

# EMERGING LEADERS PERSPECTIVES

Global Era • Different Challenges • New Priorities

## Feeding an Urban World: A Call to Action

June 2013



**THE CHICAGO COUNCIL**  
ON GLOBAL AFFAIRS



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## Foreword

Among Chicago's many assets is a legacy of leaders that has overseen the city's transformation from industrial powerhouse to global city. The next generation is now rising to positions of influence and will make decisions that will either help or hinder the city's ability to compete and thrive in this interconnected global century. Chicago's future depends on the ability of these leaders to meet the challenge and serve as agents of change. With this report and its call to action—an appeal to address the increasing problem of global urban food security—The Chicago Council on Global Affairs Emerging Leaders Class of 2013 exhibits just such vision and leadership.

Today, more of the global population lives in urban centers than in rural communities. While cities often provide increased opportunities for employment and education, they also can leave a significant portion of their populations food insecure. Cities around the world are failing to provide healthy, safe, nutritious food at an affordable price to all of their residents, and the problem will only increase as the world becomes more urbanized in the coming decades. Concentrated poverty in urban centers such as Nairobi, Mumbai, Jakarta, and other cities means that affordability of adequate nutrition is particularly difficult, but in many ways, Chicago and other urban centers in the developed world are no different.

Food security is a multidimensional issue, demanding consideration of adequate calories, sufficient nutrients, culturally appropriate dietary options, and economic factors, among other concerns. Urban food security differs from rural food security in several ways. For example, the distance from the source of food production and therefore the complexity in accessing food is far greater for urban areas. Infrastructure, transportation, supply chains, and markets are just a few of the factors involved in tackling urban-specific food challenges. It is clear that the complexity and scale of this challenge requires more than a one-size-fits-all solution.

The Emerging Leaders Class of 2013 decided to draw attention to these challenges and propose ways for governments, civil society organizations, the private sector, and community groups to begin to examine their own cities and plan for needed changes. This class—20 young leaders from different sectors of the city—are putting forth a call to action to put urban food security on the global agenda for

increased attention and making Chicago a city to look to for examples of success.

The class devoted a year to studying urban food security, which included discussions with the leading thinkers across the country on this issue and examinations of models of success. As a result, the class developed a tool for thinking about, analyzing, and addressing the complex layers of the urban environment and dual challenges of undernutrition and obesity that have beset our cities.

The members of the class bring to the table a strong commitment to the future of Chicago and diverse perspectives on how to address global challenges in a city that is receptive to and known for innovation. They were encouraged by Mayor Rahm Emanuel's efforts to address this growing problem in Chicago and are confident that Chicago can become a global leader in this area.

The Chicago Council has a solid history of research and policy work in global food security. This report adds to that legacy with this unique focus on the urban aspect of the issue. I am excited about this creative approach to one of the globe's critical problems. The Emerging Leaders Class of 2013 has proposed an innovative response that has the potential to make a difference in our community and serve as a model for other communities struggling with the same issue. More important, the potential for people around the globe to benefit from their work and the support of many who helped them along the way gives us reason to be proud of and confident in the commitment this group has made to The Chicago Council and to the City of Chicago. I am delighted that the Emerging Leaders have the desire to convert thinking into action with this report.

## The Emerging Leaders Program

The Chicago Council on Global Affairs' Emerging Leaders Program is a two-year program that draws the best and the brightest emerging leaders from across business, civic, government, and academic sectors from the Chicago area. The program provides these Emerging Leaders (ELs) with a deeper understanding of global issues and Chicago's place in a globalized world. ELs also gain a strong network of contacts with current civic and business leaders and, perhaps more importantly, with their peers who are also grappling with global challenges. In short, they emerge better prepared to assume key leadership positions in this new era.

## Acknowledgments

The 20 members of this class all contributed over the course of two years to the discussion and debate as they explored this topic and developed the report. Throughout the second year they were briefed by experts in Washington, DC, and Chicago who are equally committed to solving global food security problems. I want to express the Council's gratitude to the following individuals for taking time out of their busy schedules to brief this group and share their experiences and views: Erika Allen, Chicago and national projects director, Growing Power; Dave Donnan, partner, A.T. Kearney; Lisa Eakman, executive director, Global Agriculture and Food Policy, The Chicago Council on Global Affairs; Steve Elmore, director, DuPont Pioneer Global Market Intelligence; Pam Fessenden, acting director, Office of Country Strategies and Implementation, Bureau for Food Security, USAID; Ambassador William J. Garvelink, senior adviser, US Leadership in Development, CSIS; Dan Glickman, vice president and executive director, Congressional Program, Aspen Institute; Michael E. Hess, vice president for development and stability operations, MPRI; Michael Hoadley, CCIM, principal, FEWZ, LLC; Asma Lateef, director, Bread for the World Institute; Richard Longworth, senior fellow, The Chicago Council on Global Affairs; Jason Navota, principal, Chicago Metropolitan Agency for Planning; Jeffrey O'Hara, agricultural economist, Food & Environment Program, Union of Concerned Scientists; Rajul Pandya-Lorch, head, 2020 Vision Initiative, and chief of staff, International Food Policy Research Institute (IFPRI); Lionel Rabb, president and CEO, Catalyst Group Global; William Rudnick, cofounder of Global FoodBanking Network; Robert Sheets, director of research, Business Innovation Services, University of Illinois at Urbana-Champaign; Mike Simmons, policy director, Office of Chicago Mayor Rahm Emanuel; Elanor Starmer, special assistant for marketing and regulatory programs, USDA; Tyler Strom, senior program officer, The Chicago Council on Foreign Relations; Robert L. Thompson, professor emeritus, University of Illinois, and senior fellow, The Chicago Council on Global Affairs; Paul Weisenfeld, assistant administrator, Bureau of Food Security, USAID; and Galen Williams, CEO, SkyyGreens Aquaponics.

Council staff Rachel Bronson and Molly O'Donnell worked with the group providing guidance, motivation, resources, and support throughout the two-year process. We thank Council intern Andrew Tamburrino for his hard work on this project. Catherine Hug of

Chicago Creative Group edited drafts of the report and made major contributions.

We thank icix Corporation for providing support for the printing of this report in color.

None of this great work would have been possible without the vision, leadership, and support of John F. Manley and Shirley Welsh Ryan, both vice chairs of The Chicago Council's Board of Directors and cochairs of the Emerging Leaders Program. They, along with the other members of the Emerging Leaders Selection Committee put enormous amounts of time into selecting the members of this class, and their efforts have resulted in another great group The Chicago Council is proud to have as Emerging Leaders.

Our sincere appreciation goes to the Robert R. McCormick Foundation and the Patrick G. and Shirley W. Ryan Foundation for their continued and generous contributions.

Marshall M. Bouton  
President  
The Chicago Council on Global Affairs  
June 2013

## Chapter 1

### Introduction

People around the globe are moving to cities at a rapid pace. By 2050, 70 percent of us will live in cities, up from 52 percent today. And why not? Cities often offer the promise of a better life: better access to transportation within and between cities, better access to daily living supplies, better access to government-supported services such as healthcare and education, a better range of entertainment options, increased economic opportunities such as higher-paying jobs, better-educated talent pools, and a large market of consumers for products and services. Yet many cities are overwhelmed by growing populations and large pockets of extreme poverty. For too many, even life's basics are called into question. Food security is a prime example. Will there be enough food to support the growing number of urban dwellers? Will food be affordable and will it provide adequate nutrition? Will it be accessible and desirable to city residents' increasingly globalized palates?

For many in developed nations, food is taken for granted. We may assume that safe, healthy, plentiful food choices will be available. We may especially assume that in cities. We may assume that hunger is an isolated problem among a small segment of our population and in remote parts of the world. We may assume that access to food is only about the poor, without recognizing that it can also be a driver of economic development. We may be wrong.

The 2013 Class of The Chicago Council on Global Affairs Emerging Leaders Program wants to challenge these assumptions. This class of Emerging Leaders represents a wide cross-section of professions, with members coming from local government, real estate, healthcare, philanthropic foundations, investment banking, law, mobile and other technology solutions, education, public relations, business consulting, and the nonprofit sector. We selected urban food security as a topic for this report because we believe the following:

- While food security is recognized as an important global issue with significant resources devoted to it, too little attention has been focused on the issue of urban food security.

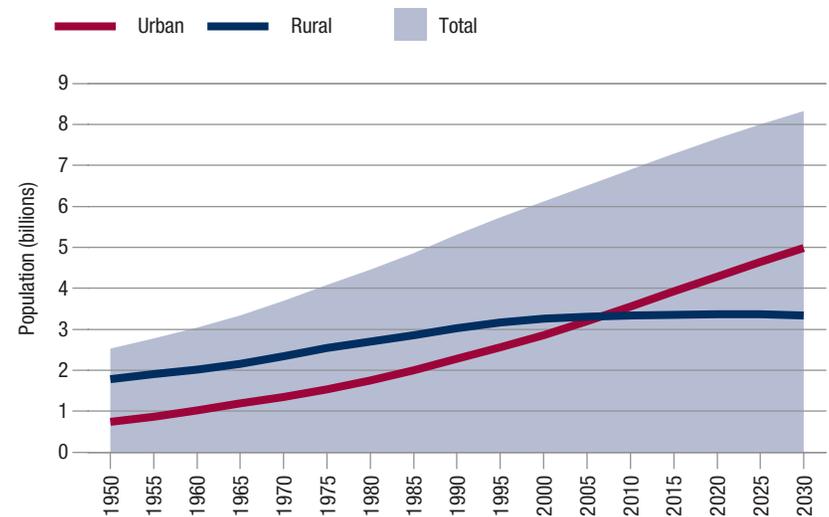
- Urban living and development are very different from rural development. Overcrowding, higher crime, greater government oversight and regulation, greater resources (e.g., utilities, transportation, education, jobs)—albeit greater competition for these resources—and larger social stratification adds a great deal of complexity to the issue of creating sustainable food systems in urban environments.
- Urban leaders must develop plans to address urban food security because it will become an increasingly challenging issue in the coming decades as the world’s population—and especially its urban population—grows.
- Chicago is well positioned to be a leader in addressing the new challenges of feeding urban populations, in adopting policies that are a model for other cities, and in utilizing its world-leading corporate, academic, philanthropic, and public policy resources to address the issues of urban food security worldwide.

As a class, we have studied the issues related to urban food security, and based on what we have learned and the perspectives each of us brings from our different backgrounds, we have created a framework, called the Urban Food Model, to assist urban leaders in developing policies to address this critical issue. We believe that the development of sustainable food systems in urban areas is an issue that will increasingly pose challenges—but also present opportunities—to leaders of cities around the world. This report highlights the critical importance of this issue—for urban leaders in Chicago and around the world—and suggests approaches that cities can take to meet the challenges and seize the opportunities related to urban food security.

## The challenge of hunger in cities

By 2050 the world’s total population will increase to 9 billion (from 7 billion today), with the world’s *urban* population nearly doubling

Figure 1 – World urban and rural populations, 1950 to 2030



Source: UN 2006.

from 3.3 billion to 6.4 billion (see figure 1).<sup>1</sup> The bulk of this growth will occur in developing portions of the world and among low-income populations.<sup>2</sup> India and China will each have populations of over one billion people cramming into housing and infrastructure in their cities, increasing demands for key resources.

Migration to cities in developing countries, combined with limited economic opportunity for those with low levels of education and low job skills, is causing the “urbanization of poverty,” or a shift

1. Global Harvest Initiative, *2012 Global Agricultural Productivity Report: Measuring Global Agricultural Productivity* (Washington, DC: The Global Harvest Initiative, 2012); Thoraya Ahmed Obaid, “State of the World Population 2007: Unleashing the Potential of Urban Growth,” United Nations Population Fund, [www.unfpa.org/swp/2007/presskit/pdf/sowp2007\\_eng.pdf](http://www.unfpa.org/swp/2007/presskit/pdf/sowp2007_eng.pdf).
2. Robert L. Thompson, presentation to The Chicago Council on Global Affairs Emerging Leaders Class of 2013, October 4, 2013. Thompson cited statistics showing population increases between 2011 and 2050 of 43 percent in South Central Asia, 134 percent in Sub-Saharan Africa, 61 percent in North Africa and West Asia, and 44 percent among the low-income population, compared to 38 percent worldwide and 7 percent among the high-income population.

of poverty centers from rural to urban areas.<sup>3</sup> It is not our intent to minimize the importance of poverty and hunger challenges in rural areas. Yet we do want to draw attention to urban challenges. As stated in a report by the Ruaf Foundation: “Although poverty remains a primarily rural phenomenon, large sections of the urban population in developing countries are suffering from extreme levels of deprivation that are often even more debilitating than those experienced by the rural poor. These disparities are often not reflected in national statistics, which mask the deprivation experienced in poor urban neighbourhoods.”<sup>4</sup>

World food demand is expected to grow 60 percent by 2050, partly from world population growth and partly from economic growth in low-income countries.<sup>5</sup> This complex situation, combined with the paradox of increasing obesity and nutritional deficiency, makes food security an enormous challenge for cities to tackle. A recent story in the Canadian magazine *The Walrus* described the challenge well:

In the latter half of the 20th century, the great societal challenges were civil rights and nuclear brinkmanship. The late 21st century will face another: how to safely, sustainably, and adequately feed the growing population. . . . Population pressure, coupled with climate change, means that unless we find a way to produce about 50 to 100 percent more food, and unless we figure out ways to distribute the calories we have much more efficiently, the next phase of human history will be marked by daily bread so expensive that it could provoke new wars and mass migration.<sup>6</sup>

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3. Henk de Zeeuw and Marielle Dubbeling, “Cities, Food, and Agriculture: Challenges and the Way Forward,” Ruaf Working Paper No. 3, Ruaf Foundation, September 2009, [www.ruaf.org/sites/default/files/Working%20paper%203%20%20Cities%20Food%20and%20Agriculture.pdf](http://www.ruaf.org/sites/default/files/Working%20paper%203%20%20Cities%20Food%20and%20Agriculture.pdf).

4. Eduardo López Moreno and Rasna Warah, “State of the World’s Cities 2006/2007: 30 Years of Shaping the Habitat Agenda,” UN-HABITAT, 2006, [www.unhabitat.org/pmss/listItemDetails.aspx?publicationID=2101](http://www.unhabitat.org/pmss/listItemDetails.aspx?publicationID=2101).

5. Food and Agriculture Organization (FAO), *OECD-FAO Agricultural Outlook 2012-2021* (Rome: FAO, 2012), 17, [www.keepeek.com/Digital-Asset-Management/oecd/agriculture-and-food/oecd-fao-agriculturaloutlook-2012\\_agr\\_outlook-2012-en](http://www.keepeek.com/Digital-Asset-Management/oecd/agriculture-and-food/oecd-fao-agriculturaloutlook-2012_agr_outlook-2012-en).

6. Evan Fraser and Andrew Rimas, “How to Feed Nine Billion,” *The Walrus*, December 2012.

## Urban food security defined

We define urban food security as a state where *urban residents have sustained physical, economic, and social access to safe, sufficient, diverse calories and micronutrients required for a healthy lifestyle*. As we describe in more detail in this report, urban food security revolves around three primary areas:

1. **Availability:** having sufficient quantities of food available on a consistent basis,
2. **Access:** having sufficient resources to obtain appropriate food for a nutritious diet,
3. **Utilization:** promoting appropriate use of food with a focus on sustainability, basic nutrition and care, and adequate water and sanitation.

Challenges related to availability include increased population growth in cities, lack of arable land, climate change, and changes in diet preferences towards more protein.<sup>7</sup> In different parts of the world, the challenges of access include a combination of inadequate infrastructure, lack of diverse food options, few local sources of healthy food, high food costs in the face of unemployment and underemployment, and fluctuations in food supply.<sup>8</sup> Utilization challenges include ensuring sustainable food practices, food safety, and the education and promotion of healthy food options that are appealing to local consumers. Global tastes are changing, with increased demand for quick-to-prepare or processed food becoming more common among the poor in urban centers and increased demand for more meat and dairy products becoming more common as incomes rise. These changing tastes are increasing global demand

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7. Thompson, presentation to Emerging Leaders Class of 2013. Thompson notes that as urban populations grow in low-income countries, food consumption will be greater than these countries’ production capacity, which will increase demand, making these countries larger net importers.

8. As increased food supplies are required, greater traffic congestion and pollution result, and stress is placed on overloaded food distribution systems. In addition, the distance of low-income families from rural food production is leading to increased costs in time and transport to access food. See Food and Agriculture Organization (FAO), *Food, Agriculture and Cities: Challenges of food and nutrition security, agriculture and ecosystem management in an urbanizing world*, Food for the Cities Multidisciplinary Initiative (Rome: FAO, 2011).

for different types of foods, causing food production and distribution systems to evolve with these shifts.

## Food security opportunities

While challenges exist, there are also opportunities. Advances are being made in each of the areas of availability, access, and utilization, and Chicago is well positioned to be in the forefront of this effort. Improved agricultural technology has the potential to increase crop yields, and enhanced distribution networks have the ability to bring more food to urban markets more efficiently. In some cases, expanded local food production and advancements in vertical farming and other forms of urban agriculture offer the opportunity to diversify our systems for food production, to source more food close to home, and to promote economic development. Given the magnitude of the challenge, these opportunities must be seized and strategies developed to address urban food security.<sup>9</sup>

Catalyst Group Global notes, “To date, there has been minimal data collected and analyzed around food system efficiencies. Without concrete data analysis to establish an understanding of effective and efficient practices throughout the food system, the opportunity to improve population health [and food security] is eradicated.”<sup>10</sup>

## Emerging Leaders Program Class of 2013 discussions and research

Our class’s intensive exploration of this issue has involved discussions with global, national, and local leaders in agriculture and food. These leaders highlighted the differences between urban and rural food security and underscored an unmet need in addressing the food challenges of cities, both in the developed and the developing world.

We traveled together to Washington, DC, in the fall of 2012 for two days of meetings with a variety of leaders in the US government, nongovernmental organizations (NGOs), academia, and the private sector, who briefed us on the emerging issues in urban food secu-

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9. Thompson, presentation to Emerging Leaders Class of 2013. Thompson also notes the need to make presently unusable soils productive; increase the genetic potential of individual crops, farming systems, and farm animals; improve crop production; and reduce postharvest losses.

10. Catalyst Group Global, “A Food System in Crisis,” 2013, <http://catalystgroupglobal.com/>.

ity. We met with a former US secretary of agriculture, professors, and representatives from USAID, the US Department of Agriculture (USDA), the International Food Policy Research Institute (IFPRI), Bread for the World, and the White House.

We also met with various leaders in Chicago who are dedicated to addressing urban food security issues locally, regionally, nationally, and globally. These leaders helped us better understand Chicago’s current and future role as a leader in urban food security, which we discuss further in chapter 6.

We have distilled the lessons from these meetings and our own research in this report, culminating in a series of recommendations for urban leaders and each with its own implications for Chicago. Because urban food security is such a vast topic, our class has coalesced around the following objectives for this report:

- **Clearly present the challenges to feeding the world’s diverse urban centers in the 21<sup>st</sup> century.** Urban food security is a worldwide concern, with both parallels and distinct differences existing between the developed and the developing worlds.<sup>11</sup> The report will address those similarities and differences and look at a range of approaches—both positive and negative—for addressing urban food security.
- **Advocate that policymakers, the private sector, local citizens, and researchers recognize the urgency of the urban food security issue and devote significant resources to addressing it.**
- **Present an analytical framework for developing and reviewing urban food security policies that can be implemented by city leaders worldwide.** Using an analytical framework and proper metrics will help city leaders better understand pertinent urban food security issues, develop a holistic approach to addressing them, assess the impact of their policies, and learn from other cities. We will demonstrate how the framework can be applied to a range of urban contexts.
- **Highlight the increasingly innovative methods that are being developed to provide food in and to urban centers.** These

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11. Dan Glickman, “Feeding a Growing World Sustainably and Nutritiously,” *Diplomatic Courier*, January 2012; Robert L. Thompson, “The Challenges Ahead in Feeding the World,” SlideServe, January 25, 2012, [www.slideserve.com/redell/the-challenges-ahead-in-feeding-the-world](http://www.slideserve.com/redell/the-challenges-ahead-in-feeding-the-world).

technological developments include vertical farming, hydroponics, and aquaponics, precise local weather information for optimal agricultural production, and the creation of complex local food distribution strategies. When coordinated with existing resources, including transportation networks, irrigation techniques, communication networks (e.g., Internet and cellular technology), and intermodal and other storage facilities, opportunities exist to scale these innovations so that they can have a meaningful impact in global cities. City leaders can look at some of these creative solutions as a way to support entrepreneurial efforts and promote job creation while addressing the challenges of urban food security.

