond mere food production. The same coevolutionary dynamic occurs within government, as agency officials engage in new practices that expand the boundaries of their work. These agency practices, such as housing agencies integrating urban agriculture into new residential projects, break down administrative silos within city government, broadening the range of actors in government who view urban-agriculture planning as within their purview, and enabling the practices of varied agencies to be incorporated into plans and policies.

The challenge for creating a resilient and equitable food system is imagining and supporting desired versions of food production practices. Since this requires influencing the practices in which people engage, specifically how they grow (and procure, process, and discard) food, planners and policy makers must understand the competencies, materials, and meanings that influence food production practices. The interplay of practice and policy, and understanding how policy reconfigures the material elements, meanings, and knowledge that engage people in practices, can help cities influence the

technologies, routines, and forms of everyday practices that embed urban food production in city life.

The focus on practice has important implications for planners and policy makers involved in supporting and expanding urban agriculture, and for food systems planning generally. As the New York City examples show, the efforts needed to advance urban agriculture are as much about identifying, guiding, and supporting new practices, including deviant practices that are considered beneficial, through the creation of policies and programs, as they are about producing plans with a priori goals, objectives, and strategies. If the aim is to understand and evolve the range of urban-agriculture practices that shape our cities, planning researchers (both academics and practitioner-researchers) must focus on two aspects of practice. First, planners and policy makers must trace the emergence, disappearance, or transformation of relevant practices, and the cultural, material, and technical dimensions of practices that lead them to be replicated and adopted, to fail, or to change. This means examining as many of the forces that influence practices as possible to understand whether and how to support, replicate, expand, change, or stop them. Second, they must measure the impacts (on the environment, social equity, and urban economy) of practices, including the anticipated impacts if practices were to become established more broadly, or if they were to cease, recognizing that it is difficult to quantify the causal relationships between a practice that changes a complex system and specific outcomes.

DISCUSSION QUESTIONS

1. Who is it that makes (or made, in the case of New York City) urban agriculture a norm in the city—"guerrilla gardeners," or government programs like GreenThumb?
2. Was it the popularity of the community garden or the garden's implementation within city government that was the greater cause of Mayor Giuliani's defeat in attempting to develop the land?
3. Examine the role of New York City government in urban agriculture. What parts of its involvement help urban agriculture? Are there any parts or actions that are not helpful? In the future, how can government better facilitate urban agriculture?

4. What advantages exist in encouraging interim urban agriculture as described in the "Innovations in temporality" section? What limitations or issues exist with this concept?
5. New York saw great success in promoting urban agriculture through the development of new housing. Is this feasible and effective for every community? Explain your viewpoint.
6. Imagine you are a planner urging another city to promote urban agriculture in the ways that New York City does. What policies in particular should other cities pursue and why? If there are policies that cities should not pursue, also elaborate on those.
7. Cohen and Wijsman point to social justice and equity as a popular instigator of urban-agriculture projects. What instigates policy makers to pursue urban agriculture?

CHAPTER 14

Urban Agriculture and Health

What Is Known, What Is Possible?

BENJAMIN W. CHRISINGER AND SHEILA GOLDEN

INTRODUCTION

Urban agriculture has been celebrated for its ability to increase access to and promote consumption of healthy, fresh foods, increase nutritional knowledge, provide restorative spaces, and build social capital in communities (Hodgson, Campbell, and Bailkey 2011). In the last five years, many metropolitan areas across the United States have revised zoning and land-use policies to accommodate urban agriculture (Goldstein et al. 2011; Hodgson 2012; Hendrickson and Porth 2012). Many of these efforts are inspired by a growing body of literature and research that describes beneficial health impacts of urban agriculture. To further develop our understanding of the connections between urban agriculture and health and inform future efforts to improve health with urban agriculture, a focused and practice-oriented research agenda is critical. New research can build compelling datasets and offer useful insights that draw support from public health policy makers and funders.

Researching the health impacts of urban agriculture is a difficult task, particularly considering the financial and time limitations of many urban-ag-

riculture programs. Nonetheless, spending time and resources on evaluation and research can lend greater weight to the larger urban-agriculture movement and may also help increase the competitiveness of grant applications for individual projects. Recognizing this, the chapter is divided into two parts: first, a summary of health benefits linked to urban agriculture found through a comprehensive literature review, and second, ways to think about measuring possible health impacts going forward.

We begin by reviewing research that has uncovered a variety of health measures and outcomes associated with urban agriculture, including increased fruit and vegetable consumption as well as improvements to diet, physical activity, psychosocial state, body mass index (BMI), and social cohesion. To broaden the scope of this review, we also present studies documenting connections between health and food markets, such as farmers markets and community-supported agriculture (CSA) programs.

The chapter concludes by suggesting tools and frameworks that practitioners can use to tailor evaluations, design health interventions, or conduct general research on the health benefits of urban agriculture. We suggest two different approaches to this research: the first asks how urban agriculture provides access and opportunities that improve health outcomes, and the other considers how urban agriculture might influence healthful attitudes and abilities. For each approach, we offer tools and examples of effective models. We focus broadly on key theories and concepts about the connections between urban agriculture and health, in the hope that readers will apply these ideas in the more detailed case studies and examples that appear in other chapters.

STATE OF THE EVIDENCE: HEALTH EFFECTS OF URBAN AGRICULTURE

Are urban-agriculture participants or beneficiaries healthier?

Research documenting the health effects of urban agriculture generally falls into one of four categories: dietary habits, physical activity, physiological outcomes, and psychosocial outcomes.

Generally speaking, we can measure health outcomes in one of two ways: direct measures and indirect measures. Direct measures are most often char-

acteristics that are observed or measured in person, such as BMI, heart rate, or cholesterol levels. Some of these measures are easy to collect, like height and weight (for BMI), while others can be very intrusive and require the collection of medical samples (like a blood draw), dramatically raising the cost and complexity of a study. Because certain health outcomes are difficult to measure directly, researchers frequently choose indirect, observational, or self-reported measures as alternatives.

Indirect measures might include dietary recalls, measures of fruit and vegetable consumption, or questionnaires to assess average levels of physical activity. These types of measures can produce equally high-quality and convincing data, as long as researchers are aware of how these data are context-specific representations of health (i.e., *self-reported* data might depend on how comfortable an individual is with sharing or how well they remember that information; *directly measured* weight is as accurate as the scale used).

Several resources and tools currently provide more detail and information on researched health impacts of urban agriculture. Practitioners who are looking for existing research might find these tools useful.

1. The Community Food Security Coalition's North American Initiative on Urban Agriculture published a summary of research on health benefits of urban agriculture (Bellows, Brown, and Smit 2005) followed by a literature review of research suggesting nutrition implications of urban farmers markets and community gardens (McCormack et al. 2010).
2. The University of California's Division of Agriculture and Natural Resources published an updated literature review on social, health, and economic impacts of urban agriculture (Golden 2013c). This literature review is accompanied by an annotated bibliography of all the cited literature (Golden 2013a), as well as an "At a Glance" spreadsheet that attaches articles and reports to their specific impacts (Golden 2013b).
3. The Five Borough Farm Project in New York City published an annotated bibliography that is organized by metrics (Sanghvi 2012) and lists research that links positive benefits to urban agriculture. The project's website includes graphics that outline metrics frameworks

and tools to design research and evaluation of urban-agriculture benefits (www.fiveboroughfarm.org).

DIETARY HABITS

The literature describing connections between urban agriculture and dietary practices is sparse, and most studies are single cases rather than systematic assessments (McCormack et al. 2010). The research described here offers a brief picture of what has been documented.

Increased consumption of fruits and vegetables

Perhaps the most common of the dietary evaluations are measures of fruit and vegetable consumption. In five studies that used surveys, individuals who participated or had family members who participated in community gardens reported more servings of fruits and vegetables than control groups who did not garden (Litt et al. 2011; Wakefield et al. 2007; Alaimo et al. 2008; Lackey 1998; Twiss et al. 2003; Blair, Giesecke, and Sherman 1991). Two reviews of garden-based youth nutrition programs operating in urban areas also found promising reports of increased fruit and vegetable consumption among participants (Twiss et al. 2003; Robinson-O'Brien, Story, and Heim 2009).

Urban-agriculture marketing opportunities such as farmers markets and CSAs are also associated with more healthful food consumption. Neighborhoods with farmers markets had higher fruit and vegetable consumption rates among people of color (Park et al. 2011). One study found that WIC participants who received coupons and shopped at farmers markets consumed more vegetables than those who shopped at grocery stores or did not receive coupons (Herman et al. 2008). Studies on CSA member consumption found that people belonging to CSAs used most of their issued produce (Landis et al. 2010) and were likely to consume greater amounts and more varieties of fruits and vegetables (Kerton and Sinclair 2009; Landis et al. 2010; Sharp, Imerman, and Peters 2002).

Less consumption of unhealthy foods

Beyond the promotion of fruits and vegetables, some have documented decreases in urban-agriculture participants' consumption of unhealthy foods.

One Philadelphia-based survey found that urban gardeners reported consuming less dairy and sweet foods and beverages than nongardening peers (Blair, Giesecke, and Sherman 1991). Also, youth involved in community garden programs discussed eating less unhealthy food, such as candy, as a result of their participation in a community garden program in Flint, Michigan (Ober Allen et al. 2008). Thus, there is some indication that participation in urban agriculture can promote improved diet beyond fruits and vegetables alone.

Improved perceptions of fruits and vegetables

Recognizing that having fruits and vegetables available does not necessarily translate to their consumption, some studies have attempted to gauge the intermediate effect of urban agriculture on attitudes toward eating fruits and vegetables. For example, youth-based studies have documented how garden-based nutrition programs can improve a child's perceptions of fruits and vegetables, possibly increasing the likelihood of consumption (Gatto et al. 2012; Robinson-O'Brien, Story, and Heim 2009; Ober Allen et al. 2008).

PHYSICAL ACTIVITY

Regular physical activity is well understood to have positive health effects, including reduced risk of many serious chronic diseases like diabetes, cancer, and obesity (Warburton, Nicol, and Bredin 2006). Some medical studies have specifically referenced gardening as a potentially useful form of physical activity, akin to brisk walking or bicycling (Magnus, Matroos, and Strackee 1979; Wannamethee and Shaper 2001). In several case studies, participants stated that a major motivation or outcome of participating in urban agriculture was increased physical activity (Armstrong 2000a; Twiss et al. 2003; Wakefield et al. 2007; Saldivar-Tanaka and Krasny 2004).

PHYSIOLOGICAL OUTCOMES

Urban agriculture—specifically urban gardening—has been the chosen method of intervention in several health promotion efforts. These projects deliberately measured specific health indicators, depending on the aims of the intervention;

for instance, one study documented the positive effects of gardening in the active management of diabetes (Weltin and Lavin 2012). Another study found positive physical effects of gardening among an elderly population, using a validated clinical instrument (Short Form 36 Health Survey) to consider a range of outcomes (Park, Shoemaker, and Haub 2009). While both of these projects were tailored efforts to improve health among specific populations, the documented health effects may resonate beyond these communities.

Healthy BMI has also been suggested as a possible benefit of urban-agriculture participation, based on a study of community gardeners in Salt Lake City, Utah, which found that gardeners had significantly lower BMI than their nongardening neighbors (Zick et al. 2013). Given that weight status is determined by many different factors, researchers in this study recruited three separate control groups to account for other potentially influential variables, including genetics, nutritional access, and neighborhood environment.

PSYCHOSOCIAL OUTCOMES

Measures of mental state, interpersonal relationships, and social cohesion contribute to our understanding of psychosocial well-being. Much of this knowledge comes from qualitative case studies, surveys, ethnographies (long-term observational research), and in-depth interviews to gather data. Psychosocial health measures are intrusive and difficult to quantify by direct measures (e.g., brain activity); thus many studies employ indirect, self-reported estimates of stress, happiness, or friendship. Studies that employ these self-reported metrics must take care to control for subjectivity; do all study participants agree on definitions and degrees of stress, happiness, or friendship (Kahneman and Krueger 2006)? Despite these logistical hurdles, several studies observed positive social outcomes for individuals and communities that participated in various forms of urban agriculture, including increased social capital, benefits for seniors, and improved well-being through the creation of safe and green spaces.

Increased social capital

Some studies found that urban agriculture—particularly community gardening—can promote civic engagement and social connection between individuals.

Several urban-agriculture projects provided immigrants with an opportunity to network with other immigrants and created shared opportunities with nonimmigrant residents by growing, trading, and often selling their produce (Krasny and Doyle 2002; Beckie and Bogdan 2010). Community gardens were cited as important spaces for gathering and socializing (Patel 1991; Saldivar-Tanaka and Krasny 2004; Teig et al. 2009; Wakefield et al. 2007). Many articles analyzed how these interactions involved decision-making and planning processes that required consensus, making community gardens important places for fostering democratic values and citizen engagement (Glover, Shinew, and Parry 2005; Mendes et al. 2008; Patel 1991; Teig et al. 2009; Travaline and Hunold 2010). For urban farms and businesses, researchers found that participants cited self-determination, self-reliance, and activism as major impacts (Bradley and Galt 2013; Colasanti, Litjens, and Hamm 2010; McClintock 2014; White 2010). Many project participants discussed improved self-esteem and pride in their work (Feenstra, McGrew, and Campbell 1999; Bradley and Galt 2013). In both community gardens and urban farms, the advocacy and coalition building needed to overcome structural barriers of zoning, land-use conflicts, and resource shortages created "networked movements" (Mendes et al. 2008) and a new generation of activists and engaged citizens (Levkoe 2006; Sumner, Mair, and Nelson 2010; White 2010).

Farmers markets were also discussed as places for gathering and fostering community. However, a number of articles discussed barriers, such as lack of affordability and culturally appropriate food and space, that excluded low-income and minority residents (Fisher 1999; Suarez-Balcazar 2006).

Cross-generational integration and senior well-being

Urban agriculture is also a way to promote senior well-being and cross-generation sharing between youth and seniors. Since the majority of community gardeners are seniors (Armstrong 2000b; Patel 1991; Schukoske 2000; Teig et al. 2009), these gardens are an ideal venue for seniors to pass on knowledge and work with youth. In one study, seniors claimed that garden spaces sometimes helped them transition from home ownership to senior homes and higher-density living (Armstrong 2000b). Other studies suggest positive mental and social benefits of gardening activities for seniors (Austin, Johnston, and Morgan 2006; Park, Shoemaker, and Haub 2009).

Creating safe places and reducing blight

Community gardens and urban farms create safe spaces to recreate and improve the physical space of the neighborhood. Participants said that gardens and farms beautified their neighborhoods and employed and benefited residents, which in turn created more local pride and attachment to the space (Bradley and Galt 2013; Ober Allen et al. 2008; Alaimo et al. 2008). Participants expressed that the presence of the farms and gardens helped decrease vandalism and criminal activity and increased safety (Bradley and Galt 2013; Ober Allen et al. 2008; Teig et al. 2009). Community gardens, in particular, were cited as a place where people built trust and rapport (Teig et al. 2009; Kingsley, Townsend, and Henderson-Wilson 2009), cultivating general well-being. Also, studies have documented the prosocial effects of greening vacant lots (Branas et al. 2011; Garvin, Cannuscio, and Branas 2013); assuming that urban-agriculture operations effectively emulate these greening procedures, they may also yield similar psychosocial benefits.

DETRIMENTAL HEALTH EFFECTS?

It is worth noting that researchers have also examined urban agriculture as a potential health risk, largely related to the use of contaminated sites, water sources, or animal wastes (Flynn 1999). While possible detrimental health effects of urban agriculture are not extensively explored in American cities, the legacy of early planners and public health practitioners continues to influence urban-agriculture policies. The efforts of these reformers largely pushed agriculture, especially practices involving animals, outside city boundaries and cited public health as a primary concern (Brinkley and Vitiello 2013). As planners seek to amend or update zoning policies to expand urban agriculture, they should keep an eye to the historical policy precedents in their own cities.

CONTEXT AND COMPLEXITY

Even if we can document direct health benefits from urban-agriculture activities, we should be careful not to overgeneralize the results. Given a set of particular pathways and health outcomes, what other contextual variables could also

matter? For instance, if a study measures gardeners who are high-income retirees, it is unlikely for them to cite a lack of time or money as reasons for not consuming fruits or vegetables. This is not to say that low-income workers are unable to participate in urban agriculture; rather, they face different constraints that must be accounted for in statistical analyses to prevent biased results. In this example of trying to estimate the health effects of urban gardens, income and employment status are likely to be influential determinants of health, perhaps eclipsing possible effects of gardening.

A useful method for considering this complexity is to map the causal pathways, even speculatively, between urban-agriculture features and health outcomes. Causal pathways (fig. 17) connect social, genetic, and behavioral determinants of health to physical outcomes. The following section will outline several possible causal pathways between urban agriculture and human health that planners, policy makers, and researchers could measure in their own communities.

CAUSAL PATHWAYS BETWEEN URBAN AGRICULTURE AND HEALTH

How might urban agriculture cause participants or beneficiaries to become healthier?

Although more studies and evaluations are documenting the health benefits of urban agriculture, there are still relatively few that employ direct measures of health effects. The small number of completed clinical studies illustrates the cost and complexity of the research design required to make causal claims. When program designers and planners consider the *possible* health effects of urban agriculture, they should try to form reasonable expectations and targeted research designs.

To turn again to the example of community gardeners with lower BMI, we can form reasonable expectations by better understanding exactly *how* the practice of gardening promotes lower weight status. Body weight is understood as a product of diet and physical activity; thus, the primary unanswered question is whether gardening more strongly affects diet, physical activity, or both in some reciprocal fashion. Secondary questions would center on exactly

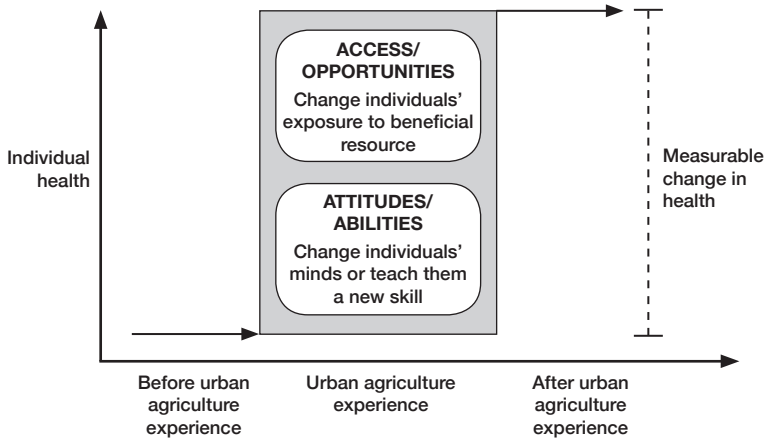

Figure 17. Causal pathways of health.

how gardening supports a better diet or levels of physical activity, how this varies by type of gardening and goals for the gardener, and thus, whether or not this is likely true for all gardeners.

Causal pathways of health

Two groups of causal pathways characterize the exact ways health could be affected by urban agriculture (see fig. 17 for a diagram of these concepts). The first group, *access and opportunities*, might improve health because they afford individuals additional exposure to positive environments or resources (or, alternatively, reduced exposure to negative ones). The second group, *attitudes and abilities*, could improve health by changing an individual's mindset through education or skill development. The distinctions between groups are important to consider in efforts to design, implement, and evaluate projects to improve health. The Five Borough Farm Project, a project of the Design Trust for Open Space in New York City, provides a useful metrics framework and data collection tools that reflect many of the pathways (www.fiveboroughfarm.org). Health Impact Assessment (HIA) is another potentially useful process that offers a systematic method for considering health effects (www.healthimpactproject.org). These resources can be useful in helping

practitioners track and evaluate urban agriculture's possible health impacts. We also provide other examples of methods and freely available resources for measuring these different types of causal pathways.

Access and opportunities

Causal pathways in this group help answer the question, How does urban agriculture make healthy lifestyles *more accessible* to individuals or *create opportunities* for them to execute healthy behaviors? Generally speaking, these pathways are easier to measure and might involve tools like geographic information systems, open-source mapping tools, or price and availability surveys. Place-based interventions to improve physical access may also be more straightforward interventions for planners and policy makers, especially compared to the more complicated task of changing human behavior. Interventions that rely on these types of mechanisms are considered to be place-based strategies; in essence, they are efforts to "level the playing field." Let us consider several ways urban agriculture could improve access and opportunities for health.

Lower physical and economic barriers to healthy options Many point to the high cost of fruits and vegetables compared to cheaper, highly processed foods as a contributor to diet-related health disparities. Similarly, the previous decade of food desert research has also cited low physical accessibility to healthy options as problematic for community health. Urban agriculture may be able to lower the direct costs for these items and bring them closer to disadvantaged communities, many of which cannot economically support large food retailers. Studies could map the availability of healthy food retailers using freely available resources like Community Commons (www.communitycommons.org), overlaying other important neighborhood characteristics, like household income or family size (see also a more nuanced definition of access in chapter 12 of this volume). The local cost of healthy food could also be measured with straightforward in-store audits (for examples, see the National Cancer Institute's online measures database, http://appliedresearch.cancer.gov/mfe/instruments).

Exposure to green space Spaces where urban agriculture is practiced may also afford community members opportunities to interact with nature. This exposure could occur in discrete events, such as an afternoon of gardening, or

more indirectly over time, such as an urban farm operating across the street. These differences in exposure determine the exact kinds of access and opportunities that urban agriculture may provide. Researchers can either consider how much exposure individuals have from home with an area-based measure (e.g., square feet of green space on a given block), or engage with community members to more carefully consider exposure (e.g., in-person interviews to determine frequent walking routes). A variety of quantitative and qualitative measures were used by Branas et al. (2011) and Garvin, Cannuscio, and Branas (2013) to consider the effects of a Philadelphia vacant lot greening program, and these studies might provide urban-agriculture researchers with useful methods or ideas.