- **Demonstrate that Chicago is ideally suited to be a center of innovation for urban food issues affecting the region, the country, and the world.** As a long-standing leader in food production and distribution, historically earning the city the titles of “Nature’s Metropolis” and “Hog Butcher to the World,” Chicago is well prepared to spearhead efforts to address the emerging urban food issues of the 21<sup>st</sup> century.
- **Urge Chicago’s government, business, education, and policy leaders to seize this opportunity to position the city as a focal point for action on urban food security.** Chicago already has a number of key ingredients for success in this area: a concentration of corporations and trade organizations in the food industry, a location at the center of food-related commodity trading and transportation logistics in the United States, world-class educational institutions that lead in food-related research and development, a vibrant restaurant scene incorporating local foods and sustainability, current state and local government efforts to ameliorate food deserts and boost local food production, and a budding entrepreneurial community.

## The 2013 report

In addition to setting our objectives, we believe it is important to describe some of the topics we do not intend to cover in this report. This report focuses on the specific issue of urban food security rather than the more general issues of global food security. Many organizations, including The Chicago Council on Global Affairs as well the World Health Organization, the Food and Agriculture Organization

of the United Nations (FAO), the Bill & Melinda Gates Foundation, the International Food Policy Research Institute (IFPRI) and others, are undertaking research and work on increased agriculture production around the world to address issues of global food security and, while we draw upon some of their research, their work is a not the focus of our report.

Although our report does not focus on many of the larger national and international policies that can affect urban food security, including regulatory restrictions and global trade policies, we met with several current and former federal officials who spoke to us about the intersection of these issues with urban food security. We have therefore included recommendations in chapter 7 for federal administrative and legislative action that, if put in place, would have a significant, positive impact on urban food security nationally and globally.

The chapters that follow elaborate on the themes of this introduction and the objectives described above. Chapter 2 describes the demographic and environmental trends as well as food production and infrastructure challenges that impact supply and demand for food in urban areas. The chapter also looks at the distinct challenges of urban food security. In chapter 3 we propose a framework, or matrix of issues for policymakers to use to develop and assess urban food security strategies. In chapter 4 we provide specific examples of the food security challenges faced by cities around the world. We then focus on case studies in the United States in chapter 5. Chapter 6 turns the focus to Chicago, highlighting the city’s challenges as well as the opportunity to leverage Chicago’s historical strengths and current assets to become a leader in urban food security. The chapter discusses various efforts by government, the not-for-profit sector, and entrepreneurs to address urban food security in Chicago. In chapter 7 we present our recommendations for addressing the challenges of urban food security globally, but with specific application to Chicago.

By recognizing urban food security as a critical issue and creating a framework for analyzing and implementing policies to address it, the 2013 Class of Emerging Leaders hopes to inspire an urban food revolution, positioning city leaders in Chicago and around the world to meet the urban food security challenges of today and beyond.

## Chapter 2

# The Food Security Challenge of the Coming Decades

While the matter of urban food security is already a vexing problem in 2013, the challenges are expected to intensify in the coming decades. This chapter looks at the evolution of food security and the challenges facing our world—and especially our cities—over the next several decades.

### Evolution of food security

The term “food security” has evolved to encompass a wide array of issues related to food production and consumption.<sup>12</sup> In the 1970s the term “food security” merely meant the provision of sufficient calories to maintain a healthy lifestyle. Food security was measured by converting food consumption data into calories consumed, and income distribution data was used to identify populations that were undernourished. Little, if any, consideration was given to geography, gender, or age of the consumer or the nutritional status of the food consumed.

Later definitions of food security incorporated the economic and social dimensions of the issue. For example, the Global Food Security Index defines food security as follows: “When people at all times have physical, social, and economic access to sufficient and nutritious food that meets their needs for a healthy and active life.” In short, food security is when people have access to nutritious food when and where they need it.

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12. In earlier definitions, the World Bank defined food insecurity as the lack of energy to conduct an active and healthy life. Similarly, the Food and Agriculture Organization of the United Nations (FAO) defined food insecurity as an inability to maintain body weight and to work resulting from energy deficiency (1987). Today, the FAO defines food security as existing “when all people, at all times, have physical and economic access to sufficient, safe, nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO 1996). The USDA defines the concept as “access by all members at all times to enough food for an active, healthy life, including at a minimum the ready availability of nutritionally adequate and safe foods.”

### Box 1– Defining urban food security

Urban food security is when urban residents have sustained physical, economic, and social access to safe, sufficient, diverse calories and micronutrients required for a healthy lifestyle.

### Urban food security

Traditional food security criteria tend to focus on rural agricultural production. This is with good reason, as the majority of food-insecure people have traditionally lived in rural areas. Rural areas have been viewed as food production points that supply food largely for consumption in urban areas, which for social and economic reasons have low food production. Thus, policymakers tend to ask and answer specific questions that pertain to rural life in order to solve food security issues: How great is agricultural output and is production sufficient? What are farmers growing and does this supply meet nutritional requirements? Do farmers have adequate access to financing?

While these questions are still important given the magnitude of food production in rural areas, they provide an incomplete view of a global problem. Today, the world is witnessing the most dramatic demographic change of recent times: rapid urbanization, or the migration of the rural poor to urban areas on a massive scale. It will continue to have an enormous impact on questions of long-term food security and lends critical importance to the topic of urban food security.

Cities are already the definitive mode of human settlement. By 2030 it is expected that six out of every 10 people will live in a city and that by 2050 this proportion will increase to seven out of 10.<sup>13</sup> Over this same period, the rural population of the less developed regions is expected to decline from 3.1 billion to 2.9 billion.<sup>14</sup>

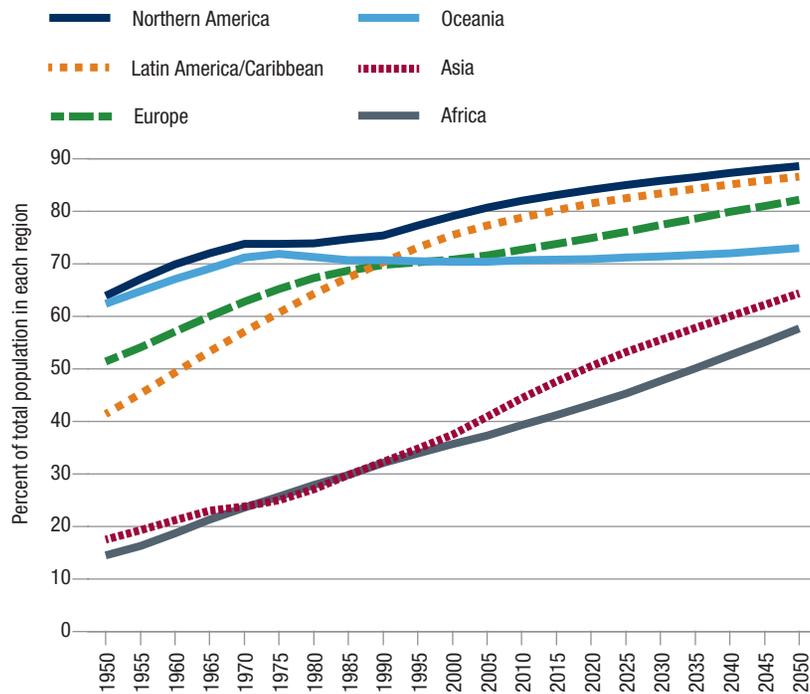
Presently, 93 percent of urban population growth is occurring in Africa, Asia, and Latin America (see figure 2). According to some scholars, the effects of these demographic shifts are likely to be as

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13. World Health Organization, “Urban population growth,” Global Health Observatory, [www.who.int/gho/urban\\_health/situation\\_trends/urban\\_population\\_growth\\_text/en/](http://www.who.int/gho/urban_health/situation_trends/urban_population_growth_text/en/).

14. United Nations, “World Urbanization Prospects: The 2011 Revision,” Department of Economic and Social Affairs, Population Division, 2012.

**Figure 2— Urban population by major geographical region**



Source: UN 2006.

significant as when people first started to live in cities in large numbers.<sup>15</sup> Indeed, human settlement in larger and increasingly dense cities is already having profound impacts upon identity, citizenship, governance, environment, and food security. In the developing world, the migratory flows of people have outpaced the ability of the governments to provide adequate infrastructure in many cases. The concentration of people into smaller urban spaces puts pressure on health and sanitation systems and water and air quality. This has implications for the condition of food, safety of food supplies, and distribution of food, leading to growing food insecurity and malnutrition.

15. Rachel Nugent and Barbara Seligman, “How Demographic Change Affects Development,” Center for Global Development, Demographics and Development in the 21st Century Initiative, [www.cgdev.org/doc/Demographic\\_and\\_Development/DD\\_background\\_12\\_10\\_08.PDF](http://www.cgdev.org/doc/Demographic_and_Development/DD_background_12_10_08.PDF).

The trend towards urbanization appears to be deeply rooted, long lasting, and nearly universal. Urbanization leads to changes in lifestyle that affect overall food consumption patterns. However, residents experience this trend differently, depending on their socio-economic status. Many cities exhibit highly concentrated levels of poverty, leading to extreme social, cultural, and economic exclusion. Indeed, we must now reckon with the fact of *megaslums*—slums of more than one million people—vast marginalized spaces and vulnerable populations larger than most cities have been throughout history. Though many municipalities across the world have greatly reduced the proportion of their populations living in slums, the total number of slum-dwellers continues to grow and is expected to reach as many as 1.4 billion by 2020.<sup>16</sup>

At the same time, rapid growth in the emerging economies over the next couple of decades will pull hundreds of millions of people out of absolute poverty by 2050. Projections indicate that the world’s GDP will grow at an annual rate of 2.9 percent between 2005 and 2050, with low-income countries growing at a rate of 5.2 percent (compared to 1.6 percent in high-income countries). However, moving out of absolute poverty still leaves most of these people in poverty and not necessarily food secure. As incomes climb further, demand for a more diversified diet increases and consumption of meat, dairy, vegetable oils, and high-value, often processed foods increases. As access to electricity increases and more people are able to afford refrigeration, demand for fresh foods also increases. Higher incomes can, however, also be associated with excess consumption of sugar, salt, animal fat, alcohol, caffeine, and tobacco and can lead to an increase in many types of diseases associated with such a diet as well as with more sedentary urban lifestyles. This combination of factors leads increasingly to the double burden of poverty and malnutrition at both the ends of the spectrum in urban areas, with people being both undernourished and obese.

Urban food security involves a highly complex set of interrelated challenges. To help further illuminate these issues, the next section looks at overall challenges to the food system globally, followed by a more specific look at the unique aspects of food insecurity faced by cities.

16. United Nations, “Slum Population Projection 1990-2020,” Human Settlements Programme, <http://ww2.unhabitat.org/programmes/guo/documents/Table4.pdf>.

## Global food system challenges

Population growth and urbanization, combined with increasing per-capita incomes and dietary changes in lower-income countries, will create tremendous pressure on food production in the coming decades. With these challenges in mind, how will the world feed its cities in coming decades?

To answer this question, the UN Food and Agriculture Organization (FAO) convened a High Level Expert Forum in Rome in October of 2009 called “How to Feed the World in 2050.” Their findings highlight some of the major challenges:<sup>17</sup>

- In order to feed a population of 9 billion in 2050, overall world food production would need to increase by 60 percent.<sup>18</sup>
- The production of cereals (for food and livestock feed) would need to increase by nearly one billion tons by 2050, from 2.1 billion to 3 billion tons.
- Meat production would need to expand by more than 200 million tons—72 percent in developing countries.
- The increase in world food demand would require 175 to 220 million additional hectares of cropland.

Increasing food production alone will not be sufficient to ensure food security for everyone. The daily per-person energy available is expected to increase by 2050 to a global average of 3,050 kcal from an average of 2,770 kcal today. Yet, just because this energy exists does not necessarily mean it will be equally available. “Unless governments make sure access to food by the needy and vulnerable is significantly improved ... this would still mean that some 370 million persons would be undernourished in 2050.”<sup>19</sup>

Over the next several decades, the world’s ability to significantly increase food production and feed its populations will be determined by the following factors:

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17. Food and Agriculture Organization (FAO), “How to Feed the World in 2050,” High Level Expert Forum, Rome, October 12-13, 2009, [www.fao.org/fileadmin/templates/wsfs/docs/Issues\\_papers/HLEF2050\\_Global\\_Agriculture.pdf](http://www.fao.org/fileadmin/templates/wsfs/docs/Issues_papers/HLEF2050_Global_Agriculture.pdf).
  18. This finding was updated in 2012. See FAO, *OECD-FAO Agricultural Outlook 2012-2021*.
  19. FAO, “How to Feed the World in 2050.”

1. Availability of natural resources (land, water, and energy),
2. Ability to decrease food waste,
3. Capacity of our infrastructure.

## Natural Resources

### *Arable Land*

To meet the drastically higher demand forecast for 2050, more arable land, higher land yield per acre, or a combination of both will be necessary. According to the FAO, 90 percent of the growth in crop production is expected to come from higher yields and increased cropping intensity because there is so little unused arable land. Currently, all but 12 percent of the world’s arable land is in use. Of that land currently in production, about 40 percent is degraded to some degree and will be further affected by climate change.<sup>20</sup> The pressure on fresh water from irrigation will remain considerable and may increase in several countries in the Middle East, North Africa, and South Asia.<sup>21</sup>

Much of the currently unused arable land is concentrated in a few countries in Latin America and Sub-Saharan Africa, but much of this land is only suitable for growing specific crops for which there may not be high demand. Furthermore, much of the available land may not be suitable for agricultural production because of chemical contamination, endemic diseases, lack of surrounding infrastructure, or because it has already been slated for expanding urban settlements. Even so, “land grabbing” has become a concern as countries try to secure available land around the world to feed their growing populations (see box 2).

Nevertheless, the FAO predicts that there is still enough available land to feed the growing world population provided that the land becomes more productive.<sup>22</sup> This implies advancements in agricultural technology and research on the one hand and a concerted effort to decrease food waste on the other.

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20. Katiuscia Fara, *Livestock and Climate Change* (Rome: International Fund for Agricultural Development), [www.ifad.org/lrkm/events/cops/papers/climate.pdf](http://www.ifad.org/lrkm/events/cops/papers/climate.pdf).
  21. FAO, “How to Feed the World in 2050.”
  22. FAO, “How to Feed the World in 2050.”

## Box 2 – The increasing concern about “land grabbing”

As the world’s arable land becomes more and more scarce, national governments have begun to buy land abroad to ensure the security and longevity of their own nations. Two-thirds of agricultural land deals entered into by foreign investors are in countries with a serious hunger problem. But this does not mean that these land acquisitions will help tackle the hunger crisis. Based on existing information, more than 60 percent of foreign land investors in developing countries intend to export everything they produce on the land.

From 2004 to early 2009 at least 2.5 million hectares of land were transferred in five African countries alone, and recent estimates point to land acquisitions in the millions of hectares. India and Saudi Arabia are two of the clearest examples. Indian companies have invested almost \$2.5 billion in 350,000 hectares of Ethiopian land in order to create the “world’s largest agricultural land bank.” The Saudi government purchased 500,000 hectares of farmland in Tanzania in 2009 to meet the agricultural needs of the nearly barren Arabian Peninsula.

Sources: Wilkerson 2009; Nelson 2009; von Braun and Meinzen-Dick 2009; Cotula et. al. 2009.

### Water

The Stockholm International Water Institute has found that the current global water consumption growth rate is double the world’s population growth rate, largely due to agricultural water use. (Agricultural production currently accounts for 70 percent of global fresh water use.) According to the institute’s executive director, “Based on assumptions regarding the global scale of economic growth, as countries’ GDPs expand, the water requirement to feed the world will increase 80 percent.”<sup>23</sup> This includes the need to provide safe drinking water and adequate sanitation. According to a McKinsey Global Institute report from June 2012, annual demand for municipal water is expected to increase by 80 billion cubic feet by 2025, with South and East Asia comprising more than 50 percent of the increase. The amount needed in 2050 will undoubtedly be even greater.<sup>24</sup> Another report indicates that government invest-

23. Anders Berntell, “Will There Be Enough Water to Feed the World in 2050?” Proceedings of the 2011 Water for Food Conference, University of Nebraska, [http://waterforfood.nebraska.edu/wp-content/uploads/2012/02/wff2011\\_fullversion.pdf](http://waterforfood.nebraska.edu/wp-content/uploads/2012/02/wff2011_fullversion.pdf).

24. Ibid.

ment will need to equal \$6 trillion globally to meet water infrastructure demands.<sup>25</sup>

Currently, one in four city residents, or 794 million people in urban areas around the globe, live without safe drinking water and sanitation. The inability of urban infrastructure development to keep pace with urbanization means there are more people without access to tap water in cities today than there were at the end of the 1990s.<sup>26</sup> China, the world’s largest country and fastest growing economy, is a prime case study: two-thirds of Chinese cities do not have safe drinking water.<sup>27</sup> By 2050 more than half the world’s population will suffer from severe water scarcity, compared to 36 percent of the population today. As urban populations rise across the globe, the demand for safe water and sanitation will increasingly be a critical issue.

The answer to the growing water challenges lies in how the water is managed and distributed. As UN Secretary General Ban Ki Moon states, “The urban water crisis is a crisis of governance, weak policies, and poor management rather than one of scarcity.”<sup>28</sup> Innovative policies and practices are being adopted in some urban areas to address the water crisis, but more needs to be done. Rapidly growing cities, particularly in India, Australia, and the southwest United States, are more aggressively harvesting rainwater, enforcing reduced water consumption, improving sewerage treatment networks, using treated water for irrigation in green areas, and raising awareness among its citizens and businesses (see box 3).

In terms of agricultural production, vast research is being conducted to improve irrigation and production techniques to use less water as well as to improve plant and seed characteristics to make them more water efficient. For example, a study by the Indian gov-

25. KPMG, “Infrastructure 2050,” *Insight*, November 2010, <http://www.kpmg.com/global/en/issuesandinsights/articlespublications/insight-magazine/pages/insight-november-2010.aspx>.

26. UNESCO Media Services, “Increasing demand and climate change threatening world water resources says new UN World Water Development Report,” March 12, 2012, [www.unesco.org/new/en/media-services/single-view/news/increasing\\_demand\\_and\\_climate\\_change\\_threatening\\_world\\_water\\_resources\\_says\\_new\\_un\\_world\\_water\\_development\\_report/](http://www.unesco.org/new/en/media-services/single-view/news/increasing_demand_and_climate_change_threatening_world_water_resources_says_new_un_world_water_development_report/).

27. The Civic Exchange, “Asia Water Project Launches Investor Report and Unveils Information Portal on China Water Crisis,” Asian Water Project, February 25, 2010, [www.civic-exchange.org/en/live/upload/files/100224\\_AWP.pdf](http://www.civic-exchange.org/en/live/upload/files/100224_AWP.pdf).

28. UN Secretary-General Ban Ki-moon, “In Message for World Water Day, Secretary-General Says Urban Water Crisis One of Governance, Weak Policies, Poor Management, Not One of Scarcity,” press release, March 18, 2011, [www.un.org/News/Press/docs/2011/sgsm13456.doc.htm](http://www.un.org/News/Press/docs/2011/sgsm13456.doc.htm).