Space for physical activity and social interaction A lack of safe, quality environments for physical recreation and social interaction has been cited as a possible contributor to low levels of recreation and connectivity among disadvantaged neighborhoods. As discussed in the literature, urban agriculture can provide clean and safe spaces where participants can engage in various activities, including exercise, collaboration, and interaction. In order to understand the unique recreational preferences or unique circumstances in each community, it is compelling to have community members identify these spaces and characterize them. Participatory action research and community reporting are great ways to collect relevant and more-accurate data. Open-source mapping programs such as Google Maps can be used as an accessible and easy database for residents to enter, share, and collaboratively interpret data.

Attitudes and abilities

Causal pathways in this group help answer the question, How does urban agriculture *change individuals' minds* about healthy lifestyles or *make them more able* to execute healthy behaviors? Measuring these pathways may be more complicated, especially given the need for pre- and post-exposure data collection to measure true change in attitudes or abilities. Nonetheless, surveys or observational studies can provide a good start, even if individuals are simply self-reporting changes postexposure (see the measures registry of the National Collaborative on Childhood Obesity Research for a variety of

examples, www.tools.nccor.org/measures). Interventions using these types of mechanisms are typically considered to be people based and often focus on capacity building and lowering mental barriers to changing behavior. Urban agriculture could influence individuals' attitudes and abilities in a number of different ways.

Increased willingness to try healthy options Both children and adults who participate in urban-agriculture activities may be planting, harvesting, or selling previously unfamiliar fruits and vegetables. Participants may be more willing to try new foods they had a hand in producing, or curious neighbors could explore options they would not otherwise consider in a conventional retail setting. Measurements of this pathway could document how an individual's attitudes toward fruits and vegetables changed with exposure to urban agriculture. Farm to School programs often conduct evaluations that include tastings where students are given samples of fruits and vegetables (often grown in their school garden programs) and surveyed. Some of these evaluation strategies could be easily adapted for urban-agriculture programs. The National Farm to School Network has a great tool kit with resources for evaluating attitudes toward healthy options that includes survey prototypes and evaluation designs (Joshi and Azuma 2012).

Increased knowledge of healthy options By exposing participants and beneficiaries to different varieties of fruits and vegetables, urban agriculture can help build nutritional knowledge. For instance, urban-agriculture activities could provide tangible examples of recommended healthy foods, servings, or dishes. Individuals may learn how different types of foods can be used to manage or improve existing health conditions, like obesity or diabetes. Programs can measure this by using surveys and pre- and post-interviews. The Farm to School evaluation tool kit mentioned earlier provides survey samples that can direct evaluation design (Joshi and Azuma 2012).

Increased personal contact and social capital Through participation in urban-agriculture activities, individuals may develop marketable skills, self-motivation, and civic pride (see chapters 7 and 8 for examples from community case studies). It is also possible that the networks and associations formed through urban-agriculture projects could increase social connectivity and collective efficacy. By improving contact between neighborhood residents,

urban agriculture could decrease any existing negative effects of isolation or alienation. Self-reported indicators (e.g., "Do you feel connected to your neighborhood?") and other indirect measures (e.g., participation in local elections, neighborhood associations, etc.) could help describe changes in this mechanism. As discussed before, using community-generated data and participatory action research strategies would create a compelling dataset.

Both pathways matter

In practice, most health interventions employ both types of causal pathways. For instance, numerous garden-based efforts will attempt to increase access and opportunities to consume fruits and vegetables while also actively promoting these new foods through educational programs like cooking classes (see also the numerous examples in chapter 16 of this volume). These hybrid interventions could quite possibly employ pathways not considered in this chapter, adapting to meet the needs of a specific community or population. As program designers build evidence for their interventions, it is worth considering what types of pathways are at play, since they may require different types of tools to be appropriately measured.

CONCLUSION

While the breadth and depth of existing literature documenting the health effects of urban agriculture leave room for growth, the renewed interest by planning researchers and practitioners in both urban agriculture and public health holds promise for further investigations. Similarly, calls for politicians and public health officials to develop evidence-based health policies increase the likelihood for new cases to be added to this body of research. With added context and evidence, advocates for urban agriculture will be better able to accurately estimate the health outcomes of their efforts.

Though we are likely to see more research connecting urban agriculture and health, complex social, political, economic, and temporal factors typically make it impractical to conduct studies capable of making truly causal claims. However, planning practitioners and researchers can still contribute to a rich local understanding of health impacts by measuring the causal pathways of

health (access and opportunities, attitudes and abilities) as a meaningful practical alternative to clinical studies.

This chapter has attempted to briefly describe research that has found connections between forms of urban agriculture and human health, while also providing a framework for considering causal pathways that could be considered in future programs and evaluations. It should remind readers of real-world health efforts in their own communities, where it is likely that a number of pathways are at play, all possibly influencing individual and community health. Going forward, these tools can offer a basis for creating additional knowledge and reasonable expectations about urban agriculture and health.

DISCUSSION QUESTIONS

1. Identify different types of evidence that are used to connect urban agriculture and health. Would different types of evidence be more/less appropriate if you were trying to implement an urban-agriculture ordinance versus design a diabetes-prevention program?
2. To what degree are there measurable positive effects of urban agriculture on people who are exposed to, but not necessarily participants in, urban-agriculture activities?
3. What factors could improve access to and use of farmers markets among low-income or minority communities?
4. How could mapping technologies be used to engage urban-agriculture participants? What types of spatial data might be useful for exploring community context?
5. As food system planners and health officials try to expand future collaborations, what challenges and opportunities might they encounter?

CHAPTER 15

More Than the Sum of Their Parts

An Exploration of the Connective and Facilitative Functions of Food Policy Councils

LINDSEY DAY FARNSWORTH

INTRODUCTION

Since the first food policy council was established in Knoxville, Tennessee, in 1982, over two hundred state and local food policy councils have been initiated across the United States. Much of this growth is very recent; there was a nearly seven-fold increase in the number of food policy councils in the United States between 2005 and 2015 (Center for a Livable Future 2015). The proliferation of the food policy council suggests that this organizational model is perceived to fill a critical niche in community and regional food systems—but which?

Inherently complex and highly interconnected, the food system has proven to be a challenge to coordinate and administer. Food policy takes a variety of forms and pertains to all phases of the food system, from production to waste. As a result, numerous local, state, and federal departments—ranging from Health and Human Services, to Agriculture, to Economic Development and Planning, to Parks and Recreation—oversee narrow subsets of food-related programs and policies.

The community and regional food systems literature has documented a variety of problems resulting from this decentralization and has highlighted issues associated with conflicting normative objectives and overall lack of alignment across food policies (Barling, Lang, and Caraher 2002; Connelly, Markey, and Roseland 2011; Dahlberg et al. 2002; Koc et al. 2008; Muller et al. 2009; Pothukuchi and Kaufman 1999; Wekerle 2004). Food policy councils can assume a variety of forms and functions, but their central purpose is to "provide a forum for diverse stakeholders to come together and address common concerns about food policy, including topics such as food security, farm policy, food regulations, environmental impacts, health, and nutrition" (Broad Leib 2012, 1). As such, food policy councils have emerged as a popular organizational strategy for improving communication, regulatory alignment, and problem solving across different agencies and sectors that shape our food system.

Despite their growing popularity, significant questions remain as to whether food policy councils will be able realize their potential. Concerns regarding food policy councils' overall lack of staff capacity, funding, and political authority permeate the literature. For example, according to Harper et al. (2009), "The vast majority of food policy councils have either no staff at all or only one part-time staff person, relying instead on volunteers or on restricted amounts of staff time from city, county or state employees assigned to the council in addition to their usual government duties" (3). This has already contributed to the dissolution of several food policy councils. Further, food policy councils that are not seated in government have been criticized for competing with member organizations for grant funding and thus detracting from, rather than enhancing, collaboration. There is also meager documentation of the impact of food policy councils. Harper et al. (2009) note, "We were unable to quantitatively demonstrate the impact of Food Policy Councils on food access, food policy, public health, or economic development due to a lack of data or evaluation procedures within individual councils, despite numerous success stories" (7). Finally, some have suggested that food policy councils have inherently limited efficacy because they are fundamentally neoliberal entities that were never intended to transform the current food system (Alkon and Agyeman 2011; McClintock 2014). Nevertheless, food policy councils continue experimenting with a range of organizational strategies to maximize

their impact and demonstrate their worth. In the absence of full-time staff and stable sources of funding, the expertise and political and social capital of their organizational members are arguably food policy councils' greatest assets. As such, it is critical that food policy councils understand their members' self-interest and motivations for participating. In fact, food policy councils may find it fruitful to incorporate such considerations into their structures and processes to ensure their own success.

This chapter highlights initial findings from exploratory research conducted in conjunction with the University of Wisconsin–Madison Community and Regional Food Systems Project to understand what motivates individuals to participate in food policy councils and how their goals are addressed (or not) through participation in food policy council activities. We illustrate the connective and facilitative contributions of food policy councils to the ongoing work of their members by drawing on key interviews from a quota sample of members from two food policy councils. We first outline motivations for participating in food policy councils and provide examples of successes, then highlight ongoing challenges faced by these councils, and conclude with a discussion of the implications of these findings for food policy council structure and process.

METHODS

This chapter draws on twelve interviews with members of two food policy councils conducted between October 2012 and March 2013. While council selection was based largely on a convenience sample, the councils represent distinct geographic regions, membership structures, and city sizes. Because of significant variation across local food policy councils, the jurisdictional and geographic scope of their work varies; the two councils highlighted in this study have an urban focus but engage with county-level partners and issues. One of the two food policy councils examined in this study has an open membership policy. The other is made up of appointed members but its working groups welcome participation by the public.

A quota sampling method was used to select key informants from each food policy council to ensure representation of multiple vantage points. To achieve this, food policy council coordinators were asked to identify council

members representative of the following topic areas: food justice, emergency food, urban agriculture, farm to institution, food access, and policy. These categories were selected because they are more specific than categories such as food production, distribution, and consumption, allowing for a more meaningful comparison across cases while still representing common issues in food policy councils. It bears mention that all of the interviewees who participated in this study were employed by organizations working on agriculture, food, or nutrition issues and were able to attend food policy council meetings in a professional capacity.

Interviews were conducted by phone and transcribed. The specific councils and interviewees have been kept anonymous to allow for the inclusion and discussion of potentially controversial perspectives. Generalizations based on these exploratory data reflect observations that surfaced across interviews in both cities.

Although this chapter highlights quotes and examples from only two food policy councils, it is also informed by sensitizing information from interviews with members of other food policy councils, participant observation of multistakeholder food council or coalition meetings in six cities and five states, and my direct involvement in the Madison, Wisconsin, food policy council. In analyzing the transcripts on which this chapter is based, I first used a priori codes formulated following a literature review of food policy councils. Emergent codes were added to accommodate new concepts as they surfaced. Further research is needed to ascertain whether and to what extent the themes and lessons that emerged from this exploratory study are consistent with the experiences of other food policy councils.

MOTIVATIONS FOR PARTICIPATING IN FOOD POLICY COUNCILS

Regardless of whether interviewees were formally appointed to a council or simply chose to partake in one, their motivations for participating in food policy councils were typically one or a combination of the following objectives: to increase coordination with other organizations active in the metro food system, to advance specific goals or projects, and to network and acquire information about existing activities.

Increasing coordination across urban food initiatives

Desire for increased coordination across urban food initiatives may be in part a response to the growing visibility and prevalence of local food-related activities. Consider the increases in food system activity associated solely with growth in consumer demand for local food and increased spending to fight diet-related diseases. The number of farmers markets in the United States has more than tripled over the past fifteen years and now exceeds eight thousand (USDA, n.d.). According to the USDA, local food sales were estimated to have climbed from $4.8 billion in 2008 to $7 billion in 2011 (Packaged Facts 2007).

At the same time, philanthropic and federal funding to fight diet-related diseases has increased dramatically. In 2007, the Robert Wood Johnson Foundation pledged $500 million to reverse the childhood obesity epidemic by promoting physical activity and increasing the accessibility of healthy food in school and retail environments (Strom 2007). In addition, through the American Recovery and Reinvestment Act of 2009, the Centers for Disease Control and Prevention released $373 million in grant funds for local "communities to adopt and implement evidence-based policies to improve nutrition, increase physical activity, decrease overweight and obesity and tobacco use" (Robert Wood Johnson Foundation, n.d.). Given the recent rise in spending on food and nutrition activities at the local level, it is not surprising that even those with a history of involvement in food issues cannot keep up with all the activity.

In the following quote, the director of a farm-to-table organization speaks to how community food systems can be rife with innovation and activity but lack the coordination and cross-pollination across activities that are necessary to shift from piecemeal progress to systemic change:

> I think we needed a food council. There was a screaming need for coordination of efforts. [This town] is kind of like the Silicon Valley of urban agriculture right now. You know how Apple started in a garage? Tomorrow's Growing Power[1] is probably sitting in [a coffee shop] right now pecking away at the keyboard. . . . So lots of folks are trying different things out and when you have a lot of independent entities all working on related things, it's important to know what other people are up to.

In the words of another council member, food policy councils are a forum for people already working on local food issues to "become aware of how the different components [of the food system] play together . . . and to see how we might be more effective in our food system work by sharing information and ideas and looking for opportunities for collaboration."

Advancing specific goals or projects

Another common motivation for participating in food policy councils was to advance specific goals or projects, typically related to council members' professional responsibilities. For example, one council member worked at a statewide food buying club that was initiating a mobile market in a central city. She became involved in the food policy council in the early 2000s out of general interest in improving communication and coordination, but she was especially motivated by a desire to meet new partners who could help identify specific sites in which to locate the urban mobile market.

Another council member, with a background in community economic development, learned about his local food policy council after contacting the Office of the Mayor to explore ways the city could be more supportive of food carts and street vending as a means of fostering small business development. In this instance, the food policy council provided an outlet for him to advance his work on street food in a context in which he could work with city staffers and other partners. At the same time, it enabled the Office of the Mayor to respond to his inquiry by redirecting him to a forum that was better equipped to support and develop his interest. While this individual initially became involved in the food policy council through its working group on street food, he has since become an appointed council member.

Networking and acquiring information about existing activities

Finally, and not surprisingly, early-career professionals and individuals who are newer to urban food issues often sought an information clearinghouse on local food system activities. They were more interested in informal networking opportunities, while seasoned professionals and activists tended to come to food policy councils with more focused objectives. The discrepancies between the needs and objectives of newer and more experienced activists

and professionals became even more evident in interviewees' perceptions of how useful food policy councils are in addressing their objectives, which is explored later in the chapter.

SUCCESSES

Our study found that some of the ways food policy councils have been most effective is by supporting ongoing initiatives and by providing guidance and building capacity within new initiatives.

Accelerating existing projects

Several of the interviewees involved in preexisting initiatives noted that their food policy council accelerated their work through in-kind support, primarily staff time, and/or by facilitating strategic new connections between organizations or sectors. For example, one interviewee was engaged in a healthy corner store conversion initiative. Its aim was to increase the availability of healthy foods in corner stores in a neighborhood with few other retail food options. She explained how the food policy council was able to bring new expertise to this ongoing effort and serve as a neutral intermediary between good-food activists and corner store operators.

> I think that the Neighborhood Market Training would not have happened, at least not as soon and not as broadly without the food policy council. . . . The corner store operators, whether they have convenience stores, small groceries, or liquor stores sometimes have tense relationships with the communities that surround them. . . . So the food policy council, by offering this training, was a neutral entity bringing [corner store operators] into contact with people who design very successful niche grocery stores—people who are up to the minute on how you finance these things with small business lending, and could talk to them about sourcing locally or businesses strategies. . . . You could just see the light bulb going on in the room. It was great, great discussion. And there was a clear benefit for [the corner store operators]—they were getting access to this great information . . . so the decision to show up was literally a business decision.

By leveraging relationships with both marketing and merchandising experts and community food security activists, the staff of one food policy council was able to create a neutral space, offer unique technical expertise to corner store operators free of cost, and help change the at times adversarial dynamics between proponents of the corner store conversion program and the corner store operators.

Similarly, another interviewee remarked that the food policy council had been very helpful in accelerating efforts to get farmers market operators to install Electronic Benefit Transfer (EBT) machines in order to take Supplemental Nutrition Assistance Program (SNAP) benefits (formerly known as food stamps) at farmers markets. Specifically, the council helped them engage farmers market operators: "They've co-convened several meetings with us where we brought together market operators. I think there are well over a hundred in the county and there's not a well-defined umbrella organization for them. [The council is] able to bring different folks together." In another example, a food policy council working group played an instrumental role in drafting the initial language for chicken and beekeeping ordinances. In doing so, they reduced some of the onus on the Legislative Reference Bureau and other city departments and were able to accelerate the passage of these ordinances.

These examples illustrate the potential of food policy councils to serve a facilitative role between different groups of stakeholders and between community groups and policy-making bodies. However, they also exemplify instances where partner organizations were, by and large, amenable to collaboration. McClintock and Simpson (chapter 5) highlight several instances in which departmental infighting thwarted food systems policy and planning efforts. Given that most food policy councils have little or no formal authority, further research is needed to examine the formal and informal recourse mechanisms that food policy councils have used in the face of interjurisdictional conflict.

Incubating and vetting nascent projects

Food policy councils have also provided valuable direction for nascent projects by vetting and strengthening initiatives originating from working groups to develop policies on topics such as street food vending and urban agriculture. Staff at one food policy council urged a working group to present its research

and proposal to promote food carts before the appointed council. In this way, food policy councils can use their members' expertise to anticipate potential policy and regulatory barriers and leverage their professional networks to identify partners and strategies to help overcome them. Following is one of the working-group leaders' reflections on the experience of presenting a policy proposal to the council:

> They were totally in favor of it. They were really excited about it. And then they were like, "Maybe you should think about this," or "You should check out this report," or "If you need help in this part of the city, let me know." And so that was super valuable and actually got the working group really excited, like, "Wow, we have all of these other folks really supporting us, we can keep moving forward."

An appointed member of a council with a background in public health provided another example of this vetting function:

> [One of the working groups] presented to the council and I raised a concern about food safety—that a lot of this is unregulated. The environmental health folks are very rigid on this stuff. They come at this from a regulatory perspective. But the director of Environmental Health at the County Public Health Department is very open-minded and I said, "I think it would be good if you met with him . . . because I don't want to see the Health Department be an impediment. I mean, we certainly have a responsibility to ensure food safety, but I think there are ways of doing that while at the same time being supportive of the Urban Agriculture Movement." So they did meet, and I was told it was a very good meeting.

Fostering systems knowledge and partnerships

Another common theme that emerged is best captured by one interviewee who, in reflecting on what she had learned through her involvement with the food policy council, remarked, "I didn't even know what I didn't know." Many members come to their food policy council with knowledge or passion for a particular issue, such as urban agriculture or emergency food security, but relatively few members have previous in-depth knowledge of multiple food system issues. Further, few of the individuals interviewed in this study

had previously served on committees with such a wide a range of goals and expertise. While this breadth of scope presents challenges for communication and agenda setting, it also fosters invaluable intangibles such as systems knowledge and partnerships between unlikely bedfellows.

For example, one council member who served as food service director for a large urban school district felt that school food often got a bad rap from people who did not fully understand the scale, price points, and regulations that structured school districts' sourcing and meal planning. She joined the food policy council partially out of a desire to educate others about the efforts the school district had made to trace and document its locally sourced products in spite of the scale and cost constraints it faced. As she explained,

> I think sometimes people are critical of school meal programs. So the food policy council provided me with a venue to educate people that might be local farmers or local producers—to give them an idea of the scope of my operation. But I think the learning went both ways, because it was also an opportunity to talk about what their capacity was, what our needs were, and to try and find some points of intersection or points that we could leverage.

While she joined the food policy council to clarify misperceptions about school food service, she encountered new perspectives and opportunities for cross-sector problem solving.

Food policy councils also foster knowledge exchange and partnerships by attracting members with complementary skill sets, for example technical assistance and lobbying. For instance, one interviewee noted that her professional work prevented her from directly engaging in lobbying. She found synergy with working group members who were able to "roll up their sleeves and visit with city departments and city council members." As she explained,

> I see where the needs are with urban agriculture, and I will develop educational materials and resources that support [the working group's] efforts. For example . . . how to remediate urban soils and what can be done around that. And it was clear that that's more of an educational role—teaching people about best practices and so forth. And I think it was going through that process of learning about what the city currently

did in regards to soil testing for example, and studying up on what was happening in other cities that really helped me see "Oh, this is an area where I could really focus some time because there's no one else who can do it."

In this way, she brought technical expertise through her knowledge of soil science and testing, while other members of the working group provided political voice to promote the expansion of urban agriculture. This is precisely the integration of policy advocacy and production expertise that Will Allen calls for in the foreword to this book as he reflects on what types of knowledge and collaboration will be necessary to overcome the myriad challenges facing urban agriculture; it is also consistent with Cohen and Wijsman's discussion of the coevolution of policy, planning, and urban agriculture in chapter 13.