### Box 3 – Example of water conservation plan in India

Peter Ellis designed a city, Jaypre Sports City, that is being built for one million people 30 miles south of New Delhi on a newly opened toll road to Agra. It is 100 percent financed by Gaur companies, or the private sector, unusual for a metropolitan city. An extensive, interconnected network of parks was created to capture monsoon storm water that drains to the aquifers to water treatment plants located in each neighborhood, thereby decentralizing water supply and building efficiency, providing sustainable quantities of portable water. Parks and streets are oriented parallel to the prevailing winds to cool the city at night.

Wastewater is returned back to the treatment plant, where it is cleaned and recycled as grey water. Solids are processed in an anaerobic digester, yielding methane gas, which is channeled to a substation to generate electricity and steam energy for cooling, similar to a system built in San Francisco and Milwaukee. Fifty percent of the water and 20 percent of the electric power is conserved in this matter.



Source: Ellis 2013.

ernment found that switching from pump irrigation to drip irrigation would save 30 to 70 percent of water usage for various crops.<sup>29</sup> When

29. Lee Addams, Giulio Boccaletti, Mike Kerlin, and Martin Stuchtey, "Charting Our Water Future: Economic Frameworks to Inform Decision-Making," 2030 Water Resources Group, 2009, [www.sabmiller.com/files/reports/charting\\_our\\_water\\_future.pdf](http://www.sabmiller.com/files/reports/charting_our_water_future.pdf).

Mars, Inc. announced it had mapped the cacao genome in 2010, the company touted the improved crop yields and greater water efficiency in cacao production as one benefit of this scientific endeavor.

### Energy for food production

Overall demand for energy is expected to increase globally by 57 percent over the next 25 years.<sup>30</sup> This can have a tremendous impact on food production. Energy, particularly fossil fuels, is a significant input into both agricultural production and fertilizer. Due to the volatility of oil prices, the US Energy Information Administration's (EIA) 2013 Energy Outlook includes three different prices forecasts for crude oil by 2040. In its primary forecast, or reference case, the price of crude oil reaches \$163 per barrel by 2040, compared to an average of around \$95 per barrel in May of 2013. Such price increases will directly impact the cost of diesel fuel for food production and transportation.

In addition, the production of nitrogen fertilizer relies on considerable use of natural gas and can equate to more than 50 percent of the overall energy usage in commercial farming.<sup>31</sup> The EIA predicts that natural gas prices will increase from \$3.98 per million Btu in 2011 to \$7.83 in 2040 (using 2011 dollars).

However, improvements in energy efficiency for agricultural production are expected to help offset these price increases. This will be critical to meeting both the world's energy and food needs by 2050.

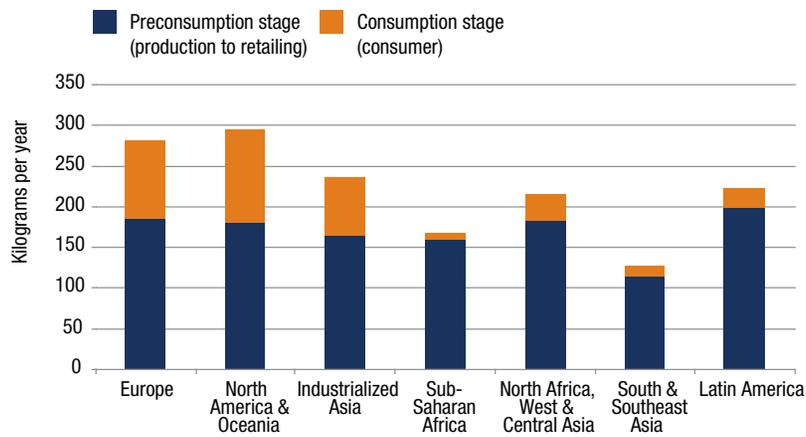
### Food waste

A decrease in food waste could have a considerable impact on food security. Current estimates of food waste generally find that 30 percent of food (approximately 1.3 billion tons per year) is wasted across the globe (see figure 3). In low-income countries, waste typically occurs at the point of production because of poor postharvest infrastructure and technology. In higher income countries waste

30. US Energy Information Administration (EIA), *Annual Energy Outlook 2013 with Projections to 2040*, Office of Integrated and International Energy Analysis, (Washington, DC: US Department of Energy, April 2013), [www.eia.gov/forecasts/aeo/pdf/0383\(2013\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf).

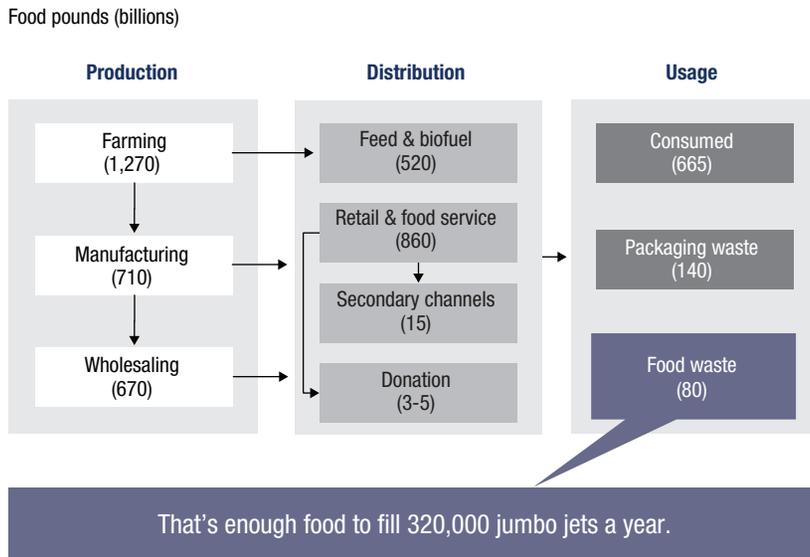
31. Jeremy Woods, Adrian Williams, John K. Hughes, Mairi Black, and Richard Murphy, "Energy and the Food System," *Philosophical Transactions of the Royal Society: Biology*, August 16, 2010, <http://rstb.royalsocietypublishing.org/content/365/1554/2991.full.pdf+html>.

**Figure 3 – Per-capita food losses and waste by region**



Source: FAO 2011.

**Figure 4 – Food waste in the United States: 80 billion pounds per year**



\*Industrial waste is not included; numbers are estimates and may not balance.

Sources: USDA, US Census of Agriculture 2007; US Economic Census 2007; National Restaurant Association; others.

is more of a utilization and behavioral issue, occurring primarily at the point of consumption, in the home and in restaurants. The United States alone wastes over 80 billion tons of food each year (see figure 4). According to agricultural economist Don Hofstrand of Iowa State University, “Cutting food waste in half over the next 40 years, which seems to be a reasonable goal, means we will only need to increase agricultural production by 45 percent instead of 70 percent.”<sup>32</sup> Reducing food waste would also relieve some of the long-term burden on our natural resources—land, water, and energy. At the same time, waste reduction strategies should not overlook the need to leave some slack in food systems so that shocks—both natural and anthropogenic—can be absorbed more easily.

### Infrastructure challenges

The quality of infrastructure is inextricably linked to quality of life, including food security, and this will be paramount in the urban centers of the future. Will there be adequate shelter and the ability to prepare food at home? Will there be sufficient supply of fresh water and, if so, can it be safely transported to urban centers? Will roads and other transportation systems be adequate to distribute food to the growing urban populations? Will there be enough cold storage for meat, dairy, and other perishable foods? Will communications systems—of all types—within a city be able to handle growing traffic? All of these infrastructure systems will be necessary to feed growing urban populations.

It is estimated that it will cost \$40 trillion globally in the coming decades simply to provide basic levels of infrastructure.<sup>33</sup> Indeed, some estimate that \$1 trillion must be invested in food storage infrastructure alone just to move food from the farm gate to the plate. And as recent debates within the United States have illustrated, infrastructure projects are not born “shovel ready.” It takes many years of planning and investment to develop infrastructure projects, so leaders must begin to develop them now.

32. Don Hofstrand, “More of Feeding Nine Billion People by 2050,” *AgMRC Renew Energy & Climate Change Newsletter*, January 2012, [www.agmrc.org/renewable\\_energy/agmrc-renewable-energy-newsletter/?more\\_on\\_feeding\\_nine\\_billion\\_people\\_by\\_2050&show=article&articleID=645&issueID=122](http://www.agmrc.org/renewable_energy/agmrc-renewable-energy-newsletter/?more_on_feeding_nine_billion_people_by_2050&show=article&articleID=645&issueID=122).

33. KPMG, “Infrastructure 2050.”

## Requeuing the paradigm: why urban food security is different

While the challenges outlined in the previous section impact food security for people everywhere, there is a growing recognition that urban food security needs more attention and that society needs to consider ways in which urban environments differ from rural ones in procurement and use of food. The impact of food price shocks and lack of clean water and sanitation all have different impacts on the rural and urban populations, and therefore the cause of malnutrition and food insecurity in urban areas will need different policy responses.

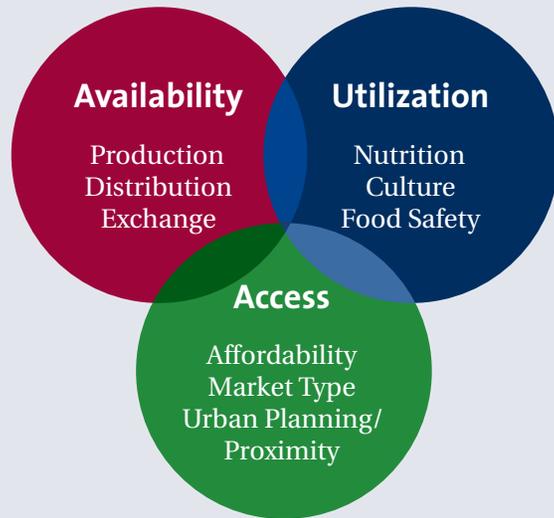
There are several dimensions of urban systems that make them significantly different from rural settings (see also box 4):

1. **Households.** The average urban household composition is different from that in rural areas. The average urban household is smaller in size than rural families, which tend to be inclusive of extended families. On the other hand, because of the prevalence of nuclear families and single-parent families, urban households, may show a higher ratio of children to adults. Urban households often have a more precarious existence and are more difficult to define and measure, with many people in the developing world living illegally on land and in structures without any ownership as squatters.
2. **Livelihoods.** Many urban poor—those most likely to be food insecure—are either unemployed or underemployed and increasingly gain employment only in informal sectors. These sectors are highly unstable, poorly remunerated, and often seasonal. Unlike rural residents, who might have reserves of agricultural produce in close proximity, urban residents rely on their incomes to buy food. Since most food is purchased, markets, street vendors, and processing facilities therefore play important and unique roles in urban areas. They also present unique problems—reliance on street food, for example, exposes urban residents to higher levels of food contamination than rural residents.
3. **Women.** In cities, women are increasingly involved in the workforce to earn money. The traditional role women play in food selection, production, and distribution within the household is therefore altered in the urban context. This can have implications both for quantity and quality of food consumed and especially impacts younger household members. With women spending more time working outside the home, less time is devoted to cooking. This results in greater dependence on the purchase of packaged food that is quick to prepare or the purchase of meals from street vendors, meals which are typically less nutritious and higher in fat and salt content. The effects of diets low in micronutrients are especially damaging to women, particularly pregnant women, and children, who require a wide array of micronutrients for healthy reproduction and growth. In both developed and developing countries, women-headed households tend to be the most vulnerable and insecure.
4. **Food costs.** Urban residents typically pay more for food and food preparation than their rural counterparts. In addition, the fragmented nature of many urban food markets means even higher food costs in remote neighborhoods, which also experience larger fluctuations in both food quantity and price. Some estimate that in developing countries food costs are 30 percent higher in urban areas.<sup>34</sup> In many developing countries the urban poor spend from 60 to 80 percent of their income on food.<sup>35</sup>
5. **Infrastructure.** Urban areas depend on their transport and storage infrastructures to ensure that sufficient quantities of food are available to their populations. Lack of basic infrastructure, poor or deteriorating roads, and disruptions in any segment of the infrastructure can cause shortages and increase volatility of food prices.
6. **Formal and informal safety nets.** The coping strategies in place during food shortages are different for urban and rural residents. Urban residents tend to have weaker informal safety nets that can help minimize exposure to adverse food shocks than their rural counterparts. This may be because

34. Olmo Argenti, "Feed the Cities: Food Supply and Distribution," IFPRI, 2020 Vision, 2000, [www.ifpri.org/sites/default/files/pubs/2020/focus/focus03/focus03\\_05.pdf](http://www.ifpri.org/sites/default/files/pubs/2020/focus/focus03/focus03_05.pdf).

35. de Zeeuw and Dubbeling, "Cities, Food, and Agriculture."

## Box 4 – Urban food security factors



### Sites of production

#### Rural and international imports (mainly staples)

- Represents majority of food supply
- Highly vulnerable to climate variation and international trade/policy
- International imports challenge local “food sovereignty”

#### Urban and peri-urban production

- Represents 15 to 20% of world food supply (larger in Sub-Saharan Africa)
- High-value commodities, i.e., fresh vegetables, fish, meat/dairy
- Critical for shock management
- Urban growth reduces arable land

### Processing and packaging

- Presence of processed and packaged foods is higher in urban areas due to ease of transport, shelf life
- Impact carbon footprint, health

### Distance traveled

- Majority of urban food supply travels long distances to consumers, presenting challenges of food safety as well as carbon footprint

### Sites of acquisition

- Increasing presence of supermarket retail chains in urban areas alters procurement and distribution
- Formal markets less common in slum/informal areas

### Pricing

- Urban food supply costs more than rural
- Imports often cheaper than local products

### Food preparation

- Urban residents rely more on preprepared food (e.g., street vendors) due to relative costs of shopping/cooking (e.g., fuel and storage) than rural residents
- Employment type/location/income also affect this decision

### Climate variation and degradation

- Temperature/rainfall changes impact global agricultural production
- Agricultural sector produces a significant percentage of greenhouse gas emissions
- Groundwater and aquifer depletion critical for agriculture

### Food/health culture

- More advertising/influences
- More suboptimal food choice
- More sedentary lifestyles, obesity
- Increase in human and zoonotic diseases impacting utilization

### Water and sanitation infrastructure

- Key to utilization due to issues of increased infectious disease and water-borne illness in urban areas of developing world

### Diet Shift

- Urban population more likely to consume “modern,” highly processed foods
- Higher incomes result in increased meat and dairy consumption
- Demand for year-round availability

### Emergency food networks

- Cash incomes and limited/no production make urban populations vulnerable to price shocks and system failures
- Public food banks are more common in urban areas, but community support networks are often weaker than in rural

Source: University of Pennsylvania, Institute for Urban Research.

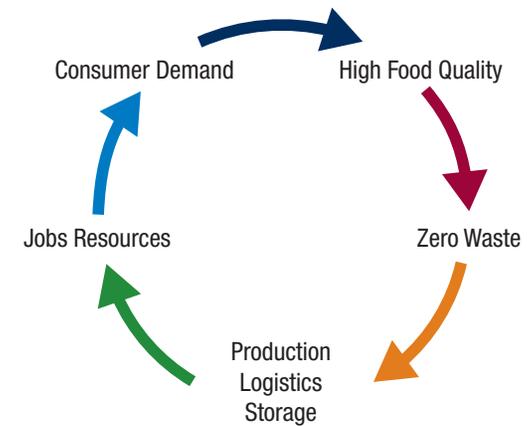
of the weaker sense of community in urban landscapes. This is exacerbated by the frequent movement of people, urban violence, and crime, all of which diminish trust and allegiance to community. Urban residents in some countries therefore increasingly depend on government safety nets such as food stamps or food distribution by nongovernmental organizations and other means to manage adverse shocks. Many urban residents in developing countries may not have access to any form of safety net in times of crisis.

7. **Environment and sustainability factors.** Urban areas tend to have higher levels of pollution than rural areas. The lack of clean water, basic sanitation, and solid waste disposal facilities in many urban slums adds to the problem. This has implications for food preparation and thereby affects the health status of the urban population. The nutritional status of urban residents is also more variable; the poorest urban residents have higher rates of malnutrition than their rural counterparts.

Beyond these specific factors, the globalization of the food system results in the adoption of international patterns of food consumption, affecting food security in urban areas since such patterns may not be supported by local food production and distribution systems. Urban dwellers are often drawn to patterns of global consumption because of the perceived success and status of those who have access to global foods, especially global food brands. Yet many global foods, specifically snack foods and fast foods, remain high in calories but low in micronutrients.

As we have shown, the determinants of food security in urban areas can be substantially different than in rural areas. The design of food security interventions in urban areas will have to consider these contextual differences. The historical development of a city is also important to take into account, including the urban-rural linkages and the social linkages within a city. Urban areas in different countries will have to use the approaches that are most suited to their specific situation to address forthcoming challenges. Robert Paalberg, B.F. Johnson Professor of Political Science at Wellesley College, an associate at Harvard University’s Weatherhead Center for International Affairs, and author of *Food Politics: What Everyone Needs to Know*, notes that the most effective policy measures will be those that are specific to a country’s level of development and

**Figure 5 – Urban food security ecosystem**



Source: Seema Kumbhat

stage in the “dietary transition—from a diet low in both calories and micronutrients (accompanied by pervasive malnutrition) to a transitional diet that provides adequate basic energy for most but an inadequate balance of nutrients, to an affluent diet that provides excessive calorie energy, accompanied by health problems linked to obesity.”<sup>36</sup> In the next chapter we present a new framework to help guide urban food security policies.

36. Robert Paalberg. “Governing the Dietary Transition: Linking Agriculture, Nutrition, and Health,” 2020 Conference: Leveraging Agriculture for Improving Nutrition and Health, New Delhi, India, 2011, [www.ifpri.org/sites/default/files/publications/2020anhconfpaper08.pdf](http://www.ifpri.org/sites/default/files/publications/2020anhconfpaper08.pdf).

## Chapter 3

### The Urban Food Model

Given the enormous challenges facing the world in achieving food security, governments and urban communities in particular need to create food strategies. The complex character of food means that food planning is necessarily a multidimensional activity, with profound implications for policies that deal with income inequality, public health, social justice, ecological integrity, transport planning, energy, water, waste, economic development, and cultural identity, to name just a few. Just reviewing a basic supply chain from grower to container, truck, distributor, distribution center, consumer, and disposal highlights the many stakeholders involved in feeding a population.

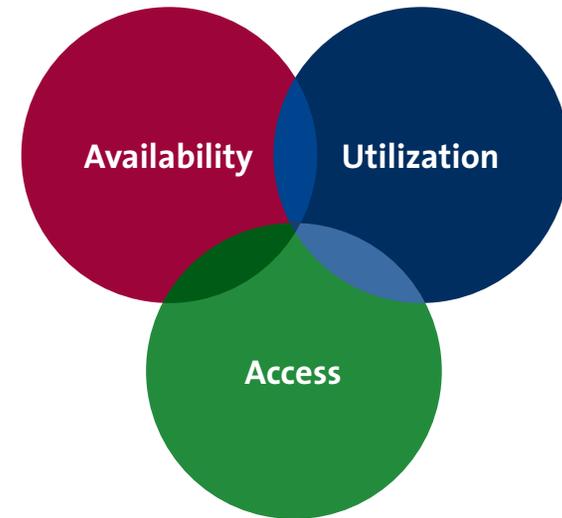
Politically and socially, food presents both problems and opportunities. One of the biggest problems is organizational: how do city governments overcome the departmental silos to design and deliver sustainable food policies that are by definition holistic and multidimensional? One of the biggest opportunities lies in the convening power of food. Urban food strategies have the potential to bring people and their varied backgrounds together in order to coalesce around beneficial and sustainable practices to provide the food security needed for healthy lifestyles.

### The need for a framework

With a multitude of conversations about food security occurring globally, urban policymaking can be a serious challenge because of the complexity and interrelated issues associated with food security. Along with the promise of good urban food security policy comes the potential not only for unwanted secondary and tertiary effects, but also the risk of a critical omission. Armed with a framework, policymakers and those actively involved in urban food security can more easily identify problems and arrive at constructive conclusions.