Another interviewee reflected on how much he has learned about other facets of the food system through his involvement with the food policy council. He even pointed to ways in which his broadened understanding of the food system has potential implications for how public health interventions are conceptualized and approached:

> Our participation in the council has helped us expand the reach of our work . . . through introducing us to a broader network of potential allies. I have a medical background—a pretty traditional health and public health background. And in retrospect, I was remarkably uninformed about the food system and about the origin of food from farm to plate. . . . Through the food policy council, I've met a whole new group of professionals with different expertise, and it has helped us. I think we have a better understanding of what the issues are around getting healthy, affordable food to people. . . . So now I think we're much better informed when we're thinking about interventions. We need that broader understanding to engage these various players like small market owners, farmers markets, even schools.

Just as food policy councils have broadened the perspectives of their members, they could be used more deliberately to debrief local policy makers and municipal and county staff about innovations in food system policy and planning. As discussed in chapter 4, Horst, Brinkley, and Martin's research

indicates that urban-agriculture policy is often spearheaded by urban growers and community members rather than municipalities. Citing the importance of governmental support for these change efforts, they suggest that there is a need for more "education and training for policy makers, planners, and public health officials" with regard to model codes and policies that could help support urban agriculture and community food security.

Finally, interviewees noted that participating in food policy councils has affected them personally. One council member mentioned that since joining the food policy council, she has started two home composting bins and built a greenhouse in her backyard for vegetable production. In reflecting on these projects, she remarked, "When you look at truly making change, you move from talking about it or thinking about it to doing it." This remark speaks to the fact that food policy councils have not only affected organizational activities, as demonstrated by the previous interview excerpt; they have also broadened individual participants' understanding of the food system and influenced the way they interact with it.

CHALLENGES

As the previous examples illustrate, at their best, food policy councils can harness the enthusiasm and creativity of newcomers to food system issues while leveraging the expertise and networks of experienced activists and mid- and late-career professionals to influence policy, enhance coordination, and build leadership. However, not all interviews pointed to such success. Criticism of council structures and processes tended to focus on three issues—how food policy councils interacted with existing organizations and activities, how meeting time was spent, and the underrepresentation of people of color and low-income individuals on food policy councils. Issues regarding the class and racial dimensions of food policy councils warrant their own discussion and are documented in a separate article. Here, the focus is on the first two critiques.

Most interviewees were active in the local food system prior to the creation of a food policy council, and some of them were wary about how their food policy council interacted with preexisting activities. Several interviewees—all of whom worked in the nonprofit sector—expressed concerns about food policy councils competing with other local organizations for grant funding. Others

saw food policy councils as obstructionist organizations that were created by local government to dilute or displace progressive grassroots agendas. One interviewee with a background in antihunger advocacy pointedly asked, "Why can't the food policy council be something that gets support for stuff people are already doing instead of this whole new group of people parachuting in, and because of their connection with the mayor, sort of co-opting our whole agenda? A useful entity would help find funding and resources for existing groups." Indeed, as the successes described above suggest, one of the ways food policy councils have been most effective is by supporting ongoing initiatives and by providing guidance and building capacity within new community-driven initiatives.

In addition, some interviewees expressed frustration about how meeting time was used and complained about a lack of results, which they attributed in part to the variation in council participants' relevant experience and decision-making power. This frustration was especially apparent in the food policy council with an open membership policy. As one seasoned member explained, "On one end of the spectrum you've got mature organizations that are very clear on what they want to do and how they're going to do it. Then there are also a lot of folks in the room who just have this vague notion that they want to improve food."

Interviewees identified two main challenges with the open membership structure, as illustrated in the quotes below. First, bringing newcomers up to speed takes valuable time out of each meeting, which is not insignificant if the council meets only bimonthly or quarterly. Second, in order to have influence, food policy councils either need formal authority to make recommendations to local government or they must be made up of decision makers who can influence resources and practices at their respective organizations. Food policy council members with extensive professional experience in community food systems development and service provision were vocal about their frustration with the lack of focus and strategy that resulted from an open structure.

> It's an anybody can come anytime kind of meeting. And the difficulty that I have with that is how many times we go back to square one at a meeting. One of my great frustrations with the council is that it's essentially a networking meeting. I want to move something. I'm looking for

> access points and partners to help push particular policy issues. . . . I really want this council to grow into a more formalized body that works to push on policy.

This quote underscores the frustration experienced by individuals who felt that a permeable, big-tent council structure impeded strategic policy work. The following observation from another interviewee raises questions about the efficacy of a food policy council made up of individuals with little formal decision-making power:

> I'm not discounting the value of having the grand assembly. . . . But I think it's a mistake to think that the group could really affect policy without having a meeting of either board members or executive directors of the agencies involved in the work. The people who show up at meetings often can't really represent their organizations. Even if they believe strongly in something, it won't necessarily result in action when they get back to the office.

Relatedly, several experienced council members made it clear that while they value the space created by the food policy council, they already have high-level contacts and are much less dependent on the council to serve as an information clearinghouse or networking forum than newcomers. One interviewee commented, "I've been doing food work for so long that if I think I need to know somebody, I just pick up the phone and call them."

Multiple interviewees were also active in other coalitions or networks whose narrower geographic and/or issue focus seemed to foster greater trust or at least more expedient results. As another explained, "There's really just a handful of us working on [this topic] and so we're meeting and talking all the time anyway. We met before the food policy council existed and we still network on our own much more frequently—so the food policy council, for us, ended up being a little duplicative."

DISCUSSION AND RECOMMENDATIONS

This exploratory study suggests that people are motivated to participate in food policy councils to increase coordination with other organizations active

in the local food system, to advance specific goals or projects, and to network and acquire information about existing activities. Not surprisingly, our findings indicate that individuals with more experience in local food issues tend to be motivated by a desire to advance specific initiatives and goals and seek strategic partnerships in order to influence policy and bring about systems change. By contrast, newcomers to community and regional food systems and individuals with fewer professional connections are more likely to seek general information and networking opportunities through their involvement with food policy councils. Further, as some of the more seasoned council members indicated, failure to meaningfully engage them and advance their goals may result in the declining involvement of food policy council members whose knowledge and networks are important for the development of emerging leaders and the efficacy of food policy councils as a whole.

As such, food policy councils must honestly assess whether their structures and processes align with their goals and those of their members. If the primary goal is networking, an open membership structure and informal relationship with local government may be perfectly appropriate. However, to significantly influence policy and systems change, food policy councils will likely require formal authority as recognized by local or state government, and they may also need to convene individuals who have decision-making power and influence within their respective organizations. Food policy councils that do not meet these criteria can serve as valuable information clearinghouses and networking organizations, but according to our preliminary findings, they may be more attractive to newcomers than to individuals with more established professional networks.

In spite of these challenges, our research shows that food policy councils have already added value to emergent and ongoing community food initiatives and have successfully supported both new and seasoned food activists and professionals through accelerating existing projects, incubating and vetting nascent projects, and fostering systems knowledge and partnerships. It is notable that while these activities are likely augmented by informal networking, what they prioritize is the development of strategic relationships in the service of specific objectives. This is illustrated by the food policy council that brought together store owners and grocery marketing professionals through a corner market training. Other examples include introducing citizen work-

ing-group members to specific staff in the Legislative Reference Bureau or County Health Department to strengthen grassroots program and policy proposals. Focusing on ways food policy councils can strategically support preexisting activities not only benefits new and seasoned food activists and professionals but may also help dispel claims that food policy councils are competing with local nonprofits for funding and turf.

RECOMMENDATIONS

1. *Develop an appointment-based membership policy with open-membership working groups*. In this study, the food policy council with the open-membership policy was not more demographically diverse or representative than the council with appointed members. Reserving certain council appointments for representatives of specific topics (e.g., farm to institution) or specific population segments and neighborhoods can help ensure more diverse representation. Meanwhile, open-membership working groups can create pathways for nonappointed residents, activists, and professionals to influence programs and policies through specific projects supported and vetted by appointed council members. To maximize public accessibility, open-membership working group meetings could be held in the evenings.
2. *Promote inclusive leadership development within food policy councils*. The central aim of an open-membership structure is to promote inclusivity and diversity, yet interviews indicated that while open-membership structures led to greater numbers of newcomers, they failed to enhance the cultural and demographic diversity of the council membership. In addition to using council structure to facilitate inclusivity and diversity, food policy councils can promote inclusive leadership development programmatically by building pathways for youth engagement, holding evening meetings, and hosting trainings on dismantling racism and implicit bias for council members and staff (Day Farnsworth, forthcoming). In cities where councils are required to use Robert's Rules of Order, trainings on meeting protocol have also been used to help level the playing field.

3. *Provide brief but regular newcomer orientations and publicize them widely.* Depending on how frequently a council and its working groups meet, it may consider hosting orientations before each council meeting or prior to working group meetings to answer frequently asked questions and to foster informed and productive participation from the public.
4. *Develop a process by which food policy council working groups can fine-tune project proposals and solicit endorsement from the council.* One of the greatest strengths of most food policy councils is the diverse expertise of their members; this is an invaluable asset to initiatives whose implementation and regulation will fall under the purview of multiple city or county agencies. Interviews indicated that while some councils have served a useful vetting function, the process and expected outcomes were often unclear. Food policy councils should consider developing processes through which working groups can pursue council endorsement for policy proposals as well as criteria for the types of projects the council is able to endorse; this may not include all the projects incubated in working groups.
5. *Establish grants programs to support and elevate community-led food projects.* For example, the Food Policy Council of Madison, Wisconsin, operates a $50,000 grants program to support community-based projects that increase healthy food access. Funded projects have ranged from youth gardening programs to the installation of salad bars in public school cafeterias.

CONCLUSION

Decentralization and misalignment of food policy and programming at the state and local levels have resulted in confusion and contradictory food system incentives and activities. By convening diverse stakeholders to address concerns pertaining to a host of food-related issues, food policy councils can use their members' diverse knowledge to help improve regulatory alignment and problem solving across the different agencies and sectors that shape our food system. Drawing on exploratory research, we have discussed what motivates individuals to participate in food policy councils and how their

goals are addressed (or not) through participation in food policy council activities.

Preliminary findings suggest that food policy councils can enhance ongoing community food system work and build on their members' expertise and enthusiasm by accelerating existing projects, incubating and vetting nascent projects, and fostering systems knowledge and strategic partnerships. Further, we found that membership structure may influence a council's ability to effectively serve these functions. This is because individuals with more experience in local food issues tend to be motivated by a desire to advance specific goals, while individuals with fewer professional connections are more likely to seek general information and networking opportunities through their involvement in a food policy council. Although open-membership structures increase inclusivity, the councils that we examined found that open-membership structures resulted in a need to devote considerable meeting time to orienting newcomers rather than addressing substantive issues. Consequently, more-experienced members thought that the meetings were unproductive. To both nurture new food system leadership and harness the influence and expertise of experienced council members, food policy councils may wish to explore the following approaches: supplement appointed or elected membership structures with working groups that are open to the public, use programming to promote inclusive leadership development, host regular newcomer orientations prior to council meetings, develop a process by which proposed initiatives and policies can be formally vetted and endorsed by food policy councils, and establish grants programs to provide seed funding for grassroots food projects.