A basic framework for food security has long been established and is generally agreed upon by experts in the field. As discussed in chapter 1, this framework breaks food security down into three key components (see figure 6):

Figure 6 – Components of food security



- **Availability**—Sufficient quantities of food available on a consistent basis,
- **Access**—Sufficient resources to obtain appropriate foods for a nutritious diet,
- **Utilization**—Appropriate use of food based on nutrition, care, water and sanitation.

Based on an analysis of current food security conditions in urban environments and the many dimensions required to properly understand the phenomenon across various aspects, it became apparent that the basic framework had to be extended and made multidimensional.

We sought to take the basic framework two steps further, first by identifying more specific criteria to consider under each of the three traditional areas of focus (availability, access, utilization). Second, we added five “overarching themes,” or dimensions through which each criterion should be evaluated.

## Criteria for urban food security

We worked to ensure that traditional criteria included under each category would become adequate for an analysis of *urban* food security. This required a de-emphasis on some aspects, mostly related to conditions in a rural setting, and consideration of additional criteria that would better account for the urban specificity of the problem. Consequently, our research is less focused on criteria that are cornerstones for food security in rural areas such as agriculture infrastructure or agricultural research and development. Rather, our focus is on the supply chain from production centers to urban markets, distribution networks within cities, urban safety nets, and formal and informal institutions for food distribution and consumption within metropolitan areas. This resulted in the following indicators:

### Availability

- Supply sufficiency
- Micronutrient availability
- Food aid capacity
- Chronic food aid
- Supply volatility

### Access

- Affordability
- Safety net programs
- Distribution infrastructure
- Economic infrastructure

### Utilization

- Diet diversification
- Cultural preferences
- Civil society

## Dimensions of urban food security

Second, it became fundamental to look at availability, access, and utilization through broader lenses, reflecting the complexity of the problem. We singled out five critical dimensions through which availability, access, and utilization need to be assessed (see appendix A for full descriptions):

**Figure 7 – The Urban Food Model**

	Institutional Factors	Environmental Factors	Technological Factors	Economic Factors	Social & Cultural Factors
Availability	Supply sufficiency				
	Micronutrient availability				
	Food aid capacity				
	Chronic food aid				
	Supply volatility				
Access	Affordability				
	Safety net programs				
	Distribution infrastructure				
	Economic infrastructure				
Utilization	Diet diversification				
	Cultural preferences				
	Civil society				

- Institutional
- Environmental
- Technological
- Economic
- Social and Cultural

The resulting matrix, which we call the “Urban Food Model,” is designed to help focus conversations—and hopefully policy—on relevant food security questions in an urban context (see figure 7). The components of the Urban Food Model are discussed in more detail in appendix A.

## Applying the Urban Food Model

The Urban Food Model provides a tool for organizing thought on the multilayered and complex dimensions of urban food security. The examples provided throughout this report, for instance, can and should be placed within the model to help address the many challenges we identified in reviewing urban food security efforts. These include challenges of measurement, with no clear system for assess-

ing progress or decline; lack of accountability; subjective evaluation by stakeholders in the outcome; and strategies too often viewed in isolation, with causes and effects difficult at best to understand. Standardization of thought—not to be confused with standardization of solutions—helped our dialogue and held promise for helping coordinate action.

With a clear understanding of the important linkages between various aspects of urban food security, policymakers can use the model to help identify specific criteria that are relevant to a city's particular circumstances. Measurement parameters could then be developed, for example, as a starting point for assessing progress and managing consequences. Establishing measurement parameters can also illuminate the relationship between urban food security and related challenges such as climate change and poverty.

The model could also help in identifying target groups or objectives within the overall urban food strategy through analysis of the provided criteria. For example, measurement analysis may reveal that a certain socioeconomic class or gender within the urban population may be disproportionately affected by food insecurity. This helps direct the response, whether through alternate policy interventions or the allocation of additional funds. The model also allows for the tracking of commitments and provides a basis for comparison, monitoring, and evaluation. This can ultimately lead to assessing gaps and successes among urban food interventions.

While we apply the Urban Food Model to the challenges of urban food security, we also see that this methodological innovation is applicable to most food related policy.

## Policy framework for urban leaders

Political and community leaders do not operate in a vacuum. As they seek to create food security strategies they will undoubtedly find themselves aided or thwarted by policies implemented above them in the policy food chain. State/regional and federal policies often supersede those at the local level, restricting the freedom of urban leaders to adequately address the food security of their own citizens. The Urban Food Model presented here cannot, therefore, be the sole responsibility of mayors and local leaders. In order to achieve the greatest success and efficiency, a coordinated effort must occur across all levels of governance. This can be an immensely difficult challenge. When mayors find themselves stymied in their efforts by state or federal policies, they should band together to seek changes

that will either support their needs or remove the obstacles to effective local implementation. The same would go for NGOs and other community organizations that are hampered by policies and regulations that prevent them from helping all achieve food security.

## US agricultural policy impediments

For example, in the United States agricultural policy has focused on traditional food production and the economic vitality of rural areas. This is a critical focus. However, even in the world's most agriculturally productive nation, where we are capable of producing food to excess, we have areas within our cities in which numerous citizens suffer from hunger and malnutrition. As populations continue to shift to urban and suburban areas, this predicament will only be exacerbated unless there is a greater focus and coordination of efforts to address urban food security.

Following are some of the current distortions within US agricultural policy that impede the effective production and delivery of food to and within urban centers.

- Federal agricultural subsidies are vastly skewed toward major grain crops such as corn, wheat, rice, and soybeans as well as cotton and dairy.
- Produce growers in California and Florida have effectively created monopolies in the production of vegetables and fruits.
- Crop insurance programs favor these distortions.
- Planting restrictions provide disincentives to the cultivation of produce in primarily grain production regions.
- There is no effective national policy to coordinate regional food distribution.
- There is no “urban” office at the US Department of Agriculture to provide for the effective coordination of policies across the federal executive branch focused on urban food security or to assist state and cities in their efforts to do so.

As US and global mayors look to the future, they will need to work with state and federal government leaders to begin to address these

## Chapter 4

### Urban Food Security: Developing Country Case Studies

Though there is a vast amount of research and analysis on rural food security issues, research and statistics on urban food security are hard to find. Sources such as the Economist Intelligence Unit Global Food Security Index or the USDA International Food Security Assessment (2012) do not disaggregate the data for each county, so it is difficult to know how much and what component of food insecurity information relates to rural versus urban areas.<sup>37</sup> IFPRI released a report in 2009 analyzing which agricultural interventions around the world made significant improvements in quantity and quality of foods grown.<sup>38</sup> Nothing similar exists for urban food security issues. In a 2011 article, Crush and Frayne stated that “within contemporary global food security discourse, the urban is all but invisible.”<sup>39</sup>

Without extensive data on urban food security, we use case studies to give examples of the kinds of challenges that urban residents face and what has been tried to address these challenges. This chapter provides examples from around the world of policies that have begun to move communities toward greater food security. Because there is no silver bullet that will solve this complex problem, these examples are provided to help cities learn from the experiences of others.<sup>40</sup>

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37. The Economist Intelligence Unit, “Global Food Security Index,” *The Economist*, March 2013, <http://foodsecurityindex.eiu.com/>; Stacey Rosen, Birgit Meade, Shahla Shapouri, Anna D’Souza, and Nicholas Rada, *International Food Security Assessment, 2012-22* (Washington, DC: USDA, 2012), <http://www.ers.usda.gov/media/849266/gfa23.pdf>.

38. David J. Spielman and Rajul Pandya-Lorch, eds., *Millions Fed: Proven Successes in Agricultural Development* (Washington, DC: IFPRI, 2009), <http://www.ifpri.org/sites/default/files/publications/oc64.pdf>.

39. Jonathan Crush and G. B. Frayne, “Urban Food Insecurity and the New International Food Agenda,” *Development Southern Africa* 28, no. 4 (October 2011).

40. For a review of earlier literature on urban food security issues, see IFPRI, “Urban Challenges to Food Security and Nutrition Security: A Review of Food Security, Health, and Caregiving in the Cities,” FCND Discussion Paper No. 51, 1998, [www.ifpri.org/sites/default/files/publications/dp51.pdf](http://www.ifpri.org/sites/default/files/publications/dp51.pdf).

distortions. We recognize changing long-standing US agriculture policies would be extremely difficult. These are mentioned to illustrate challenges that face the United States in efficiently feeding its population. Recommendations to begin to address these challenges can be found in chapter 7.

In addition, it is important to understand the vast impact US agricultural policies have on developing countries, impacting both access and availability through exports and direct food assistance. These discussions will need to be replicated around the world in order to feed a projected urban population of over six billion people.

### The importance of corporate leadership in global and urban food security

Finally, it is important to recognize the importance of corporate leadership in affecting change. While there are hundreds of millions of farmers worldwide, those who produce and sell much of what we eat are the dominant global food manufacturers. Ultimately, food security and nutrition cannot be addressed effectively unless these businesses are committed to change.

## Brazil's successful "Zero Hunger" program: comprehensive strategies from the bottom up

Brazil has become an international benchmark for food security, rural development, and poverty eradication policies for a variety of reasons. One of the world's most biodiverse regions, Brazil does not suffer from lack of adequate food supply. Food insecurity is primarily caused by the lack of economic resources among the population to purchase adequate, healthy, nutritious food. Eradicating hunger and fighting poverty have been key objectives on the domestic agenda for over a decade, and Brazil reduced overall poverty from 20 percent in 2004 to 7 percent in 2009. However, this transition at the national level did not occur without significant coordination efforts at all levels. These efforts began in 1993 in one impoverished region of Brazil.

In 1993 one city, Belo Horizonte, began tackling the problem—20 percent of the children being hungry and 11 percent of the population of 2.5 million living in absolute poverty—with a comprehensive set of policies focused on adequate food as a human right. The mayor, Patrus Ananias, who is now a leader of the federal antihunger effort, created a city agency, including a 20-member council of citizen, labor, business, and religious representatives, to advise in the design and implementation of a new food system.

The city agency developed dozens of innovations, including bringing together the interests of farmers and consumers. Local farmers were given prime public spaces on which to sell directly to urban consumers. This led to growth in the farmers' profits without a wholesaler taking a cut, and the urban poor got access to fresh and healthy food at lower prices, which addressed issues of access in our food model.

An emphasis on education about healthy eating and nutrition was a critical part of the programming, addressing the area of utilization in the model. The city's food security initiatives also included extensive community and school gardens as well as nutrition classes. Plus, money the federal government contributes toward school lunches, once spent on processed, corporate food, now buys whole food mostly from local growers.<sup>41</sup>

When President Lula da Silva was elected in 2003, he made the reduction of hunger and poverty a key aspect of his government-

tal policy. Much of his strategy was based on the success of Belo. Hunger was viewed from both the economic and social perspectives, and policies were developed that worked on both long-term structural elements of hunger as well as emergency policies to address immediate need. Basic legislation was created for a national food and nutrition security policy, which covers most of the key areas of our urban food security model.

The key to the Zero Hunger Project lies in an appropriate combination of policies designed to increase the income of the poor, promote production, generate jobs, and foster agrarian reform, among other purposes, and interventions of an emergency nature that we refer to as safety-net policies. Based on an evaluation of the Zero Hunger Program, José Graziano da Silva, Mauro Eduardo Del Grossi, and Caio Galvão de França make these recommendations for others looking at food security:<sup>42</sup>

1. Programs against hunger should be based on a food security concept that involves much more than measures to step up food production and increase access to food. Food quality, education, and nutritional information are directly linked to food security, given that obesity, diabetes, and other diseases caused by undernutrition are increasing. Cash transfer programs are also fundamental to ensuring access to healthy food by poorer families as well as a program to provide incentives to family farmers, a health and nutrition monitoring system, and a local supply program.
2. The goal of eradicating hunger is one to be reached by all governments, strengthened by a president who attaches true priority to achieving it. Food security involves production, distribution, and consumption as well as health, education, and, mainly, development. Only development can bring about the conditions for eradicating hunger from a country once and for all. Therefore, governmental budgets must be subordinated to this goal and not the other way around.
3. Implementing food security policies focused on urban areas has become imperative. The roles of public and private actors are important for expanding urban programs. However, food

41. Frances Moore Lappé, "The City that Ended Hunger," *Yes Magazine*, February 13, 2009, [www.yesmagazine.org/issues/food-for-everyone/the-city-that-ended-hunger](http://www.yesmagazine.org/issues/food-for-everyone/the-city-that-ended-hunger).

42. José Graziano da Silva, Mauro Eduardo Del Grossi, and Caio Galvão de França, *The Fome Zero (Zero Hunger) Program: The Brazilian Experience* (Brasília, Brazil: Ministry of Agrarian Development, 2011), [www.fao.org/docrep/016/ap339e/ap339e.pdf](http://www.fao.org/docrep/016/ap339e/ap339e.pdf).

insecurity in urban areas is more closely related to inadequate living conditions and of precarious working conditions and low incomes. Therefore, job generation policies, measures to increase the minimum wage, and programs focused on housing and sanitation have a key role to play in urban settings.

What we see in the systemic approach in Brazil is an understanding that each component of food security—availability, access, and utilization—is necessary but not sufficient to solve problem. It is only when all three of these areas are accounted for that people can be food secure. In addition, the overarching dimensions of the institutional factors, economic factors, and social and cultural factors were addressed in developing the programs.

As is evident from the matrix below, policymakers in Brazil thought through the many dimensions of food security and implemented numerous programs and policies to tackle it. Brazil has been working on addressing food security for decades and has developed a wide-reaching and comprehensive approach that shows how the various individual components of the urban food model work in tandem to promote food security.

The case studies that follow, while less comprehensive, highlight different approaches in other countries to some of the specific areas and criteria of urban food insecurity.

Urban Food Model for Brazil's "Zero Hunger" program					
	Institutional Factors	Environmental Factors	Technological Factors	Economic Factors	Social & Cultural Factors
Availability	Supply Sufficiency	✓	✓		✓
	Micronutrient availability	✓		✓	
	Food aid capacity	✓			
	Chronic food aid				
	Supply volatility	✓	✓		
Access	Affordability	✓		✓	✓
	Safety net programs	✓			✓
	Distribution infrastructure	✓		✓	
	Economic infrastructure	✓			✓
Utilization	Diet diversification	✓			✓
	Cultural preferences	✓			✓
	Civil society	✓			✓

## Thailand's Clean Food Good Taste Project: focus on safety and nutrition of street food

The distribution infrastructure criteria of access to healthy food is a significant issue in most developing countries. People in many low-income countries living in urban slums purchase a large portion of their food from street vendors. Residents in highly concentrated urban slums often lack adequate space for cooking within their dwellings, and the high cost of fuel often means that it is easier and cheaper to purchase street food. One of the major concerns in consuming food from street vendors or outdoor markets is the quality and safety of the food. Lack of sanitation and proper food handling contributes to food-borne illness that have severe health implications for the population.



The informal urban food sector presents opportunities for street vendors to contribute to urban food security in a number of ways. The report of an FAO Technical Meeting on Street Foods (1995) stated that it was “rather unfortunate that relatively little had been done in a concerted manner to develop appropriate technologies to serve this immense informal food sector.”<sup>43</sup>

Every evening in the urban centers of Thailand, the streets are filled with vendors ready with cooked foods to be purchased on the way home. In order to enhance food safety, the government created the Clean Food Good Taste Project. The governance system functions at all levels of government in coordination with four strategies: partnership and co-ownership, quality assurance, sustainability, and public awareness and involvement. There is emphasis on technical assistance, education, awareness, and training. The project is designed to achieve three main goals:

1. To reduce the risk of foodborne diseases in restaurants, cafeterias, and vendors,
2. To promote clean and good sanitary food service around the country,

43. Food and Agriculture Organization, “VI Development of Appropriate Technologies,” in *Street Foods* (Rome: FAO, 1997), [www.fao.org/docrep/W4128T/w4128t06.htm](http://www.fao.org/docrep/W4128T/w4128t06.htm).



Central wholesale market in Lahore, Pakistan

FAO/o. argenti

Poor infrastructure can lead to highly unsanitary conditions, leaving consumers without access to food that is safe and nutritious. For example, these bananas, traded among unsanitary conditions, cause major health hazards since food is handled and piled on the ground close to the gutter. This kind of market environment also causes food waste, since the unsanitary conditions and rough handling cause deterioration of fragile fresh products.

3. To support and encourage local authorities in managing food safety for consumers and tourists in their areas of jurisdiction.

For the operation of street food vendors, 12 practices or standards of operation must be followed. For restaurants the number of regulations increases to 15 and to 30 for cafeterias.

As of September 2012, 12,927 restaurants and food establishments in Bangkok alone had passed the criteria and been awarded the Clean Food Good Taste logo to be displayed at their businesses—a symbol of safe, urban food.<sup>44</sup> Not only is the diet diversification criteria related to safe food addressed in this, the civil society criteria is addressed with the accountability for implementing and sustaining

44. Dr. Hataya Kongchuntuk, “Thailand’s Food Safety Project on Restaurants and Street Vendors: The ‘Clean Food Good Taste’ Project,” FAO/WHO Global Forum of Food Safety Regulators, Marrakech, Morocco, January 28-30, 2002; Thai government Bureau of Food and Water Sanitation, <http://foodsai.anamai.moph.go.th>.

**Urban Food Model for Thailand’s Clean Food Good Taste project**

	Institutional Factors	Environmental Factors	Technological Factors	Economic Factors	Social & Cultural Factors
Availability	Supply sufficiency				
	Micronutrient availability				
	Food aid capacity				
	Chronic food aid				
	Supply volatility				
Access	Affordability				
	Safety net programs				
	Distribution infrastructure				
	Economic infrastructure				
Utilization	Diet diversification	✓		✓	
	Cultural preferences	✓			
	Civil society	✓			

it. Unfortunately, the nutritious quality of the foods is left untouched. This program would be much more effective in combatting food insecurity if nutrition was part of the educational programming.

Lessons learned:

- Coordination of efforts at all government levels is needed for a countrywide initiative, with each level understanding its responsibility and being held accountable.
- Education of both the food vendors and the public is important to making a program successful.
- An opportunity to promote the sale and consumption of food that is healthier or more nutritious was missed despite the fact that the infrastructure was being put in place to accommodate it.

**Food carts in Jakarta: addressing availability, access, and utilization**

Jakarta, Indonesia, exemplifies many of the challenges of today’s urban slums: 28 million people living in cramped quarters without kitchens, proper sanitation, or sufficient water supply. Lack of

## KeBAL food cart in Jakarta



access to sufficient or nutritious food has created a significant problem, since “as a result of this poor diet, at least 17 percent of children throughout the city suffer from acute malnutrition as well as anemia and stunted growth. That percentage is much higher in the slum neighborhoods, where poor families are concentrated”<sup>45</sup>

To combat this problem, Mercy Corps launched *Kedai Balitaku* (KeBAL)—which translates as *My Child’s Café* in the Indonesian language—as a pilot program in 2009. Its initial focus was twofold: address the failing health of children in some of Jakarta’s most impoverished neighborhoods through affordable, healthy food, while providing job opportunities for area cooks and food cart vendors. Vendors were trained in nutrition standards, hygiene, bookkeeping, marketing, and customer service. Mercy Corps brought in a nutritionist to create an inexpensive and nutritious menu and worked with an advertising agency to develop colorful carts and music that would attract the attention of Indonesian children. Global micronutrient supplier, Royal DSM, is also now working with KeBAL to increase the micronutrient content of the meals. The program’s goal is to reach 500,000 Indonesian children through this model.

The strategy worked. Demand for KeBAL food has far outpaced supply in the eight neighborhoods where the project launched. Vendors are serving more than 5,000 regular customers every day while averaging 30 percent profit margins on their products. This makes the project sustainable as an economic development tool as well as a food security vehicle.