NOTES

1. Growing Power is a nationally renowned urban-agriculture nonprofit headquartered in Milwaukee, Wisconsin. It works to provide equal access to healthy, high-quality, safe, and affordable food for people in all communities through hands-on training and demonstrations in sustainable food production, processing, marketing, and distribution. Its founder and CEO, Will Allen, was the recipient of a MacArthur "Genius Grant" in 2008.

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DISCUSSION QUESTIONS

1. Competition for resources and power can and has led to issues among organizations that participate in food policy councils. To what extent—if at all—is competition helpful or necessary in spurring community food system development?
2. Should a food policy council simply act as a facilitative chamber for its members, or should it initiate projects? Or does it depend? Explain.
3. Is open membership necessary for a food policy council to be fully inclusive? What strategies can food policy councils use to counteract problems that Day Farnsworth mentions as a result of a food policy council's open-door policy?
4. Is there a discernible hierarchy among food policy councils regarding organizational structure and sophistication? Should there be? What advantages and disadvantages are associated with different food policy council structures? Explain.
5. One purpose of food policy councils is to convene a wide variety of leaders with diverse expertise. However, such diversity sometimes leads to tensions. In what ways is this diversity helpful or detrimental to the work of food policy councils? What strategies does Day Farnsworth propose for navigating this tension? What other approaches could be employed?
5. How should a food policy council position itself relative to other

community food organizations, knowing that important community figures may believe that the food policy council's mission is redundant?

6. Given Day Farnsworth's chapter, consider this question: As organizations, are food policy councils too general, or too specific?

CHAPTER 16

Embedding Food Systems into the Built Environment

JANINE DE LA SALLE, PRINCIPAL, URBAN FOOD STRATEGIES

INTRODUCTION

The increasing sophistication and complexity of the global food system presents a paradox: on one hand, the planet has never produced as much food as it does now, and on the other, the rates of hunger, malnutrition, obesity, diabetes, and heart disease have soared in the Global North over the past three decades (Food and Agriculture Organization 2012). These health impacts are concentrated in urban environments. For planners, health practitioners, and other city builders, this paradox creates a strong impetus to not only understand the inextricable links between food, health, and the urban built environment but also to integrate regional food systems into the built environment as a core population health strategy. As a result of the significant health, economic, and environmental benefits linked to strong regional food systems, food provides an important lens or key organizing principle for the healthy built environment.

Prerail cities were (are) fundamentally shaped around regional and international food systems. From using fields outside the city for fattening cattle, to establishing ports that imported and exported foods from distant lands, to

designing streets and creating food districts, early urban planners, architects, and landscape architects responded to the regional and international food system in the planning and design of streets, buildings, and open spaces prior to technological developments in transportation systems. In this way, prerail cities have been shaped by regional and international food systems from their earliest days (Steel 2008). Modern agriculture and global food systems have also facilitated a population shift to urban areas by enabling food to travel longer distances, be stored for longer periods, and ultimately feed a growing number of people.

As food systems globalized, transportation and storage technologies evolved as well, and cities were no longer constrained by largely regional food systems. City-building professionals, including urban planners, engineers, architects, professors, and politicians, have since fallen silent on the connection between health, food, and the success of towns and cities; indeed, these professions have traditionally treated food much like sleep: it is necessary but not meant to be regulated or managed in any meaningful way.

Urban planners and health authorities are beginning to collaborate on identifying the key strategies, performance metrics, and evidence-based research relating to these linkages in order to support local government decision making and community development. Specifically, more attention is being paid to understanding the links between the urban built environment, health, and regional food systems, as part of developing preventive health strategies. While there is a large bibliography on the many dimensions of health and the built environment (e.g., housing, transportation infrastructure, buildings, etc.), including food as a link is a relatively new area of exploration (Tucs and Dempster 2007). This chapter explores the links between health and the built environment, draws from North American case studies, and provides a framework for developing local strategies to build a healthy environment.

LINKS BETWEEN HEALTH, FOOD, AND THE BUILT ENVIRONMENT

The links between health, regional food systems, and the built environment are manifested in behaviors that are shaped by the physical environment. For example, walking to the corner store or green grocer to buy nutritious food

decreases the need to drive, improving air quality and increasing opportunities for physical activity and social interaction. Planning for more walkable and compact communities also reduces development pressure on farmland on the periphery of growing metropolitan areas. Table 12 describes a range of health outcomes as they relate to opportunities in the healthy built environment. Strategies to create a healthy built environment vis-à-vis food systems are discussed in the following sections.

A NEW LEXICON FOR PLANNING AND DESIGN

Food in the built environment has been understood largely in terms of geographic access to food sources including grocery stores, community gardens, and so forth. In many ways, drawing the linkages between health and the built environment is a return to the emergence of urban planning as a response to a public health crisis caused by unhealthy environments. Because of the spread of contagious diseases resulting from overcrowding in tenement buildings in New York City at the turn of the last century, new regulations for land use and buildings were imposed to control both private and public spaces. These changes gave birth to zoning, and the regulatory landscape for the built environment in the West was changed.

Health Canada developed a comprehensive definition of the built environment:

> The built environment is part of the overall ecosystem of our earth. It includes the land-use planning and policies that impact our communities in urban, rural, and suburban areas. It encompasses all buildings, spaces, and products that are created or modified by people. It includes our homes, schools, workplaces, parks/recreation areas, business areas and roads. It extends overhead in the form of electric transmission lines, underground in the form of waste disposal sites and subway trains, and across the country in the form of highways. (Health Canada 1997, in Tucs and Dempster 2007)

Because of the significant health, economic, and environmental improvements food directly influences, the food system is offered here as a key organizing principle for comprehensive planning and design efforts. A food

Table 12. Health outcomes

Health outcome	Healthy built environment opportunity	Strategy (discussed in text)
Protect farmland: Creating compact, higher-density communities decreases the development pressure on farmland and infrastructure costs for municipalities. Farmland and farmers provide fresh, healthy food to regional markets and often donate large quantities of food to the charitable sector.	Establishing urban containment boundaries, urban/rural edge guidelines, compact community policies, buffer guidelines, trail access on the edge of farmland, agricultural land preservation policies.	*Strategy 1: Integrate regional food systems in growth management policies and practices.*
Increase access to healthy affordable food: Physical health and social interaction are positively impacted by the ability to walk to food assets like the green grocer or farmers market. Community gardens and urban farms provide places to socialize and learn food and farming skills.	Developing policies and design guidelines to encourage green grocers, cafés, pubs, and restaurants to locate in highly visible pedestrian-oriented areas. Creating urban design standards to encourage food activities and establishment of food assets, such as community gardens and urban farms.	*Strategy 2: Increase geographic access to food assets.*
Increase the experience of food: The experience of food, from growing and eating, to education and waste recovery, in towns and cities draws people together around food activities. Urban greening with food plants also provides natural infrastructure to clean the air, water, and soil in urban areas. Green buildings, including extensive and intensive rooftops, increase energy performance and reduce emissions.	Adopting green building guidelines and rating systems that include food spaces, and creating spaces for food celebration and discovery in the public and private realms. This may include requirements for wide sidewalks for grocers and cafés to "spill out" onto; policies to allow patios, sandwich boards, and awnings; and implementation plans for rooftop gardens, among others.	*Strategy 3: Design food systems into buildings, open spaces, and streets.*

Integrate farms with communities: Living in a community where fresh food is grown on-site and delivered to residents is increasingly an appealing lifestyle for home buyers and renters. Including other food system elements such as food processing and storage, and waste recovery facilities creates further opportunities for innovation.	Allocating up to 20 percent of a site for urban development, with the remaining areas reserved for agriculture in perpetuity. Integrating food system elements into the overall design, including growing spaces, rurally inspired architecture, market and processing areas, recreation trails around farm sites, and narrow lanes. Creating a development model that pays for the farmland and capital investments required to make the farm viable.	*Strategy 4: Develop and adopt rural design principles for "agrihoods."*
Provide recreation, rehabilitation, therapy, and community development opportunities: Gardening is one of North America's leading pastimes, and providing gardening opportunities allows residents of all ages and backgrounds to exercise, physically or mentally rehabilitate, and create relationships with other gardeners. Urban food gardens also improve ecological health by providing habitat and food sources for birds and pollinators.	Designing space for front and/or backyard gardens, including raised beds for low-mobility people, community gardens and orchards, linear fruit/nut orchards, edible forests, urban farms, and demonstration gardens, among others.	*Strategy 5: Expand urban food production activities.*
Stimulate an inclusive sense of place and community: Planning and designing multiple food assets into the built environment creates a critical mass of activities that gives unique identities to neighborhoods, cities, and regions. Creating places where people of different backgrounds and ages can congregate creates community and breaks down barriers of social isolation.	Designing public squares, plazas, and fairgrounds where food events such as agricultural fairs, farmers markets, and food truck festivals can be held.	*Strategy 6: Increase community identity and sense of place.*

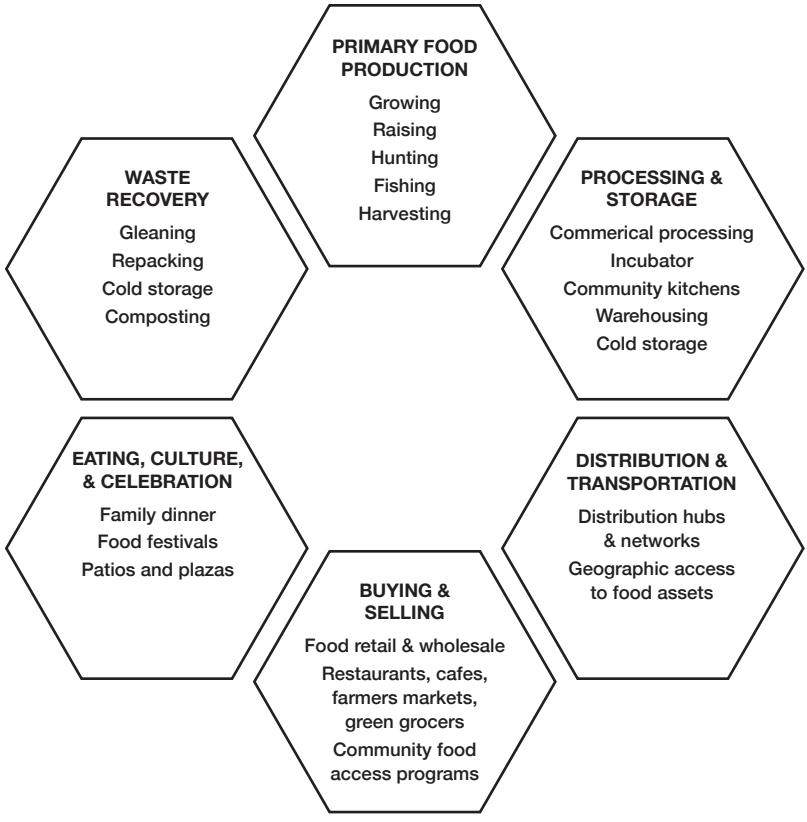

Figure 18. Food system elements.

system may be described as the interconnected stages that food goes through from primary production to waste recovery. Food systems exist on multiple scales and within local, regional, provincial, national, and global boundaries. Figure 18 illustrates six core food system elements.

Within the food system, food assets are specific aspects of the built environment including resources, facilities, services, or spaces that are linked to creating healthy communities. Examples of food assets in the built environment include the following: food retail (grocery stores), green grocers, farm stands, farmers markets, restaurants, caterers, pubs,

and cafes; food trucks and mobile food markets; community gardens and edible landscaping; urban farms and rural farms; emergency food programs and social services; food education programs; community kitchens; plazas and open spaces for food celebration; agritourism locations; food-processing facilities (nonprofit and commercial); food recovery infrastructure; food distribution facilities; food hubs and districts; and wet markets and fisherman's wharfs.

CHALLENGES AND BENEFITS OF INTEGRATING FOOD SYSTEMS INTO THE BUILT ENVIRONMENT

Challenges for increasing health through integrating sustainable food systems into the built environment are systemic. Before any significant and enduring changes can be introduced in the physical environment, a policy foundation must be established. The lack of policies that enable the establishment and success of the food systems is a key barrier.

A second challenge is the food system's complexity in terms of roles and responsibilities for implementing intersectoral, intradepartmental initiatives. Many strategies discussed below require broad collaboration between all levels of government, universities, developers, and community groups to achieve greater benefits.

A third, and more difficult, challenge is the lack of data and evidence that illuminate the causal factors between the built environment, health, and food systems. While the health impacts of activities like urban agriculture are increasingly being studied, as presented in chapter 14 in this volume, generally this empirical evidence base is still developing.

Despite the lack of data linking food system interventions in the built environment with positive health outcomes, the probable associations between food, health, and the built environment are undeniable. Air quality, movement patterns, access to amenities, urban green spaces, and walkability are all factors in urban environments that directly affect individual and community health. As the causal links between food systems, health, and the built environment are highly complex and multivariate, they "can be more readily likened to a tangled fishing net than a solid set of links in the chain holding the anchor" (Tucs and Dempster 2007). In this way, practi-

tioners are urged not to get caught in the net of conventional evidence but to use probable associations to develop responses to preventing diet-related illnesses through the built environment. Research and censuses must continually be conducted to ensure a solid information base to inform sound decision making.

The benefits of including food systems in the urban built environment are wide ranging and, in short, include the following:

- Improving population health indicators (e.g., obesity) by developing walkable, active, transportation-based communities and increasing access to healthy food.
- Increasing access to fresh food sources (e.g., green grocers, community gardens, food hubs, farmers markets).
- Increasing capacity for local foods to be grown/raised/made and distributed.
- Creating a stronger connection between food and people, who will in turn be more engaged and informed consumers and appreciative of a healthy, multifunctional rural landscape (Francis et al. 2005).
- Creating community and magnetism around food places.
- Reducing food waste.

In response to these challenges and benefits, governments, universities, developers, and community organizations are setting visions, developing policy frameworks, and implementing initiatives that help create food- and health-conscious cities. The goals, strategies, and case studies explored below provide a starting point for developing a framework to address the many health opportunities in the built environment.

FOOD-CONSCIOUS BUILT ENVIRONMENTS: GOALS AND STRATEGIES

If we work from "probable associations" between the built environment, health, and food systems, a diverse range of local and regional strategies can support the integration of healthy food systems into towns and cities. These strategies are based on five goals, or desired outcomes, for embedding food systems into the built environment.

1. Increase opportunities for people to grow more food in towns and cities.
2. Increase the number of food assets, including food sources, as well as food-processing and storage infrastructure.
3. Increase opportunities for people to experience, participate in, learn about, and share food.
4. Increase opportunities for people to celebrate regional foods and food producers.
5. Recover high-quality foods that would otherwise be wasted for those who need them most.

Local and regional governments, nonprofit organizations, universities, and developers have created and implemented a number of strategies that embed food systems and health strategies into the built environment. These strategies occur at different scales of planning and design, ranging from macrodiscussions around growth management and agricultural land protection to detailed building and site design.

Strategy 1: Consider food systems in growth-management policies

Determining the boundaries of urban development, especially in regions with agricultural land and assets, is the critical starting point for embedding food systems in the built environment. While containing urban development has been associated with increased housing prices (Jansen and Mills 2013), developing land-use policies to ensure an agricultural land supply and vibrant farm economy creates downstream opportunities for generating community health and wealth through food. Despite growth-management discussions often being polarized and containing bitter public debates over building versus preserving, many cities and regions (e.g., the city of Portland, Oregon, and the Capital Regional District, British Columbia) have developed policy frameworks to balance growth and agricultural land supplies.

Over thirty years ago, the city of Portland established an urban containment boundary that provided landowners with certainty around the zoning and land uses in both urban areas and adjacent farm areas. Inevitably, as Portland grew, this containment boundary was revised and expanded. However, the long-range plan to contain growth in existing areas allowed for a strategic

approach to local farming, and now the Portland area has become one of the most innovative and vibrant regions in North America.

The Capital Regional District on Vancouver Island in southwestern British Columbia has adopted an urban containment boundary intended to preserve a significant amount of agricultural land in a rapidly growing metropolitan area. The boundaries have been challenged by developers but have largely provided an effective tool for containing growth and protecting land. The Capital Regional District and stakeholders are now collaborating on how to improve agricultural viability and manage the many challenges of having agriculture near growing towns and cities.

Strategy 2: Increase geographic access to food

One key challenge for healthy eating is the ability to access healthy food and healthy diet education. The links between low income and food insecurity are well documented (BC Ministry of Health 2011). For example, seniors may have equity in their homes but very little disposable income to spend on food. Similarly, many low-income areas do not have easy physical access to healthy food sources like green grocers or farmers markets, forcing residents to travel long distances. Encouraging and allowing a range of food assets through policies and design in communities allows for more opportunities to access healthy foods.

Another food access strategy that is taking North America by storm is the mobile fresh market. With over forty mobile markets in the United States and more in Canada, enterprising nonprofits are using donated or retrofitted buses and vans to bring fresh produce and other grocery items into neighborhoods that do not have grocery stores or food programs. While mobile markets are not technically part of the permanent built environment, they nonetheless respond to urban development patterns that restrict access to community amenities such as food stores and other food assets.

Strategy 3: Design food systems into buildings, open spaces, and streets

Buildings, streets, and open spaces make up the built environment of a town or city. Through developing incentives, policies, guidelines, and requirements to integrate food systems into the built environment, the places and spaces in which we live, work, and play can improve our health.

For example, as part of the Cascadia ecotopia concept discussed by McClintock and Simpson in chapter 5, the city of Vancouver recently adopted a new rezoning policy that requires large projects (over two acres) to develop a food system plan, among seven other requirements ranging from renewable energy to active transportation (City of Vancouver 2013). Essentially, the city requires that a minimum of three out of six suggested food assets be included in the food system plan that must be submitted as part of a rezoning application. These include the following: community gardens/orchards; edible landscaping; community kitchens; community food markets; food composting facilities; and facilities to support neighborhood food network activities.

This is a significant shift forward from the previous policy that contained guidelines for encouraging urban agriculture, and the response from developers has been strong, with some applications designing food assets into the project. The city of Vancouver's rezoning policy requiring a food systems strategy for large projects is now one of the most forward-looking policies in Canada.

Light industrial buildings are also needed to support regional food systems in terms of providing storage and distribution infrastructure for local products. For example, food hubs are a concept gaining significant popularity in North America, and they can be located in light industrial areas as well as in more commercial and pedestrian-oriented locations. A food hub is a place that brings together a wide spectrum of land uses, design strategies, and programs focused on food to increase access, visibility, and the experience of food within the city. The USDA defines a food hub as "a centrally located facility with a business management structure facilitating the aggregation, storage, processing, distribution, and/or marketing of locally/regionally produced food products" (USDA 2010).

Food hubs are designed to meet specific needs in a given region or municipality, and they differ from place to place (e.g., from an urban food experience/access/education hub to a more rural agrifood distribution hub). In the United States alone, 168 food hubs now exist as defined by the National Food Hub Collaboration. The central theme in all food hubs, however, is that many functions are located together to create opportunities and synergies around local food connections, a strong farm sector, and healthy communities. The resurgence of food hubs in North America is driven by a lack of food edu-

cation services and distribution infrastructure that allow people to develop food skills, as well as growers and processors to increase direct marketing and processing opportunities.

EXAMPLES OF FOOD HUBS

The Stop: Community Food Centre (www.thestop.org) is located in Davenport West, one of Toronto's lowest-income neighborhoods. It started out in the mid-1970s as a food bank, providing emergency food relief to the community. Since then, The Stop has evolved into a community food center that complements its emergency food services with a range of capacity, skill-building, and educational programs centered on food. The Stop now sees hundreds of people shop at the Green Barn Market each week; almost two hundred community kitchens are hosted; over seven hundred children participate in a food-systems education program covering poverty, cooking, food security, and farming issues; the Green Barn Farmers Market has supported fifty farm vendors selling approximately $1.25 million in local produce; and annually, The Stop purchases approximately $30,000 worth of local food and $40,000 worth (22,000 pounds) of local, organic food (The Stop 2014).

Red Tomato (www.redtomato.org) is a food hub based near Boston, Massachusetts. After establishing as a distributor for one farm, the business grew into a marketing, product development, and brokerage organization for multiple farms. The Red Tomato hub facility is supplied by twenty to twenty-five or so small to medium farms. Currently, its primary customers are food retailers. A unique aspect of Red Tomato is the marketing and branding services offered to suppliers. Products are sold under the Red Tomato brand, but farms are also identified on the label.

Eat Oregon First (www.eatoregonfirst.com) is a producer-owned and -operated distribution hub on the outskirts of Portland, Oregon. Farmers bring products directly to the hub, where products are then aggregated in the 12,000-square-foot warehouse located on commercially leased property. The hub stores, portions, and prepares products before distributing them to 120 food-service clients. The hub also undertakes the product marketing.

In addition to food hubs, municipalities may set design guidelines and policies for open spaces and streets that integrate food systems. For example, a great "food street" may include wide sidewalks to allow patios, plazas for farmers markets and food celebrations, allowances for awnings to cover produce-market sidewalk sales, and designated places for food carts to operate. This allows food culture to grow and develop over time, with specific areas known for certain types of food or food activity. For example, designing streets to accommodate weekly farmers markets enables the market to provide a place where people meet farmers and learn about local farming. Markets have been linked to increased food access, quality of life, and increased local economic activity. To maximize these benefits, local governments can use zoning as a tool to expand markets (Morales and Kettles 2009).