The KeBAL street food concept is an innovative way of reaching young children with affordable and nutritious meals that help reduce malnutrition, which addresses (1) micronutrient availability in the availability category of the Urban Food Model, (2) affordability, distribution, and economic infrastructure in the access category, and (3) all three aspects of the utilization category. At the same time, KeBAL is providing additional jobs and incomes for adults, also helping reduce food insecurity in their families. A key factor in the program design, however, is that it be self-sustaining after the start-up help from MercyCorps. This is an important aspect of long-term sustainability that allows the NGO to move out of the operation and fiscal support of the program.

45. MercyCorps, “KeBAL,” [www.mercycorps.org/tags/kebal](http://www.mercycorps.org/tags/kebal).

Urban Food Model for food carts in Jakarta					
	Institutional Factors	Environmental Factors	Technological Factors	Economic Factors	Social & Cultural Factors
Availability	Supply sufficiency				
	Micronutrient availability	✓		✓	✓
	Food aid capacity				
	Chronic food aid				
	Supply volatility				
Access	Affordability	✓			
	Safety net programs				
	Distribution infrastructure	✓		✓	
	Economic infrastructure	✓		✓	
Utilization	Diet diversification	✓			✓
	Cultural preferences	✓			
	Civil society	✓			

#### Lessons learned:

- Understanding and using culturally appropriate foods as the starting point for improved health and nutrition is important.
- Education on proper food safety and handling is critical when promoting street food.
- Economic sustainability should be a long-term goal when developing programs to ensure their ongoing success.
- Marketing and education campaigns focused on healthy food choice and nutrition in the schools and with the vendors themselves helped increase awareness and profits.

### Feeding China’s cities: a public-private partnership addressing availability and utilization

China consumes 70 percent of the world’s pork today, and the average Chinese citizen is consuming 40 percent more calories per day than in 1979 (see figure 8).

One example of a public-private partnership in addressing the increasing demand for food in China’s cities is a partnership between the Thai agroindustrial and food conglomerate Charoen Pokphand

Figure 8 – Increase in calory consumption in China, 1979 to 2011

Fruit	743%
Seafood	337%
Milk	667%
Vegetables	361%
Meat	327%

Source: Mertens 2011.

(CP) and the Chinese government. CP has introduced systems to rural farmers that help them increase their productivity and use advanced technology to put farming online so barn temperatures, feed formulas, and air chemistry can be adjusted anywhere in the world with a smartphone or laptop.

Today, CP, the Chinese government, and local families in co-op organizations have come together in a co-ownership arrangement to develop an egg factory (chick farms, feed mills, and cooking/packing plants all on one site) to feed metropolitan cities more efficiently with higher, more consistent quality. It plans to produce 840 million eggs per year. Annual incomes for the rural farming co-op members will be higher than previously and provide an incentive to continue to produce high-quality products for the growing urban populations.

### Mega Food Parks in India: developing a cold supply chain to enhance access and utilization

Fresh food is an important foundation of a healthy diet. A supply chain for chilled food (“cold supply chain”) is essential to prevent spoilage of fresh foods on their way from farm to market. Across the entire value chain there are typical challenges, particularly in developing countries, that can be difficult to solve. These challenges include:

- Highly fragmented supplier market with a large number of small players,
- Low visibility along the whole value chain,

### Rickshaws transporting milk in Bangladesh



FAO/g. diana

Transporting milk from the countryside to processing plants in the warm and humid climate of Bangladesh without a proper refrigeration may cause milk losses. The rickshaw transportation on narrow and winding roads prolongs the time milk is handled in warm temperatures.

- Lack of effective regulations with inadequate audit and enforcement,
- Few supply chains that are truly chilled end to end,
- Poor and unhygienic produce handling,
- High levels of damage and waste in the supply chain,
- Low-quality produce at point of sale.

The above challenges are also important for local food growers who rely on infrastructure to keep crops fresh and get products to the consumer. While good capabilities to handle produce, meat, and other fresh foods are generally well developed in the United States, building this capability in many urban areas internationally is particularly challenging. Most developing markets lack both infrastructure and critical mass among retail mass merchandisers. Markets like

India, China, and Russia, which are becoming increasingly urban, need public and private enterprises to develop a concise strategy that outlines how cold supply chain capabilities can be developed to serve residents, growers, and retailers. Improved supply chain infrastructure will also reduce the high food waste from spoilage that is a major problem in developing countries.

India has been a leader in developing mega food parks to encourage the development of an end-to-end cold supply chain. Mega food parks are aggregators and serve as comprehensive industrial estates for food processing and common facilities such as cold storage, effluent treatment, power, water, and sewerage plants. These facilities are becoming very important and increasingly modern, attracting large capital investments.

The primary objective of these mega food parks is to provide adequate (and exemplary) infrastructure facilities for food processing along the value chain from the farm to market. It will include the creation of infrastructure near the farm, transportation, logistics, and centralized processing centers. These mega food parks also facilitate the meeting of environmental, safety, and social standards.

The expected outcome is increased business for farmers, creation of a high-quality rural processing infrastructure, reduction in waste, increase in food safety, capacity building among producers and processors, and creation of an efficient supply chain along with significant direct and indirect employment opportunities.

### Urban Food Model for mega food parks in India

	Institutional Factors	Environmental Factors	Technological Factors	Economic Factors	Social & Cultural Factors
Availability	Supply sufficiency				
	Micronutrient availability				
	Food aid capacity				
	Chronic food aid				
	Supply volatility				
Access	Affordability				
	Safety net programs				
	Distribution infrastructure	✓	✓	✓	✓
	Economic infrastructure	✓	✓	✓	✓
Utilization	Diet diversification	✓			
	Cultural preferences				
	Civil society				

## Aerial view of Patanjali Food and Herbal Park

<http://pfhplharidwar.blogspot.com/2010/12/areal-view-of-patanjali-food-and-herbal.html>

In developing countries like India, mega food parks are becoming increasingly modern and vital to the food distribution process. Patanjali Food and Herbal Park Ltd. is a Mega Food Park being established in Northern India in Hardwar.

According to Rakesh Kacker, secretary of India's food processing industries, the central government had approved 30 mega food parks across India as of January 2013.<sup>46</sup>

## Homestead Food Program in Bangladesh: increased access to a variety of food and micronutrients through urban agriculture

Urban agriculture and community gardens have been employed in cities around the world to help combat urban food insecurity and increase economic opportunities for urban residents. Urban agriculture refers to food production within the boundaries of urban and periurban areas, whether it is horticulture, crop production, small livestock, or aquaculture. It includes both family and community gardens as well as commercial operations within the periphery of cities.

The extent of urban agriculture successes varies for a number of reasons and the importance of urban agriculture varies with the region and the city. Availability of land and agricultural inputs and municipal policies toward farming determine the extent of urban

46. "Mega Food Park Scheme Receiving Good Response," *New York Daily News*, January 30, 2013, <http://india.nydailynews.com/business/823cad485f7a7f99a4f60a81d0e22084/mega-food-park-scheme-receiving-good-response>.

agriculture in most cases. The green spaces available in Kampala, Uganda, for example, are not so prevalent in Accra, Ghana, and very few urban households in Accra farm.<sup>47</sup>

It is agreed that urban agriculture can help increase food access and availability for some, but the actual impact on food security and nutrition has not recently been empirically measured in a significant way (see appendix C for the outcomes of studies from 2001 to 2012).<sup>48</sup> Diana Lee Smith notes in her 2010 paper *Cities feeding people: An update on urban agriculture in equatorial Africa* that the benefits of urban agriculture vary among people in different-socioeconomic classes.<sup>49</sup> She states that "poor urban households, particularly women-headed households, have lesser access to food and nutrition security through urban agriculture, mainly due to their crowded living conditions and limited access to land." Another study by Berti and others in 2004 notes that consistent with a review of previous studies, all done in Africa, urban agriculture did not always improve the nutrition or health of participating households.<sup>50</sup>

47. Daniel Maxwell, Carol Levin, and Joanne Csete, "Does Urban Agriculture Help Prevent Malnutrition? Evidence from Kampala," IFPRI Food Consumption and Nutrition Division, Discussion Paper No. 45, June 1998, [www.ifpri.org/sites/default/files/pubs/divs/fcnd/dp/papers/dp45.pdf](http://www.ifpri.org/sites/default/files/pubs/divs/fcnd/dp/papers/dp45.pdf); IFPRI, "Urban Challenges to Food Security and Nutrition Security: A Review of Food Security, Health, and Caregiving in the Cities," Food Consumption and Nutrition Division, Discussion Paper No. 51, [www.ifpri.org/sites/default/files/publications/dp51.pdf](http://www.ifpri.org/sites/default/files/publications/dp51.pdf).

48. Rigorous published studies on the impact of agricultural activities on nutrition are limited, as noted by Berti and colleagues (2004) in relation to agricultural interventions in general and more recently by Kang'ethe and colleagues (2007) in relation to urban agriculture in particular. Despite the widespread interest in promoting sustainable, robust food systems to support increasing urban populations, there remains limited evidence in the published literature regarding not only the mechanism by which urban agriculture can contribute to the food and nutritional security of urban populations, but also the degree to which it can. Kang'ethe and colleagues (2007) called for the inclusion of adequate controls, measurement of intermediate outcomes between urban agriculture and nutrition outputs and better control of potential confounding factors. See review by Patrick Webb and Eileen Kennedy, "Impacts of Agriculture on Nutrition: Nature of the Evidence and Research Gaps," Nutrition CRSP Research Briefing Paper No. 4, October 2012, [www.nutritioncrsp.org/wp-content/uploads/2013/04/RBP4\\_Impacts\\_of\\_Agriculture\\_on\\_Nutrition\\_Evidence\\_Research\\_Gaps-FINAL.pdf](http://www.nutritioncrsp.org/wp-content/uploads/2013/04/RBP4_Impacts_of_Agriculture_on_Nutrition_Evidence_Research_Gaps-FINAL.pdf).

49. Diana Lee-Smith, "Cities Feeding People: An Update on Urban Agriculture in Equatorial Africa," *International Institute for Environment and Development, Environment and Urbanization* 22, no. 2 (2010), <http://eau.sagepub.com/content/22/2/483.full.pdf+html>.

50. Peter Berti, Julia Krasevec, and Sian FitzGerald, "A Review of the Effectiveness of Agriculture Interventions in Improving Nutrition Outcomes," *Public Health Nutrition* 7, no. 5 (2004): 599-609.

A lack of disaggregation of data, small sample sizes, and lack of a clear understanding of confounders prevented any overall conclusion to be reported.<sup>51</sup>

This more current study indicates that while there is still insufficient data on a number of factors related to urban agriculture and food security, there is progress being made. Despite mixed results from studies that have been done, there is a generally positive stance on the ability for urban agriculture to improve at least some aspects of urban food security for some of the urban populations in cities in Africa, and it should be encouraged.

A proven success story comes from the Helen Keller Institute (HKI) in Bangladesh, which was chosen by the International Food Policy Research Institute (IFPRI) as part of their report *Millions Fed: Proven Successes in Agricultural Development*.<sup>52</sup> In response to chronic vitamin A deficiency in Bangladesh, HKI developed the Homestead Program. After successful implementation in rural parts of Bangladesh, HKI developed and implemented the program in the city of Barisal with a focus on women. The city ranked among the lowest in Bangladesh on nearly every health and nutrition indicator, with Barisal residents having some of the highest nutritional needs of any urban location in the country. The goal of the Homestead Program was to increase household food security and to decrease the number of people suffering from malnutrition in Barisal. Local NGOs implemented the program, with HKI providing oversight and support. This approach to implementation is important, as local organizations often have the experience, knowledge, and trust of residents required for program success.

The program provided each participant with the seeds of nine varieties of vegetables and fruits rich in micronutrients and with five chickens. Participants were trained to produce year-round vegetables, fruits, poultry, and eggs primarily for family consumption, but were also encouraged to sell surplus for additional income. Participants were also given technical training, nutritional education, gender training, microenterprise training, household budgeting skills, and access to microcredit. In addition, the women were trained in improved food preparation and consumption practices.

The results of the program included an increase in the quantity and quality of foods consumed, particularly for women and children, a significant increase in homegrown vitamin-A-rich foods, and

### Urban Food Model for the Homestead Food Program in Bangladesh

	Institutional Factors	Environmental Factors	Technological Factors	Economic Factors	Social & Cultural Factors
Availability	Supply sufficiency	✓			✓
	Micronutrient availability	✓	✓		✓
	Food aid capacity				
	Chronic food aid				
	Supply volatility				
Access	Affordability	✓			
	Safety net programs				
	Distribution infrastructure				
	Economic infrastructure				
Utilization	Diet diversification	✓		✓	✓
	Cultural preferences	✓		✓	✓
	Civil society	✓		✓	

increased employment opportunities for the women in the program. The program identified several lessons for policymakers that can be correlated with both the availability and utilization sections of our Urban Food Model.

- Translating food production into improved dietary intake involves making nutritional education and behavior change an important component of the intervention. In order to be effective, the education has to be participatory (not top-down), be inclusive, and take into consideration the local preferences, resource base, and other challenges.
- It is important for the program to be multifaceted and multidisciplinary in its approach, i.e., include aspects of food production, health, nutrition, environment, and economics.
- Local practices and local organizations should be involved in the development and implementation of the program.
- Proper program assessment guidelines, information systems, and feedback mechanisms should be established while allowing for design flexibility and adaptation.

51. Ibid.

52. David J. Spielman and Rajul Pandya-Lorch, "Millions Fed."

## Chapter 5

### Food Insecurity in the United States

Urban food insecurity is not limited to low-income countries. Although food insecurity in developed countries may take slightly different forms, the key issues of (1) lack of economic ability to purchase nutritious foods, (2) lack of availability of nutritious foods, (3) food safety concerns, and (4) health consequences of diets high in fat, sugar, and salt are consistent across many urban centers around the world.

#### Economic factors in food security

Poverty is a key factor in food security and is well documented in the United States. With limited funds available for food purchases, people may look for the most value, or energy, for their limited economic resources. Low-energy-dense diets that focus on whole grains, lean meats, vegetables, and fruits tend to be more nutritious and are associated with better health outcomes. Yet these foods are often the least affordable for the poor. A USDA report noted that low-income consumers spend more of their income on food than their high-income counterparts (36 versus 7 percent for households in the lowest and highest income quintiles in 2009).<sup>53</sup> Studies in both France and the United States show that the cost of high-energy-dense foods such as sweets and fats cost significantly less per calorie than low-energy-dense foods such as fresh produce. One study done in 2004 to 2006 in the Seattle, Washington, area showed that 1,000 kcal of low-energy-dense food cost \$18.16, compared to \$1.76 for 1,000 kcal of high-energy-dense food.<sup>54</sup> In addition, price increases over the period were drastically different for the two types of food. The least energy-dense food increased in price by 19.5 percent, while the cost of the most energy-dense, low-nutrition foods had *decreased*

53. Jessica Todd and Biing-Hwan Lin, "What Role Do Food and Beverage Prices Have on Diet and Health Outcomes?" *Amber Waves*, September 20, 2012, [www.ers.usda.gov/amber-waves/2012-september/what-role-do-food-and-beverage-prices.aspx#.UY7ib8p0n7Q](http://www.ers.usda.gov/amber-waves/2012-september/what-role-do-food-and-beverage-prices.aspx#.UY7ib8p0n7Q).

54. Pablo Monsivais and Adam Brenowski, "The Rising Cost of Low-Energy-Density Foods," *Journal of the American Dietetic Association* 107, no. 12, December 2007, [www.stat.wisc.edu/~ane/st571/notes/2007highCostQualityFoods.pdf](http://www.stat.wisc.edu/~ane/st571/notes/2007highCostQualityFoods.pdf).

While this case provides a broad framework for implementation, each city has to develop its urban agriculture policies according to its unique resource base and local demands.

#### Safety net programs: food banks

Food banks are an important component to distributing available, unused food to those in need. Food banks collect surplus food from grocery stores, farms, and manufacturers and redistribute it to families within the local community. As many countries face a lack of infrastructure between farms and cities, global food banks are emerging as an important stopgap measure for addressing hunger in urban environments. The Global Foodbanking Network, started by Chicago businessman William Rudnick, supports charitable food bank organizations in 25 countries around the world with training, food sourcing assistance, and logistical consulting. In a similar fashion, Feeding America, the European Federation of Food Banks, and the Middle East/North Africa Regional FoodBanks Association all provide food to millions of people a year. Unfortunately, however, most of Africa is not covered by any of these organizations.

by 1.8 percent. High-energy-density foods, therefore, were the most resistant to inflation. Some, however, dispute the methods used for these studies and show that many fruits and vegetables are no more expensive—or are less expensive—than unhealthy foods when measured by serving portion.<sup>55</sup> This also seems to vary depending on the location and type of store where food is purchased.

Economic factors are not the only barriers to access to a nutritious, healthy diet. Research by the USDA Economic Research Service noted, “Research on the effect of a subsidy on vegetables, fruit, and fluid milk on grocery store purchases by SNAP (Supplemental Nutrition Assistance Program, formerly known as Food Stamps) participants found that a 10 percent subsidy would increase consumption of these foods only marginally—0.07 cups for vegetables, 0.08 cups for fruit, and 0.06 cups for dairy products each day—and close the gap between actual and recommended consumption by 4 to 7 percent.”<sup>56</sup> The authors of the study note that complimentary programs such as marketing to encourage consumers to eat more low-calorie foods might help make a bigger impact if introduced along with the price reductions.

## Access denied: food deserts

Poverty contributes not just to cost and education barriers to accessing nutritious food, but to the broader problem of food deserts, one of the most pervasive problems in US cities. A food desert is a district with little or no access to large grocery stores that offer fresh and affordable foods needed to maintain a healthy diet.<sup>57</sup> Because of these food deserts, it is not so easy for millions of Americans—especially people living in low-income communities of cities—to find fresh and healthy food. Full-service grocery stores, farmers’ markets, and other vendors that sell fresh fruits, vegetables, and other healthy foods are not common in these neighborhoods. What can be found, often in great abundance, are convenience stores and restaurants

that mainly sell cheap, high-fat, high-sugar, processed foods and offer few healthy options.

A 2009 study by the USDA found that 23.5 million people lack access to a supermarket within a mile of their home. A recent multistate study found that low-income census tracts had half as many supermarkets as wealthy tracts. Another multistate study found that 8 percent of African Americans live in a tract with a supermarket, compared to 31 percent of whites. Food deserts in neighborhoods disproportionately affect socially segregated groups in urban areas, specifically single mothers, children, and the elderly living in underprivileged urban settings.<sup>58</sup>

Many grocery stores that once existed in urban neighborhoods have moved out of these areas and relocated to the suburbs at the same time as former residents. Low-income earners and senior citizens who remain find healthy foods either unavailable or inaccessible as a result of high prices or unreachable locations.

Although it is difficult to make causal links between malnutrition in food deserts and health issues, access to healthy food is associated with lower risk for obesity and other diet-related chronic diseases. The American Journal of Preventive Medicine states that the highest rates of obesity (32 to 40 percent) are in areas with no large supermarkets, while the lowest rates (21 percent) are among people living near supermarkets.<sup>59</sup> Numerous studies in the United States have shown that obesity, diabetes, heart disease, and other illnesses are concentrated in lower-income neighborhoods and among minority populations, in particular African-American and Latino communities. However, not all agree that more access to healthy foods will make a significant difference in the health outcomes of the poor. “It is always easy to advocate for more grocery stores.... But if you are looking for what you hope will change obesity, healthy food access is probably just wishful thinking” said Kelly D. Brownell, director of Yale University’s Rudd Center for Food Policy and Obesity.<sup>60</sup>

With the various contradictory results of numerous studies on the issue, it is somewhat difficult to determine if stores are simply

55. Andrea Carlson and Elizabeth Frazão, “Are Healthy Foods Really More Expensive? It Depends on How You Measure the Price,” USAID, Economic Information Bulletin Number 96, May 2012, [www.ers.usda.gov/publications/eib-economic-information-bulletin/eib96.aspx#.UY7rZMp0n7Q](http://www.ers.usda.gov/publications/eib-economic-information-bulletin/eib96.aspx#.UY7rZMp0n7Q).