Similarly, parks may be designed and programmed to include community gardens and orchards as well as edible landscaping. These spaces allow people to not only grow food but also interact, breaking down barriers of social isolation experienced by many seniors. The city of Seattle and Seattle Public Utilities recently provided land and start-up costs to establish the Beacon Food Forest. This seven-acre edible park is an initiative of a nonprofit group called Falling Fruit, which aims to sustainably grow and harvest produce from the park's thirty-five or so trees as well as provide community education on edible landscapes.

Strategy 4: Develop and adopt rural design principles for agrihoods

Not all communities consider themselves "urban." In fact, many people continue to live in the peri-urban or rural areas. Often these areas are forgotten when it comes to planning for form and character, and setting out rural design guidelines intended to integrate agricultural neighborhoods with surrounding farm areas is a subject of untapped potential. For example, setting out guidelines to maintain the rural character can support food systems by increasing the contiguousness of farm areas, minimizing building footprints, and providing food assets like dedicated areas for farmers markets or food-processing facilities. There are twelve agrihood planning and site design principles to consider:

- **Protect prime soils** and locate buildings on the areas with the lowest-quality soil. Prime soils are identified as class 1 to 3.
- **Plan with nature** and preserve the ecological value of the site or

region including wildlife corridors, sensitive habitat, tree stands, hedgerows, and ponds.

- **Limit and restrict nonagricultural activities** (e.g., industrial, residential, and commercial development). Proponents wishing to rezone are required, in addition to existing requirements, to provide a strategy that demonstrates how there would be a net gain to food production and farming. This would include the provision of and mechanisms for resourcing predevelopment, implementation, and operating costs.
- **Site buildings** so that they do not interfere with primary production, circulation, and access, or the capacity of the land to be productive.
- **Prioritize land uses** that directly support regional producers and processors.
- **Consider nonagricultural uses (e.g., industrial, residential, commercial)** only when all other options have been exhausted.
- **Minimize building footprint.** Food processing facilities should be limited in terms of footprint and location.
- **Prioritize on-farm processing** and require that a minimum of 50 percent of the product processed be from the farm (i.e., not a Twinkie packaging plant). Types of processing that should be considered include meat processing and butchering; washing, grading, and bagging facilities; dehydrating; packaging and distribution; and cold and frozen storage.
- **Anticipate and mitigate impacts on neighbors** by reinforcing good-neighbor policies (e.g., mitigating increased traffic, noise, dust, and smell).
- **Increase direct purchasing opportunities** for regional foods (e.g., farm-gate retail, small- to medium-scale farm stores, and wholesale distribution).
- **Allow signage** for farms to promote their business.
- **Allow small-scale cafés, restaurants, and pubs** on-site.

Strategy 5: Expand urban food production activities

As one of the most visible aspects of the local food movement, urban food production for both personal and commercial purposes continues to gain popularity in North America. Backyard and front yard gardens, community

gardens, and edible landscaping all provide visibility, interest, and activity and require planning and design for long-term success. The links between urban food production, health, and the built environment are many. Gardening provides an important form of mental, physical, and even spiritual therapy. It also fosters social connections and a sense of place through creating an environment where people interact, share information, and hold small community events.

The emergence of urban farming in North America has expanded the creative and innovative ways people are using space and developing new business models. In Chicago, land that was once part of a thriving urban center has gone through a process of degradation to restoration. Farming in these areas is an ideal strategy with low land prices, ability to consolidate many parcels, and proximity to some infrastructure.

In other, denser cities, urban farming has found its way onto rooftops and into peri-urban areas, borrowed backyards, vacant lots, and interstitial spaces. Small-scale social enterprises and businesses are forming around urban farming. While urban farming and food production will never replace the need for rural agriculture and farmers, it provides an important learning ground for new farmers, an asset for entrepreneurs, recreational and social opportunities, and a direct link to healthy food. In order for these benefits to be realized, physical space is needed. Space opportunities in the built environment for expanding urban food production include backyard and front yard gardens; community gardens; orchards in parks and school gardens; intensive rooftop gardens and vertical farming; edible landscaping around buildings and in parks and boulevards; and urban farms on vacant land.

Facilities to support urban food production are important to consider and include tool and equipment storage; light processing and storage; and warehousing and aggregation areas. A straightforward yet important strategy for policy makers in enabling these facilities is simply to "get out of the way." For example, allowing the sale of produce from backyards removes a key barrier for urban farmers to efficiently connect to urban food buyers, thereby making production activities more viable.

Strategy 6: Increase community identity and sense of place

Food places and destinations create interest and activity, and they appeal to people across cultural, age, and gender groups. By creating magnetism or

gravity in a specific area, food places create community cohesion and a sense of identity. On the waterfront of Vancouver, British Columbia, Granville Island is a food magnet where a vibrant wet and dry market, cafés, and restaurants draw hundreds of thousands of residents and visitors every year. Like other food magnets, Granville Island works because there is a diversity of food-related activities, businesses, and people. This has been facilitated by the intentional planning, designing, and programming of land, streets, buildings, and open spaces to make dynamic and highly energetic food places.

An applied example of a project that seeks to bridge health, food, and the built environment is the Pearson Dogwood redevelopment, also in Vancouver. A case study of this project, authored by the lead consultant planner, is presented below.

CASE STUDY: FOOD, HEALTH, AND SENSUALITY AT PEARSON DOGWOOD (JENNIFER FIX, DIALOG)

Rethinking health and health funding

Food, health, and sensuality intersect in one of the largest redevelopment projects in Vancouver, British Columbia. For the first time in Canadian history, a health authority is using the real estate value of its land assets to create new health services and amenities for its population. Through redevelopment of an underutilized but highly valuable 25-acre site called Pearson Dogwood, Vancouver Coastal Health is creating an endowment for much-needed capital projects across the region. In turn, the current residents—who live in two outdated institutions and require complex care because of disabilities ranging from multiple sclerosis to spinal cord injuries—will be provided with new housing and access to a range of health amenities directly on-site.

Once the site is developed, the new neighborhood is expected to include approximately five thousand residents living in both market and nonmarket housing, a YMCA, a community health center, a therapeutic pool, small-scale retail, parks and plazas, a new rapid-transit station, and more. The master plan for the new mixed-use community is driven by a vision for "whole health," which includes:

whole people in all facets of being, including physically, emotionally, mentally, and spiritually;

whole communities, including the diverse needs and aspirations of current and new residents, as well as the social connections that create a sense of community and belonging; and

whole ecologies, including a recognition that the health of individuals and communities hinges on the health of other species and the natural processes of which we are a part.

Food and whole health

One of the foundational building blocks of this "whole health" vision is food. As a significant health determinant, diet is one of the biggest factors in major noncommunicable diseases (World Health Organization 2014). The presence of healthy food—either grown or commercially available—in the future neighborhood is thus crucially important to its success as a place of health and well-being. Also, since nearly one-quarter of all trips in cities are associated with purchasing and consuming food, food destinations in the new neighborhood can also support active, healthy living by encouraging residents and neighbors to access food by foot, wheelchair, and bicycle.

The prevalence of active transportation also translates into ecological health benefits, with fewer greenhouse gas emissions than in neighborhoods that are more oriented toward vehicular transportation (Dodman 2009). At the same time, human health hinges on broader ecological health; for example, chronic exposure to traffic-related air pollution causes nearly nine times as many premature deaths in Canada as do traffic crashes (Brauer, Reynolds, and Hystad 2013). Likewise, healthy food—or at least food that is produced locally and organically—has a smaller carbon footprint and can contribute to soil health, habitat for other species, and overall healthier ecosystems.

In addition to being important to individual and ecological health, food at Pearson Dogwood is vital to the social health of the community. The site is currently very insular and has a somewhat stark, institutional character, with limited physical and social connections with the mature residential neighborhood that surrounds it. Using food as a tool to "turn the site inside out," the master plan envisions diverse community-oriented food destinations that

draw people into the site. These destinations range from spaces for informal gathering and chance meetings (e.g., cafés and edible landscaping in parks and along paths) to more-formal programs and spaces for gathering (e.g., shared gardens). The latter builds on the precedent set by a small urban farm that currently exists on the site, consisting of a market garden, wheelchair-accessible community garden, and teaching garden that matches disabled residents with horticultural therapists and volunteer gardeners.

Food and sensuality

And still the links between food and health run deeper at Pearson Dogwood. During consultations with current residents about their desired future in the new neighborhood, people spoke about hearing birdsong, smelling aromatic flowers and herbs, feeling sunlight on their faces, and seeing people working in the vibrant colors of a food garden. Indeed, despite being bound to wheelchairs or beds because of complex disabilities, including paralysis, these residents called for a neighborhood experience that is intensely sensual.

The relationship between rich sensory experiences and health is important. Places that stimulate our senses are deemed to have health benefits that extend beyond our physiology. Evidence-based research tells us that there are strong links between mental and emotional health, and access to nature and green space (Thompson et al. 2011). According to Olga Ruskin, a resident of one of the institutions at Pearson Dogwood and a user of the urban farm (Rashleigh 2013), "This garden has changed my days. When I feel low, I can come out and look at the flowers and I feel happy because they are so pretty and colorful. They literally uplift me if I have a bad day. I can't do much because my hands are stiffened with arthritis, but I can go into the garden and get engrossed in the plants and forget my cares."

Food has an important role to play in the sensual experience of place, and in fostering health. Food is powerfully sensual, delighting us with color and texture, and emanating scents that can leave our mouths watering and evoke childhood memories. Encouraging a high degree of sensuality, the master plan's open space hierarchy includes a strong food and therapeutic garden component, with tactile, aromatic, and audible features that bring people into their bodies and celebrate them as feeling, conscious beings regardless

of their physical abilities. The food system at Pearson Dogwood is designed to touch minds, spirits, and all types of bodies, engaging people's senses and helping them to feel, heal, and flourish.

Closing

The Pearson Dogwood project provides an inspiring and leading example for integrating food into a built environment that prioritizes health. Creating positive impact also occurs at a much smaller level and could be as simple as having tea with a colleague from across the hall to hatch an idea. As strategies for integrating food systems into towns and cities become more diversified and sophisticated, a wide range of health and community wealth benefits are possible. Reconnecting people with food in the built environment also results in establishing a new normal, propelling innovation and development of sustainable urban and regional food systems.

DISCUSSION QUESTIONS

1. How effective can city departments be in integrating farms in a major city proper? Is integrating farms necessarily related to place making? Explain.
2. Analyze the table in de la Salle's chapter. What's good about it? Is there anything missing? Are some proposals in this table more realistic than others?
3. The author states that policy must be in place before changing the physical environment. Is this true in all cases? When it is true, how does this put certain communities at a disadvantage? Which communities lose out?
4. How should cities and urban-agriculture actors adapt to a general lack of data when planning urban food systems?
5. Examine each of the five strategies that de la Salle presents for integrating food systems into cities and towns. What are the chief positives and negatives of each? Is there a strategy that would work for communities in general?