56. Ibid.

57. United States Department of Agriculture, “About the Atlas,” Food Access Research Atlas, Economic Research Service, [www.ers.usda.gov/data-products/food-access-research-atlas/about-the-atlas.aspx#.UagPGtimVGM](http://www.ers.usda.gov/data-products/food-access-research-atlas/about-the-atlas.aspx#.UagPGtimVGM).

58. Mari Gallagher, “TedxWindyCity – Mari Gallagher – Food Deserts,” TEDxTalks, YouTube, uploaded November 3, 2010, [www.youtube.com/watch?v=iEWriN6kh3c](http://www.youtube.com/watch?v=iEWriN6kh3c).

59. The Endocrine Society, “Obesity-Related Diseases,” Obesity America, <http://obesityinamerica.org/understanding-obesity/obesity-related-diseases/>.

60. Gina Kolata, “Studies Question the Pairing of Food Deserts and Obesity,” *The New York Times*, April 17, 2012, [www.nytimes.com/2012/04/18/health/research/pairing-of-food-deserts-and-obesity-challenged-in-studies.html](http://www.nytimes.com/2012/04/18/health/research/pairing-of-food-deserts-and-obesity-challenged-in-studies.html).

## Box 5 – The Food Safety Modernization Act (FSMA)

The Food and Drug Administration (FDA) has already released draft regulations for Preventive Controls for Human Food and Standards for Produce Safety. Future rules will cover importer/foreign supplier verification, preventive controls for animal food, and accreditation of third-party auditors.\*

### The preventive controls regulation requires the following:

- Develop written plans that identify and analyze hazards.
- Keep records of preventive controls, monitoring, corrective actions, and verification.
- Specify steps that will be put in place to minimize or prevent hazards.
- Identify monitoring procedures and record results.
- Specify actions to be taken to correct problems.
- FDA will evaluate plans and inspect facilities to assess implementation.
- Reassess food plan every three years.
- Responsible officials must complete training or have sufficient experience (must be documented).

### The produce safety regulation requires the following:

- Inspect agricultural water system components based on established criteria.
- Reduce likelihood of pathogens in biological soil amendments.
- Receive Certificates of Conformance.
- Stipulate hygienic practices and training for farm personnel.
- Strengthen practices relating to domesticated and wild animals.
- Sanitize buildings, tools, and equipment.
- Treat seed, test water, and monitor growing environment for seeds.
- Meet documentation requirements (for exempt farms).

These short summaries are designed to illustrate the extensive reach and complexity of FSMA, which is here to stay.

\*The FDA has set up a special website for FSMA that contains a wealth of information on the agency's regulatory approach: <http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm334120.htm>.

responding to the demands of their customers by stocking what they buy the most, or if stores in low-income communities are not providing healthy foods at affordable prices that their consumers want to buy. Either way, without access to healthy foods, a nutritious diet and good health are out of reach. And without grocery stores and other fresh food retailers, communities are missing the commercial hubs that make neighborhoods livable and help local economies thrive.

## Food safety

Food safety is not only a concern in the developing world. Millions of people in the United States become ill every year from unsafe food. In order to tackle this immense problem, the Food Safety and Modernization Act (FSMA) was signed into law in January 2011 after years of committed effort by Senator Dick Durbin (D-IL) and other leaders. In 2013 the US Food and Drug Administration issued the first two of five regulations executing the wide-ranging statute. In the coming years, as food growers and providers and others in the industry begin to carry out FSMA, all parts of the food sector will be impacted.

FSMA is controversial because it requires new operational standards and measures as well as new data collection, transmission, and analytical practices and because all of these requirements cover any source of food that ends up in the United States. The provisions of FSMA are listed in box 5.

We recommend that policymakers at all levels of government as well as not-for-profit organizations and others working on urban food security pay close attention to FSMA implementation for its effect on pricing, time to market, availability of foods, and other key parameters.

## Food banks

In cities across the United States, the people who are food insecure depend on a number of safety-net programs, including food banks. US food banks, however, have reported massive increases in need since 2008 due to the financial crisis, and many of them have not been able to supply all the need. Emergency safety net programs such as food banks have been stretched to their limits and beyond in recent years.

For example, the Los Angeles Food Bank has been providing quality food to local residents for the past 39 years, working in collaboration with 640 partner agencies at more than 1,000 sites. These sites include battered women's shelters, senior centers, abandoned children's homes, soup kitchens, food pantries, and hospices, to name a few.<sup>61</sup> However, due to LA County's high level of unemployment, one of the highest in the nation, food pantry services and food bank assistance jumped 40 percent between 2008 and 2011.<sup>62</sup> In addition, the financial crisis greatly affected the amount of agencies working in conjunction with food banks and pantries as well as the level of donations given to such food assistance programs.<sup>63</sup>

These facts highlight the growing problem of food insecurity in American cities. Without changes in the food system that will make sufficient food affordable and available to most people, these programs will not be capable of caring for all those in need.

## Urban food councils

Cities are realizing the need to develop strategies that outline their plans to address food insecurity and create healthy food environments that drive effective utilization. Metro areas such as Vancouver, Philadelphia, Seattle, Los Angeles, and Chicago have all recently developed urban food strategies to guide their goals, metrics, and policies over the next decade. Indeed, more than 100 food policy councils have sprung up in North America to help cities, towns, and counties address the interplay of food, health, and social justice in a more open and democratic manner.<sup>64</sup>

The strategies can serve as a catalyst to drive awareness and alignment of key urban food issues. While each of these strategies is slightly different in outline, they focus on availability and utilization and typically include several key components:

- Outlining dietary guidelines, diversification, and education programs;
- Building healthy neighborhood food systems;
- Monitoring nutrition and key health outcomes;
- Encouraging local food sources;
- Developing an appropriate “fresh food” distribution infrastructure.

The next section presents case studies of US cities and measures that are being taken to address the second component—building healthy neighborhood food systems. The other components are discussed in more detail in appendix B.

## US case studies

Unlike most of the urban centers in developing countries, some cities in the United States such as Detroit are seeing a decrease in population, which can exacerbate problems such as food deserts. At the same time, other cities like Los Angeles continue to see an increase in the low-income population, which increases pressure on safety net programs. In all cases, the urban poor have a much more difficult time finding affordable, healthy food in close proximity to their homes. Many of the city councils have stepped up to the plate to study the problem and begin to address the challenges.

### Detroit: urban agriculture brings fresh produce to citizens

Detroit is a city of about 700,000 people that has suffered significant economic and population decline over the past few decades. More than 30 percent of the citizens live below the poverty line. Significant portions of the city are blighted with abandoned properties. Similar to other urban centers in the United States, Detroit has serious food security issues on several levels. Detroit has seen its manufacturing base disappear over the last few decades. As a result, its urban core has been decimated by poverty and unemployment. Access to affordable, healthy, fresh food is difficult for the residents of many neighborhoods. According to a 2007 report by Mari Gallagher Research and Consulting Group, dollar stores, fast food restaurants,

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61. Los Angeles Food Policy Council, “History,” <http://goodfoodla.org/about/history/>.

62. Michael Flood, Elizabeth Cervantes, Jeff Dronkers, and Jessica Greenholt Jones, “Los Angeles Regional Food Bank Policy Brief,” 2012, [www.lafoodbank.org/source/Newsletter/634853241116442520.pdf](http://www.lafoodbank.org/source/Newsletter/634853241116442520.pdf).

63. Ibid.

64. Sustainable Places Research Institute, “Theme 4: Urban Food Strategies,” Cardiff University, [www.cardiff.ac.uk/research/sustainableplaces/news/aesop/theme4.html](http://www.cardiff.ac.uk/research/sustainableplaces/news/aesop/theme4.html).

gas stations, and convenience stores are by far the most common retail establishments that participate in the SNAP (Food Stamps) program.<sup>65</sup> However, this year two national grocery store chains, Meijer and Whole Foods, are expected to open in Detroit, although not in low-income neighborhoods.

In some ways, cities like Detroit resemble urban environments in less-developed countries, with the “double burden” of both hunger and obesity.

The lack of fresh produce has been an ongoing issue in Detroit’s urban core, and the city has been committed to community gardening since the 1970s. Such programs have continued, and today there are over 100 community and school gardens as well as hundreds of family and personal gardens. The continued history of such projects has led to agricultural training programs and support of agricultural innovation such as biointensive growing methods and aquaponics. However, no data could be found on the impact of these programs on the nutritional status or food security status of the neediest residents of Detroit.

The Detroit Food Policy Council indicates, however, that local health and economic issues have eased somewhat because profitable minimarkets have been set up in conjunction with the local urban farmers, schools have gardens to grow produce and teach about nutrition, and school meal programs have been revamped to focus on nutrition.<sup>66</sup>

In March 2008 the Detroit City Council passed a City of Detroit Policy on Food Security in which they outlined specific steps to help eliminate food insecurity for all citizens of Detroit.<sup>67</sup> Detroit has 20 square miles of vacant space in the city and could, in theory, produce much of the fresh produce needs of the community if the state and local laws regarding agricultural production were amended.<sup>68</sup>

65. Mari Gallagher Research and Consulting Group, “Examining the Impact of Food Deserts on Public Health in Detroit,” 2007, [www.marigallagher.com/site\\_media/dynamic/project\\_files/5\\_Det-Pages9-12Only.pdf](http://www.marigallagher.com/site_media/dynamic/project_files/5_Det-Pages9-12Only.pdf).

66. Detroit Food Policy Council, “City of Detroit Policy on Food Security,” [www.detroitfoodpolicycouncil.net/Page\\_2.html](http://www.detroitfoodpolicycouncil.net/Page_2.html).

67. Kami Pothukuchi, *The Detroit Food System Report 2009-2010: Executive Summary* (Detroit: Detroit Food Policy Council, 2011), [www.clas.wayne.edu/SEEDWAYNE/ExecSum\\_final.pdf](http://www.clas.wayne.edu/SEEDWAYNE/ExecSum_final.pdf).

68. Detroit Food Policy Council, “Detroit Food System Executive Summary, 2011-2012,” [www.detroitfoodpolicycouncil.net/uploads/2011\\_2012\\_Executive\\_Summary.pdf](http://www.detroitfoodpolicycouncil.net/uploads/2011_2012_Executive_Summary.pdf).

## Box 6 – The social dimension: focus on women and children

According to the report *State of the Detroit Child 2012*: “Birth weight is a strong indicator not only of a birth mother’s health and nutritional status, but also a newborn’s chances for survival, growth, long-term health, and psychosocial development. Children born underweight tend to have cognitive disabilities and lower IQs, affecting their performance in school and their job opportunities as adults. Detroit’s rate of 134 low-birth-weight babies per 1,000 births was 1.6 times that of the remainder of the county.”

The Federal Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is designed to help combat the nutritional deficiencies of pregnant women that can contribute to low birth weight. The Detroit Food System Report 2009-2010 notes: “According to the City of Detroit’s Department of Health and Wellness Promotion (DHWP), approximately 35,000 pregnant women and breastfeeding mothers, infants, and children below the age of five participated monthly in the WIC in Fiscal Year (FY) 2010.”

Source: Data Driven Detroit 2013; Pothukuchi 2011.

Whether this approach would be successful if the policies are changed is still unknown. While urban agriculture has been an ongoing component of most of urban food strategies, particularly in cities with declining populations and increased vacant lots like Detroit, it has not yet been proven successful in reducing urban food security to a significant degree or in a sustainable way. For example, while urban farms in the United States can improve food availability in neighborhoods, their ability to boost the food security of a metropolitan region is still unproven. R. Ford Denison, a professor of ecology and plant biology at the University of Minnesota and author of *Darwinian Agriculture*, calculates that growing enough food for the residents of greater New York City would require a farm almost the size of the state of Connecticut. “Rooftop gardens or skyscrapers full of hydroponics are not going to make a significant contribution to food security,” he said.<sup>69</sup>

Certainly from a scale standpoint, these points are valid. Chicago still needs Iowa and will not feed all its residents on local food. Indeed, nearby farming communities in the Midwest will always be needed. David Lepeska points out that almost none of the urban

69. David Lepeska, “Betting the Farm: Is There an Urban Agriculture Bubble?” *Forefront 2*, no. 40 (2013).

farm projects in cities like Chicago, Detroit, or Milwaukee are economically sustainable.<sup>70</sup> They depend heavily on donations, grants, volunteers, and government support. While urban farm projects have positive community-related reasons to continue, most of them are unlikely to provide adequate food at economically sustainable prices or to spur significant economic development. Yet, they are an important aspect of education on food and nutrition at the neighborhood level and have the potential to result in more nutritious eating behavior for some in the community, so should be considered one of the many tools available to help improve food security.

### **New York: supermarkets as a key to food security and revitalization**

To address the general lack of investment in low-income communities or food deserts in New York, the New York City Department of City Planning, Department of Health, and the New York City Economic Development Corporation collaborated to publish a report entitled *New York City's Neighborhood Grocery Store and Supermarket Study*. The study identified the specific New York City neighborhoods that had a shortage of neighborhood grocery stores; neighborhoods with the highest rates of diet-related diseases; the potential to capture approximately \$1 billion in grocery spending that is lost to suburban stores; and the fact that increased competition would reduce grocery cost, stimulate job growth, and make fresh foods available, “empowering consumers to make healthier decisions about what to buy and what to eat.”

Communities with the highest levels of diet-related diseases and the least access to fresh foods are captured in the Supermarket Need Index created by the Department of City Planning. The index specifically measures:

- High population density,
- Low access to a car at the household level,
- Low household income,
- High rates of diabetes,
- High rates of obesity,

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70. Ibid.

- Low consumption of fresh fruits and vegetables,
- Low share of fresh food retail,
- Capacity for new stores.

Identifying which neighborhoods have the capacity for new stores helps supermarkets see the potential in these neighborhoods for local spending on food. A study by Urban Land Institute, *Retail in Inner Cities*, found that supermarkets have the ability to revitalize low-income areas in cities.<sup>71</sup> For example, a 50,000 square-foot Pathmark grocery store built in Harlem, New York, created 275 jobs, anchors an \$85 million complex, and is one of Pathmark’s highest grossing stores. Other cities have had similar success. A 110,000 square-foot Giant Grocery built in Washington, DC’s 8<sup>th</sup> Ward created 150 jobs and attracted local and national retailers as a result. Pittsburgh built a 32,000 square-foot Whole Foods that created 150 jobs and became a catalyst for restaurants and national retailers and revitalized a commercial corridor. In Philadelphia, Progress Plaza created 240 jobs, provided retail with grocery, and became the first cooperatively developed African American–owned center. Creating employment can help reduce food insecurity by improving the economic status of the food insecure.

Still other cities are coming to a similar conclusion and realizing that healthier food is a profitable business opportunity. In just the past two years, Wal-Mart reports that it has cut the costs to its consumers of fruits and vegetables by \$2.3 billion and reduced the amount of sugar in its products by 10 percent. Wal-Mart has also opened 86 new stores in underserved communities and launched a labeling program that helps customers spot healthy items on the shelf. And today, the company is not only seeing increased sales of fresh produce, but also building better relationships with its customers and stronger connections to the communities it serves.<sup>72</sup> Chicago has had its own successes, which will be discussed in chapter 6.

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71. James Miara, “Retail in Inner Cities,” *Urban Land*, January 2007, [www.icic.org/ee\\_uploads/publications/Retail-in-Inner-Cities-ULI-ICIC-012007.pdf](http://www.icic.org/ee_uploads/publications/Retail-in-Inner-Cities-ULI-ICIC-012007.pdf).

72. Michelle Obama, “Michelle Obama: The Business Case for Healthier Food Options,” *The Wall Street Journal*, February 27, 2013.

## Overcoming the challenges to market entry in food deserts

If retailers can potentially enter into neighborhoods with significant populations and where there is currently no other competition—suggesting that these demographics will ensure a profitable and thriving store—why do they not seize upon these opportunities more regularly?

We would argue that there are other barriers to entry that prevent supermarkets from opening stores and spurring economic development in underserved urban areas. Within the aforementioned study commissioned in New York City, the barriers of entry included land availability, costs, risk aversion, and city processes.

Retailers also typically have a perception problem. Their preference is to enter into markets where there is a certain household income level, where it is not only more economically viable but more socially attractive in their minds. Risk aversion is a major headwind. There is a stigma associated with low-income neighborhoods, and as the New York City analysis stated, in addition to “distributors often being unwilling to front equity for new stores,” there is a “fear of loss of sales in existing stores, political opposition to new stores, and landlords are concerned about vermin associated with food stores.” Overcoming all these barriers will be critical to moving forward in addressing urban food deserts.

### Los Angeles: the Good Food for All agenda

Los Angeles continues to grow in population, with nearly 4 million people. About 20 percent of the population lives below the poverty level, and the city has one of the highest unemployment rates in the country. However, as Cedar Landsman notes in his 2010 study of the Los Angeles food environment, “Los Angeles is one of the most abundant and productive agricultural regions in the nation, and yet has a protracted hunger crisis that dwarfs that of most US cities.”<sup>73</sup>

In September 2009 Mayor Antonio Villaraigosa announced the creation of the Los Angeles Food Policy Task Force to help address the city’s food security issues. The task force identified Los Angeles’ urban food security challenges as including lack of access to healthy

73. Cedar Landsman, “Good Food for All Angelenos: The Food Policy Environment and Food System Stakeholder Landscape in Los Angeles,” Los Angeles Food Policy Council, [http://goodfoodla.org/uploaded\\_content/Resources-%20Student%20Research/cedar%20landsman\\_fptf\\_excerpts-1.pdf](http://goodfoodla.org/uploaded_content/Resources-%20Student%20Research/cedar%20landsman_fptf_excerpts-1.pdf).

Urban Food Model for the Good Food for All agenda in Los Angeles					
	Institutional Factors	Environmental Factors	Technological Factors	Economic Factors	Social & Cultural Factors
Availability	Supply sufficiency	✓		✓	
	Micronutrient availability				
	Food aid capacity				
	Chronic food aid				
	Supply volatility				
Access	Affordability	✓			
	Safety net programs	✓			
	Distribution infrastructure	✓		✓	
	Economic infrastructure	✓		✓	
Utilization	Diet diversification	✓		✓	
	Cultural preferences				
	Civil society	✓			

foods, food waste, disadvantaged farmers in the face of mega retailers, and shrinking farmlands in the face of urban development.<sup>74</sup>

The Los Angeles Food Policy Task Force created working groups to oversee this agenda. These working groups have made specific policy recommendations and suggested action steps to accomplish their goals. Recently, the city has signed the Good Food Pledge to abide by the Good Food Purchasing Guidelines for food procurement.

The creation of this ambitious agenda is laudable. To date, however, there is little information about the agenda’s accomplishments other than the identification of more specific goals for 2012 and 2013. This in part reveals how difficult changing large, complex systems can be.<sup>75</sup> Nevertheless, the Los Angeles Food Policy Task Force is dealing with these issues in a systematic and deliberate manner. As the task force is able to accomplish its own citywide and countywide goals, it should continue to look more globally in meeting not only the needs of its citizens, but for smarter, more effective policies that can be translated elsewhere.

74. Ibid.

75. Los Angeles Food Policy Council, “Building a Healthy Food System for Los Angeles: Strategic Priorities 2012-2013,” <http://goodfoodla.org/wp-content/uploads/2013/02/Good-Food-Office-Strategic-Priorities-3-8-13-1203pm.pdf>.

## Challenges in food security agendas

While all of the US cities that have food security councils recognize that a significant part of the problem is poverty, eliminating poverty is a much larger issue to address. The continued need for federal and state programs that provide safety nets to the most vulnerable will always be needed and must be expanded in times of economic crisis. Of the other components of food security that are more likely to be tackled without such significant economic intervention, one of the most difficult to address is the intersection of local preferences and social and cultural factors. This requires behavior change and has been shown to be exceedingly difficult, although not impossible to do. The battle over smoking is the perfect example. We have seen over and over again that availability of healthy food and having the economic power to purchase it are necessary but not sufficient for changing long-standing cultural and social preferences and norms. In most cities there are numerous ethnic communities with different food cultures and traditions, which means there is not going to be a one-size-fits-all solution. This will require a neighborhood approach that recognizes the specific needs of each group and a long-term strategy for education to promote healthier utilization of food resources along with the availability and access.

## Chapter 6

### Chicago: Our Historical Strengths, Challenges, and Unique Assets

*“New times demand new answers; old problems cry out for better results.”*

—Mayor Rahm Emanuel, Inaugural Address, May 16, 2011<sup>76</sup>

Chicago has a long-standing historical position as a leader in food production, distribution, and logistics, earning the titles “Nature’s Metropolis” and “Hog Butcher to the World.” Developments such as the refrigerated box car, dredging and expansion of the city’s harbor, and the establishment of the corn and livestock belt expanded the agricultural prosperity and reputation of the city.<sup>77</sup>

Since the mid-19<sup>th</sup> century, Chicago’s role as a transportation hub for the United States has grown and expanded. With the convergence of the nation’s rail lines in Chicago, the city was the easiest rail hub to reach for the greatest number of people across the country. Later, key interstates (90, 94, 80, 55, and 57) were built through or near Chicago, rail congestion increased, and first Midway Airport in the 1930s and then O’Hare became one of the busiest airports in the world. The CenterPoint Intermodal Center in Joliet and Elwood is North America’s largest inland port and a center for food and grain distribution. While Chicago’s transportation assets remain invaluable to the city, the region, and the nation, they require extensive investment to keep pace with economic growth and societal needs.<sup>78</sup>

76. Mayor Rahm Emanuel, “Text of Emanuel’s Inauguration Speech,” Chicago Breaking News, May 16, 2011, [http://articles.chicagobreakingnews.com/2011-05-16/news/29550030\\_1\\_mayor-daley-emanuel-first-lady-maggie-daley](http://articles.chicagobreakingnews.com/2011-05-16/news/29550030_1_mayor-daley-emanuel-first-lady-maggie-daley).

77. Chas Raleigh, “Agriculture,” Encyclopedia of Chicago, [www.encyclopedia.chicagohistory.org/pages/30.html](http://www.encyclopedia.chicagohistory.org/pages/30.html).

78. The federal CREATE program to improve freight rail infrastructure, the ongoing O’Hare Modernization Program, the redevelopment and expansion of the Illinois State Toll Highway system, the construction of the Illiana Expressway, efforts to expand and strengthen the Illinois International Port District, policies to ensure the Chicago region’s position as the inland port center of the country, federal funding for high-speed rail, the Chicago Transit Authority’s modernization and network expansion, and other projects are critical to the success and ongoing strength of Chicago as a hub for the United States and the world with respect to commerce generally and food specifically.

With the advantages of being the nation's transportation hub, Chicago's food industry was and continues to be a major economic cluster, generating 40 percent of US sales of processed foods and 12 percent of the world's sales from publicly traded food processing firms.<sup>79</sup> Twenty-six percent of city's manufacturing jobs are in food production.<sup>80</sup> Chicago is the birthplace of baked goods companies such as Quaker Oats, Nabisco, Keebler, and Sara Lee; canned foods and processed meat companies such as Swift & Co. and Oscar Mayer & Co.; dairy processors such as Beatrice Foods, Dean Foods, and Kraft Foods; and confections companies such as William Wrigley, Jr., Tootsie Roll Industries, Cracker Jack, Brach's, and Ferrara-Pan.<sup>81</sup> In addition, Chicago sits at the heart of the agribusiness cluster of the Midwest, with companies such as Caterpillar, Archer Daniels Midland Company (ADM), Ingredion Incorporated, and DuPont Pioneer.

While blessed with a rich history of food and agriculture economic leadership, the strain of feeding an urban population is real and tangible in the economically challenged neighborhoods of Chicago. Yet, while the urban food security challenges of Chicago are daunting, substantial steps to address these challenges are being undertaken. These efforts as well as the significant assets of Chicago in the corporate, trading, not-for-profit, government, transportation and logistics, and educational sectors uniquely position Chicago to be a global leader in urban food security.

## Chicago's challenges: food insecurity, obesity, and lack of nutritious food options in Chicago neighborhoods

The Greater Chicago Food Depository conducted extensive research in early 2009 in conjunction with Feeding America, the nation's largest domestic hunger relief organization with a network of more than 200 food banks and food rescue organizations. Nationwide, the study

79. Steve Altman, Warren Durbin, Emily Felt, Chad Hazlett, and Marco Lopez-Silva, "The Chicago Processed Food Cluster," May 5, 2006, [www.isc.hbs.edu/pdf/Student\\_Projects/Chicago\\_Processed\\_Food\\_2006.pdf](http://www.isc.hbs.edu/pdf/Student_Projects/Chicago_Processed_Food_2006.pdf).

80. Howard Wial, "Locating Chicago Manufacturing: The Geography of Production in Metropolitan Chicago," Manufacturing Chicago's Future Briefing Paper, University of Illinois-Chicago, Center for Urban Economic Development, February 2013.

81. University of Chicago Booth School of Business, "From Farm to Fork: Innovations in the Chicago Food Industry," Polsky Center for Entrepreneurship, March 11, 2010, [www.chicagobooth.edu/entrepreneurship/docs/Farm-to-Fork.pdf](http://www.chicagobooth.edu/entrepreneurship/docs/Farm-to-Fork.pdf).

found that an estimated 37 million people rely on emergency food and grocery assistance provided by this network.<sup>82</sup> In Cook County, with a population of about 5.2 million people, over 800,000 residents are food insecure, and each year nearly 678,000 people rely on emergency and supplemental food provided by the Food Depository and its member network of 600 food pantries, soup kitchens, and shelters.<sup>83</sup> That figure represents a 36 percent increase since 2006 and reflects the recession and accompanying rising unemployment rates.<sup>84</sup> Each week, the Food Depository and its member agencies serve 142,400 men, women, and children.<sup>85</sup>

The existence of food deserts—where few if any grocery stores exist and fresh produce is nearly unobtainable—is as much a problem in Chicago as in many other urban areas in the United States. Residents living in these food deserts shop in local convenience stores and fast food restaurants and consume high amounts of processed, unhealthy, and highly caloric food.

However, progress on eliminating food deserts has already been made. The number of Chicago neighborhoods without easy access to a grocery store shrank 40 percent from 2006 to 2011. About 384,000 residents, most of them African Americans on the west and south sides of Chicago, lived in food deserts in 2011, down from about 630,000 five years earlier. That number likely has dropped by at least 20,000 as of 2012 (see figure 9).<sup>86</sup>

As we are starting to see in other urban centers around the world, food insecurity in Chicago corresponds with chronic obesity and undernourishment at the same time. Twenty-seven percent of

82. More than 61,000 clients and 37,000 agencies were surveyed nationwide. For the Cook County study, 440 clients and 503 agencies were interviewed.

83. US Census Bureau, "Cook County, Illinois," American FactFinder, [http://factfinder2.census.gov/faces/nav/jsf/pages/community\\_facts.xhtml](http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml); Feeding America, "Map the Meal Gap, Food Insecurity in Your County," <http://feedingamerica.org/hunger-in-america/hunger-studies/map-the-meal-gap.aspx>; Greater Chicago Food Depository, "Hunger in Chicago," [www.chicagosfoodbank.org/site/PageServer?pagename=hunger](http://www.chicagosfoodbank.org/site/PageServer?pagename=hunger).

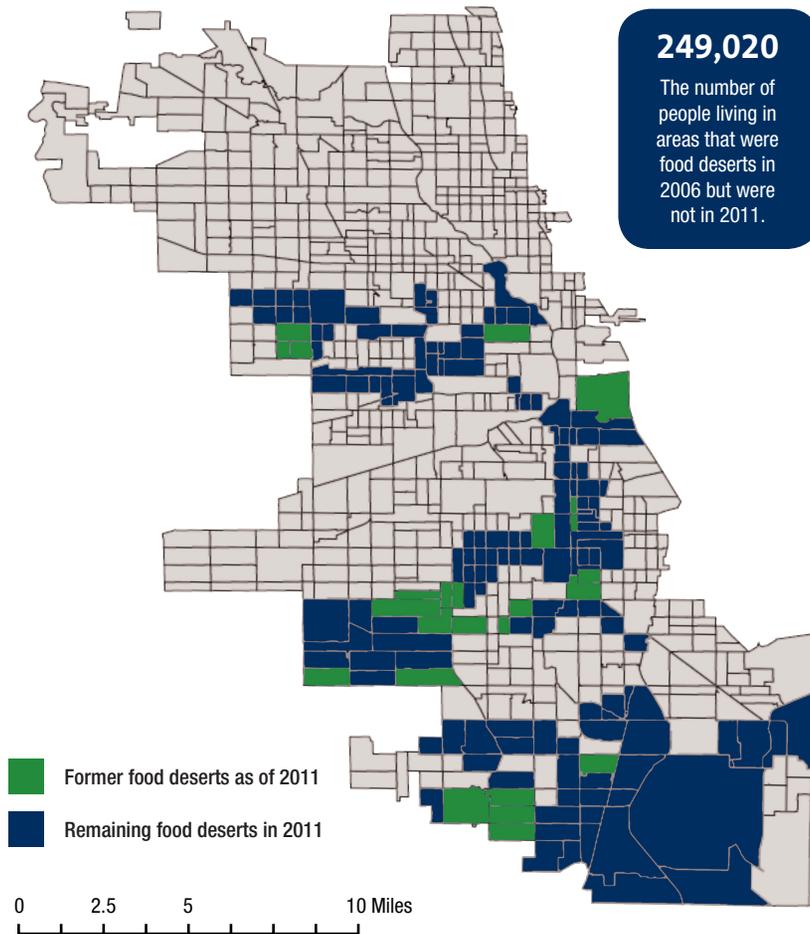
84. Greater Chicago Food Depository, "Hunger in America 2010 Executive Summary: A Report on Emergency Food Distribution in Cook County," [www.chicagosfoodbank.org/site/DocServer/HIA10\\_ExecSum\\_fv.pdf?docID=5601](http://www.chicagosfoodbank.org/site/DocServer/HIA10_ExecSum_fv.pdf?docID=5601).

85. Greater Chicago Food Depository, "Member Agencies," [www.chicagosfoodbank.org/site/PageServer?pagename=member](http://www.chicagosfoodbank.org/site/PageServer?pagename=member).

86. Brigid Sweeney, "Can Whole Foods Help Turn Food Deserts into Oases?" *Crain's Chicago Business*, February 18, 2013, [www.chicagobusiness.com/article/20130216/ISSUE01/302169979/can-whole-foods-help-turn-food-deserts-into-oases](http://www.chicagobusiness.com/article/20130216/ISSUE01/302169979/can-whole-foods-help-turn-food-deserts-into-oases).

## Figure 9 – Food deserts become “food oases”

Though national retailers have not yet delivered many of the stores they pledged to open, Chicago's food deserts nonetheless have shrunk significantly since 2006. “That's because you only need a couple of very strategic locations to catalyze a chain reaction,” says researcher Mari Gallagher, who coined the term “food desert.”



Source: Mari Gallagher Research and Consulting Group 2011.

the adult population in the Chicago metropolitan area is obese, with higher rates in many of the low-income neighborhoods of the city.<sup>87</sup> Consider the following facts from the Consortium to Lower Obesity in Chicago Children:

- Young children in Chicago have considerably higher obesity rates than low-income children of a similar age in the United States and Illinois.
- Obese and overweight children in middle childhood years in Chicago are higher than the national average.
- Chicago teens are overweight and obese at higher rates than Illinois teens.<sup>88</sup>

A recent study of obesity among Chicago public school children indicates that 25 percent of children in kindergarten, sixth grade, and ninth grade are obese.<sup>89</sup> In addition to the prevalence of food deserts, another contributing factor to poor nutrition in Chicago's urban neighborhoods is the limited amount of food assistance provided to families.

As in all other cities, the lowest-income urban households in Chicago are the most at risk of being food insecure. A resilient urban food system is one that protects the most vulnerable from hunger and food insecurity. This is what Chicago must have.

## Chicago's assets and potential to become a leader

Like many other cities, Chicago has challenges to overcome in order to end urban food insecurity. However, Chicago is unique in that it has all the key ingredients needed to become a leader in addressing the problem and setting an example for other cities around the

87. “Obesity Rates for States, Metro Areas,” *Governing – The States and Localities*, [www.governing.com/gov-data/obesity-rates-by-state-metro-area-data.html](http://www.governing.com/gov-data/obesity-rates-by-state-metro-area-data.html); Mari Gallagher Research and Consulting Group, “The Chicago 2011 Food Desert Drilldown, 5th Anniversary Edition,” October 24, 2011, [www.marigallagher.com/site\\_media/dynamic/project\\_files/Final\\_2011\\_ChgFD\\_drilldown.pdf](http://www.marigallagher.com/site_media/dynamic/project_files/Final_2011_ChgFD_drilldown.pdf).

88. Consortium to Lower Obesity in Chicago Children, “Prevalence of Childhood Overweight and Obesity in Chicago,” [www.clocc.net/coc/prevalence.html](http://www.clocc.net/coc/prevalence.html).

89. City of Chicago, “Overweight and Obesity among Chicago Public Schools Students, 2010-11,” *Healthy Chicago*, February 2013, [www.cityofchicago.org/content/dam/city/depts/cdph/CDPH/OverweightObesityReportFeb272013.pdf](http://www.cityofchicago.org/content/dam/city/depts/cdph/CDPH/OverweightObesityReportFeb272013.pdf).

world: a committed and willing local government, particularly the mayor, who has prioritized urban food security as part of his mission; a large and strong nonprofit sector that works well with both the private and public sectors; a thriving and innovative entrepreneurial community; a plethora of academic and research institutions that can contribute to finding solutions; and a deeply-rooted history of civic engagement by the large food manufacturers in the city.

The Chicago Metropolitan Agency for Planning (CMAP) has recognized the importance of urban food security as a principal component of *GO TO 2040*, its regional plan for the Chicago metropolitan area.<sup>90</sup> Its recommendations support facilitating local food production, increasing access to healthy food, and raising awareness and understanding of local food issues.<sup>91</sup>

## Commitment and policy action from the city government

The City of Chicago, under Mayor Emanuel's leadership, has created numerous policies that address different components of the complex challenge of reduction in food insecurity. In January 2013 the city planning document *A Recipe for Healthy Places* outlined the policy priorities for the city in relation to food and nutrition.<sup>92</sup> Many of these priorities address the components of availability and utilization, but some also promote economic access to healthy foods.

The availability of healthy food is being addressed in several ways in city policy. The City Council amended the Chicago zoning ordinance to help facilitate the further development of urban farms and community gardens by recognizing them as approved land uses and providing clear guidelines for their development in the city.<sup>93</sup>

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90. Chicago Metropolitan Agency for Planning, "Go to 2040: Livable Communities," [www.cmap.illinois.gov/documents/20583/1dad6286-2f67-460e-9eed-30950d822daa](http://www.cmap.illinois.gov/documents/20583/1dad6286-2f67-460e-9eed-30950d822daa).

91. Chicago Metropolitan Agency for Planning, "Local Food Systems," [www.cmap.illinois.gov/2040/local-food-systems](http://www.cmap.illinois.gov/2040/local-food-systems).

92. City of Chicago, "A Recipe for Healthy Places: Addressing the Intersection of Food and Obesity in Chicago," Department of Housing and Economic Development, 2013, [www.cityofchicago.org/content/dam/city/depts/zlup/Sustainable\\_Development/Publications/Recipe\\_For\\_Healthy\\_Places/Recipe\\_for\\_Healthy\\_Places\\_Final.pdf](http://www.cityofchicago.org/content/dam/city/depts/zlup/Sustainable_Development/Publications/Recipe_For_Healthy_Places/Recipe_for_Healthy_Places_Final.pdf).

93. City of Chicago, "Urban Agriculture FAQ," [www.cityofchicago.org/city/en/depts/dcd/supp\\_info/urban\\_agriculturefaq.html](http://www.cityofchicago.org/city/en/depts/dcd/supp_info/urban_agriculturefaq.html).

In 2011 the mayor held Chicago's first "Food Desert Summit" to help secure commitments from various retailers to locate in and expand availability of fresh foods in food deserts. In October 2011 Mayor Emanuel announced plans for 36 new grocery stores in Chicago's food deserts, including 17 new supermarkets and 19 expanded fresh food sections in Walgreens stores.<sup>94</sup>

The efforts by the mayor have shown success. Deerfield-based Walgreens vowed in 2011 to add produce and other fresh foods to at least 1,000 stores in underserved areas in the United States by 2016, expanding exponentially from the 10 "food oasis" stores it had in 2010.<sup>95</sup> Wal-Mart has plans to open three more stores in Chicago food deserts by 2014.<sup>96</sup>

Whole Foods Market also wants to help address the food desert problem. Co-CEO John Mackey says Whole Foods is creating a foundation, Whole Cities, to open subsidized stores in Chicago neighborhoods that lack access to fresh food as soon as 2013.

## Addressing availability and utilization: support for urban agriculture at the city and county level

In communities with abundant vacant land, there are opportunities to create urban agriculture districts that could be located, designed, and managed in a way not yet seen in urban America.<sup>97</sup> Today, enough sites have been and are being developed that a system approach to urban agriculture is appropriate, particularly in communities that are impacted by obesity-related diseases. The city is helping create and coordinate this system by working with nonprofit organizations to encourage neighborhood-focused gardening and

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94. City of Chicago, "Mayor Emanuel Announces Three Dozen New and Expanded Grocery Stores in Communities Across Chicago, Creating More Than 2000 Jobs and Reducing 'Food Desert' Acreage in Low-Income Communities by 20%," press release, October 25, 2011, [www.cityofchicago.org/city/en/depts/mayor/press\\_room/press\\_releases/2011/october\\_2011/mayor\\_emanuel\\_announces-three-dozen-new-and-expanded-grocery-stores-in-co.html](http://www.cityofchicago.org/city/en/depts/mayor/press_room/press_releases/2011/october_2011/mayor_emanuel_announces-three-dozen-new-and-expanded-grocery-stores-in-co.html).

95. Walgreen's, "Walgreens Commits to Converting or Opening at Least 1,000 Food Oasis Stores Over the Next Five Years," July 20, 2011, [http://news.walgreens.com/article\\_print.cfm?article\\_id=5451](http://news.walgreens.com/article_print.cfm?article_id=5451).

96. Brigid Sweeney, "Can Whole Foods Help Turn Food Deserts into Oases?"

97. Lori Rotenberk, "Chicago's Urban Farm District Could Be the Biggest in the Nation," *Grist*, November 15, 2012, <http://grist.org/food/chicago-urban-ag-farm-district-could-be-the-biggest-in-the-nation/>.

## Box 7– Urban agriculture addresses availability and utilization

Iron Street Farms is one of several urban farms in Chicago developed by Growing Power, a not-for-profit corporation that collects food waste from local restaurants and grocery stores, turns it into compost, and uses the compost to grow organic food in hoop houses on paved lots year round. Iron Street Farms also educates hundreds of schoolchildren every year on agriculture and nutrition. Although Iron Street Farms operates primarily through grants, not from the sale of its produce, it is contributing to the education about nutrition, food, and agriculture, which has the potential for long-term impact for those they reach.

Source: [Ironstreetfarm.com](http://Ironstreetfarm.com).

agriculture.<sup>98</sup> The creation of Farmers for Chicago, sponsored by the City of Chicago and Growing Power, is making available up to five acres of city-owned vacant lots for urban farming and is intended to expand the supply chain for urban food production and distribution in Chicago. The initiative will also provide training in farming, processing, marketing, selling, and distributing produce.<sup>99</sup> As noted in the case study on Bangladesh, availability alone is not a sufficient condition for improved health and nutrition. Educational efforts must be provided in tandem with the availability of foods to encourage changes in behavior that are critical to utilization of resources. Education is an important aspect of most of the urban agriculture projects in Chicago.

The city also addresses food availability and access through the addition of several city-sponsored farmers markets in food deserts as well as the facilitation of the use of LINK cards (for the SNAP program) to purchase food at the city's 20 farmers markets.<sup>100</sup> The expansion of a Chicago Public Schools (CPS) program serving pro-

98. The City of Chicago's Department of Housing and Economic Development, as part of its Green Healthy Neighborhoods initiative, has plans to expand on the efforts of Iron Street Farms, Perry Street Farm, and other urban farms to create an urban farm district in a 13-square-mile area on the south side of Chicago.
99. City of Chicago, "Mayor Emanuel Launches New 'Farmers for Chicago' Network for Chicago Urban Farmers," March 15, 2013, [www.cityofchicago.org/city/en/depts/mayor/press\\_room/press\\_releases/2013/march\\_2013/mayor\\_emanuel\\_launchesnewfarmersforchicagonetworkforchicagoourban.html](http://www.cityofchicago.org/city/en/depts/mayor/press_room/press_releases/2013/march_2013/mayor_emanuel_launchesnewfarmersforchicagonetworkforchicagoourban.html).
100. City of Chicago, "Five New Farmers Markets Created in Food Deserts," April 26, 2012, [www.cityofchicago.org/city/en/depts/mayor/press\\_room/press\\_releases/2012/april\\_2012/five\\_new\\_farmersmarketscreatedinfooddeserts.html](http://www.cityofchicago.org/city/en/depts/mayor/press_room/press_releases/2012/april_2012/five_new_farmersmarketscreatedinfooddeserts.html).

duce from regional farmers in school meals to all CPS schools further improves availability of healthy foods by Chicago schoolchildren.

## Chicago's entrepreneurs innovate for food security

Several commercial ventures are pioneering the development of indoor produce operations in Chicago. Vertical farming is evident in Chicago warehouses, where organic produce is grown year round and distributed around the city. FarmedHere, for example, is the largest indoor vertical farm in the United States, producing 250,000 to 300,000 leafy greens in its 90,000-square-foot warehouse using aquaponics, in which plants absorb waste products from fish, which, in turn, benefit from clean water.<sup>101</sup>

The initiatives of the current city administration supplement and expand on other related efforts, including the Cook County Land Bank, an initiative sponsored by Cook County commissioner and member of our Emerging Leaders class Bridget Gainer (see box 9); the Chicago Food Policy Advisory Council, which has published *Vision for Food Policy in Chicago*; and the Chicago High School for Agriculture Sciences, a Chicago public school located on the far southwest side that is a national leader in providing agriculture education in an urban environment.<sup>102</sup> The policies of former Chicago

## Box 8 – Private-nonprofit partnerships encourage innovation in food production

The Plant is a combination vertical farm, food business incubator, and research and education space with the goal of promoting closed-loop food production and sustainable economic development through education and research. The Plant operates as a not-for-profit entity and includes an indoor aquaponics farm, an outdoor farm, and space for food processing and distribution. Another aquaponics facility, the Mycelia Project, has been developed in a former shoe factory on the far south side of Chicago.

Sources: The Plant 2013; ZeitNews 2013; The Mycelia Project 2013.

101. Jonathan Nettler, "America's Largest Indoor Vertical Farm Opens in Chicago," Planetizen, March 24, 2013, [www.planetizen.com/node/61417](http://www.planetizen.com/node/61417).
102. Chicago Food Policy Advisory Council, "DRAFT-Vision for Food Policy in Chicago," [www.chicagofoodpolicy.org/Vision%20for%20Food%20Policy%20in%20Chicago.pdf](http://www.chicagofoodpolicy.org/Vision%20for%20Food%20Policy%20in%20Chicago.pdf).

## Box 9 – Cook County Land Bank: A New Tool for Optimizing Real Estate

According to the US Census, nearly 200,000 housing units are currently vacant in Cook County, almost 10 percent of the total housing stock. They have a lingering and devastating effect on neighbors and businesses, increasing crime, reducing property values, and eroding the quality of life. They also hinder economic development, weaken the tax base, and impose significant costs on already-struggling local governments.

In addition, increasing residential and commercial real estate density, along with the delivery of often unhealthy food from across the globe via superstores and fast food outlets, raises two critical questions:

1. How do we create vibrant communities that are not developing more housing, more density, and more commercial activity, but less?
2. How do we make these communities and their residents healthy against the allure of cheap calories?

On January 16, 2013, the Cook County Board of Commissioners authorized the creation of the nation's largest land bank authority, which will:

- Acquire and maintain vacant properties and address impediments to their productive reuse, including, in certain cases, healthy food production;
- Transfer them to new owners to put them back on the tax rolls;
- Be responsible for the acquisition, demolition, rehab, rental, or disposition of land and housing units;
- Develop coordinated strategies with other units of local government, leverage resources, operate with economies of scale, and act quicker to seize opportunities than their multiagency counterparts;
- In stronger market areas, speed the transfer of vacant property to new owners, collaborate with individuals and organizations to renovate viable properties and assemble larger sites for private redevelopment;
- In the hardest-hit communities, employ targeted demolition strategies, which have proven to be an essential part of neighborhood stabilization efforts, laying the foundation for revitalization.

Centralizing these tasks in the land bank will eliminate duplication of services by federal, state, county, and municipal governments and, where appropriate, make some land suitable for agricultural development.

Source: Bridget Gainer, Cook County Commissioner.

Mayor Richard M. Daley, who promoted various food-related initiatives, also provided a foundation for current efforts, including the report *Eat Local, Live Healthy*, which recommended policies related to the availability of locally grown, healthy food; to increased food production in Chicago; and to the making of Chicago as the hub for a regional local food system.<sup>103</sup>

## Statewide support of local food systems and regional food hubs: increased availability and access

In addition to the development of urban agriculture, the growth of a sustainable local food production system in the region can also help address urban food security in Chicago by providing another source of nutritious food and helping promote economic development. Although there are various definitions for local food, the 2008 Food, Conservation, and Energy Act defines local food as products sold within 400 miles of their origin or in the state where they are produced.<sup>104</sup> The lack of distribution systems for moving local foods into mainstream markets has been one of the principal limitations to the development of commerce in local foods.<sup>105</sup> The development of regional food hubs helps address this constraint.<sup>106</sup>

Significant efforts have been undertaken to facilitate local food production and distribution in the Midwest, particularly in Illinois and the Chicago region. In March 2009 the Illinois Local and Organic Food and Farm Task Force issued a report *Local Food, Farms & Jobs: Growing the Illinois Economy*. The report noted that the agriculture industry in Illinois is a leader in the export of low-cost commodities across the globe, yet is reliant on the import of a substantial amount of food to feed its residents. With the development of a sustainable local food industry through the creation of an efficient food delivery system, Illinois farmers could feed more Illinois residents with

103. City of Chicago, *Chicago: Eat Local Live Healthy* (Chicago: City of Chicago, Department of Planning and Development, November 2006), [www.cityofchicago.org/content/dam/city/depts/zlup/Sustainable\\_Development/Publications/Eat\\_Local\\_Live\\_Healthy\\_Brochure/Eat\\_Local\\_Live\\_Healthy.pdf](http://www.cityofchicago.org/content/dam/city/depts/zlup/Sustainable_Development/Publications/Eat_Local_Live_Healthy_Brochure/Eat_Local_Live_Healthy.pdf).

104. Food, Conservation, and Energy Act of 2008, H.R. 2419, 110th Cong. (2007), [www.govtrack.us/congress/bills/110/hr2419](http://www.govtrack.us/congress/bills/110/hr2419).

105. Ibid.

106. James Barham and Debra Tropp, "Regional Food Hub Resource Guide," USDA Agricultural Marketing Service, April 2012, [www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5097957](http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5097957).

## Box 10 – Potential benefits to Chicago of increased produce production in the Midwest

Fruit and vegetable production has the potential to generate three to seven times more jobs and farm income than corn and soybean production, staples of Illinois and Midwest agriculture. According to officials from the Chicago Metropolitan Agency for Planning (CMAP) and a study commissioned by the Leopold Center at Iowa State University in Ames, with over 800,000 acres of available farmland in the Chicagoland area, it would only require 8.7 percent of this acreage to produce enough fruits and vegetables for the region, strengthening the local food system, strengthening the economy, and creating jobs. The climate of the region also allows for the growth of any food outside of what can be grown in the tropics, according to CMAP. Currently, much vegetable and fruit produce is sourced from 1,500 miles away, according to IBM Precision Analytics. With greater local investments, we can provide for the region while also creating a pathway to provide regionally sourced produce to metro Chicago's population.

Source: Swenson 2010.

locally produced food.<sup>107</sup> Recommendations included creating more than 5,000 new local food farmers by 2020.<sup>108</sup> After the release of this report, Governor Quinn signed into law the Illinois Food, Farms, and Jobs Act of 2009, which implemented various policy measures intended to expand the development of local food production and distribution in Illinois.<sup>109</sup>

The State of Illinois, the University of Illinois, and FamilyFarmed.org have collaborated on various initiatives to develop food hubs in Illinois, including the publication of a business planning guide for the creation and expansion of food hubs.<sup>110</sup> These hubs can aggregate and process local foods for distribution

107. Ibid.

108. The Illinois Local and Organic Food and Farm Task Force, "Local Food, Farms & Jobs: Growing the Illinois Economy," A Report to the Illinois General Assembly, March 2009, [www.agr.state.il.us/newsrels/taskforcereport-outside.pdf](http://www.agr.state.il.us/newsrels/taskforcereport-outside.pdf).

109. "Governor Signs Legislation Putting Illinois on Track to Vastly Expanded Local Farm Economy," FamilyFarmed.org, July 8, 2010, [www.familyfarmed.org/governor-signs-legislation-putting-illinois-on-track-to-vastly-expanded-local-farm-economy/](http://www.familyfarmed.org/governor-signs-legislation-putting-illinois-on-track-to-vastly-expanded-local-farm-economy/).

110. Timothy C. Lindsey and Jim Slama, "Building Successful Food Hubs: A Business Planning Guide for Aggregating and Processing Local Food in Illinois," FamilyFarmed.org, January 2012, [www.familyfarmed.org/wp-content/uploads/2012/01/IllinoisFoodHubGuide-final.pdf](http://www.familyfarmed.org/wp-content/uploads/2012/01/IllinoisFoodHubGuide-final.pdf).

to larger markets such as Chicago. Chicago, in turn, can become a megahub for local food production and distribution, adding local food production in Chicago itself along with the aggregation of local food production in the rest of the state and region. In a recent report, the City of Chicago has recognized that Chicago can become a hub of a local and regional healthy food system that includes production, processing, and distribution.<sup>111</sup>

## Chicago: Looking through the Urban Food Model

Looking at Chicago's efforts through the lens of the Urban Food Model, much of the current focus has been on improving access and availability. And while more needs to be done in those critical areas, greater emphasis on new programs to enhance utilization would help to increase the demand for fresh, healthy foods in Chicago so they become a part of a well-rounded diet. For example, the Ounce of Prevention Fund is working with teenage mothers to teach them about food and nutrition so that healthy food choices begin before a baby is even born. Programs like this need to be expanded and operated in tandem with the private sector to make sure that food options are available and affordable when sought. This would help to improve issues such as obesity and poor nutrition among those who are food insecure.

Chicago has done a good job of weaving an environmental dimension into its efforts thus far. As the environmental pressures on food production and distribution increase in the future, this will be even more critical. Numerous entrepreneurs and academic institutions are doing research and exploring new solutions as food becomes part of the city's growing focus on technological innovation.

Perhaps the strongest promise Chicago has demonstrated to date is the variety of institutions committed to success in this area. The improvements seen in Chicago have been aided by the important cooperation among all levels of government, NGOs, and the private sector. This web of coordination can help to ensure adequate governance as the city continues to meet the needs of its citizens.

However, challenges remain in the economic and social/cultural dimensions. While there are emerging bright spots, the ability to address urban food security on a wide scale and sustainable basis is dependent on an efficient market structure, economies of scale, and effective distribution networks. Fresh, healthy food in neighbor-

111. City of Chicago, *Chicago: Eat Local Live Healthy*.

hoods with low socioeconomic status needs to grow from an occasional supply to a constant one.

Like all the other cases explored in this report, poverty continues to be the most significant contributor to food insecurity. But it doesn't have to be. Federal programs such as SNAP and WIC help provide a basic level of support for those in need, but it is often not adequate. Food banks are a critical safety net in times of crisis, but we should not rely on them for the daily needs of the poor. As Kate Maehr, executive director of the Greater Chicago Food Depository said, "We are not addressing the root cause. We are rushing to move people off the safety net, but we have no ramp out of poverty."

How can Chicago move beyond what other cities have tried to become a leader in this area? Chicago can become a leader by leveraging all of its resources in the public, private, nonprofit, and academic sectors to act in unison to not just create, but carry out a comprehensive strategy.

## Moving forward

Governmental leaders at the city, county, state, and federal levels have all recognized urban food security as a critical issue for Chicago and the region. The successful implementation of these efforts can make Chicago a leader in addressing urban food security and allow Chicago to assert itself, together with its other food-related resources, as an international center for developing solutions to the challenges of urban food security.

The developments in urban agriculture, vertical farming, and local food production and distribution in Chicago have been backed by city officials and a dedicated entrepreneurial and not-for-profit community that see the long-term benefits of developing a sustainable system for growing food in Chicago. Although it is daunting to try to address the needs of Chicago's entire food-insecure population, each of these initiatives is a part of a larger effort to reach individual neighborhoods and move forward a collective effort to reduce food insecurity with local resources.

Chicago has made solid strides in combatting food insecurity and if continued, development of these innovative efforts can make Chicago a leader in addressing the challenges of urban food security.

## Chapter 7

### Feeding an Urban World: Recommendations for Global and Local Urban Leaders

The 2013 Class of The Chicago Council on Global Affairs Emerging Leaders Program hopes that our focus on urban food security will inspire leaders in cities around the world, especially Chicago, to recognize and address this critical 21<sup>st</sup> century issue. In this chapter we outline the general contours of an agenda for local leadership on urban food security and offer concrete steps that the City of Chicago can take toward promoting a food secure future at both the local level and the global stage.

#### RECOMMENDATION 1

#### Recognize urban food security as a critical 21<sup>st</sup> century policy issue.

Just as our class coalesced around the importance of addressing urban food security, leaders in cities around the world need to recognize urban food security as a critical policy issue of the 21<sup>st</sup> century. With many other challenging issues facing cities, including managing and sustaining growth, promoting economic development, providing quality schools and social services, and promoting livability for a diverse population, addressing urban food security may be an afterthought. Some cities, however, have begun to take steps to adopt action plans related to food policy. In certain cases these plans have been focused on a specific aspect of food policy such as eliminating food deserts, increasing urban agriculture, promoting healthy eating, or encouraging markets for local foods. These efforts must become more comprehensive, taking into account interrelated aspects of urban food security and the unique needs of urban populations.

## RECOMMENDATION 2

### Utilize the Urban Food Model to develop and analyze policies.

The Urban Food Model introduced in chapter 3 provides an approach to manage “urban food readiness” in the decades ahead. The model provides a comprehensive methodology for developing and analyzing policies in each of the areas of availability, access, and utilization. The model is intended to evolve as urban food security and the policies to address it evolve. We believe the model can serve as an analytical framework for urban leaders to review their current efforts to address urban food security and to adopt new policies in areas that are not being sufficiently addressed. We also believe measurements can be developed based on this model to enable an analysis of how effectively various policies are being implemented and where a city’s strengths and weaknesses may lie.

If Chicago can take the lead on leveraging the Urban Food Model, it will go a long way towards positioning Chicago as a leader urban food security. Some initial steps for consideration include:

1. Develop a detailed study on measurement against this model to help highlight successful initiatives for Chicago and lessons for other cities.
2. Find an “owner” in the City of Chicago to help drive Chicago adoption and further position city on the topic.
3. Undertake an urban food security inventory and opportunities analysis utilizing the model and apply it on a comprehensive basis. Such an analysis should take into account the entire regional food system, understanding:
  - how food is supplied and utilized within that system,
  - the extent to which regionally produced food is used in local markets and used for other purposes,
  - the extent to which food is wasted,
  - the gaps in access to food generally and to locally produced and healthy food specifically, and the opportunities to improve access, availability, and utilization.

4. Conduct cost/benefit analyses to determine what policies would be most efficient in addressing the issues raised by the urban food security inventory.

## RECOMMENDATION 3

### Adopt a regional approach to addressing urban food security.

In order to address urban food security, it is vital that cities adopt policies that are not only comprehensive in their scope but also in their geographic coverage. Policies that promote urban agriculture and address provision of healthy food in cities are important, but if they are not part of a comprehensive regional strategy they are missing a critical component—no city is an island when it comes to availability. Chicago’s own growth as a city was based in part on the relationship between the city and the region that surrounded it. The historical dynamic of this relationship and the ongoing need to maintain it—and develop such relationships in emerging global cities—is described well by William Cronon in *Nature’s Metropolis*:

This ability of the market to construct and obscure relationships has been expanding for a long time now. The market existed long before there was a Chicago, and although it attained new complexity in that city, it has since gone on to become a fact of life in most places, no matter urban or rural. We are consumers all, whether we live in the city or the country. This is to say that the urban and rural landscapes . . . are not two places but one. They created each other, they transformed each other’s environments and economies, and they now depend on each other for their very survival. To see them separately is to misunderstand where they came from and where they might go in the future. Worse, to ignore the nearly infinite ways they affect one another is to miss our moral responsibility for the ways they shape others’ landscapes and alter the lives of people and organisms within their bounds. The city-country relations . . . now involve the entire planet, in part because of what happened to Chicago and the Great West during the 19th century. We all live in the city. We all live in the country. Both are second nature to us.<sup>112</sup>

112. William Cronon, *Nature’s Metropolis: Chicago and the Great West* (New York: W. W. Norton & Company, Inc., 1991): 384-85.

The opportunity to address urban food security will best be promoted by cities that offer a comprehensive, coordinated regional approach to addressing food security needs, ensuring that the food developed in their surrounding areas is brought to market efficiently and utilized most effectively.

#### **RECOMMENDATION 4**

### **Remove regulatory and policy barriers and promote coordination.**

As we described in the introduction to this report, our objective has not been to analyze in depth the regulatory and policy issues affecting the urban food supply. However, as a general matter, we have identified certain regulatory and policy hurdles, whether in terms of municipal land use and licensing policies, the US Farm Bill, or global trade policies, that have a substantial impact on urban food security (see box 11). Efforts should be made to remove barriers inherent in these policies to encourage production of food in cities and enable a greater supply and variety of foods grown in surrounding areas to be available in local areas. Moreover, efforts should be made to coordinate policies that promote a food secure future. To this end, governments should create centers for urban food systems responsible for addressing urban food security challenges in a coordinated fashion in collaboration with local urban leadership.

#### **RECOMMENDATION 5**

### **Think locally around neighborhoods.**

Much of food security revolves around the dynamics of neighborhoods. This includes the extent to which specific groups have access to effective education, production, distribution, and utilization networks. Policies should ensure that each neighborhood can thrive in an urban environment. Education should leverage local institutions to communicate key messages. City leaders should consistently monitor food access for each neighborhood. This includes transportation in and out of food deserts as well as market access for additional retailers that offer healthy food alternatives to residents.

Barriers for grocery stores to enter underserved neighborhoods should be removed. Just a few years ago Chicago blocked the world's largest grocer from entering neighborhoods of need. While Chicago

#### **Box 11 – Federal policy recommendations**

We offer the recommendations below to Congress and the executive branch. In some cases, legislative action may be required; in others, the president or secretary of agriculture can act administratively.

#### **Enhance collaboration between the federal government and cities.**

Today, USDA holds monthly calls with the US Conference of Mayors' Food Policy Task Force and works with the National League of Cities. While this interaction is useful, more progress will be made with a federal organization that:

- Helps cities understand which programs are suited to their needs,
- Works to make federal policy consistent across cabinet agencies, and
- Develops policy to improve urban food security and the availability of nutritious foods.

This could be modeled on the White House Rural Council (created by executive order of the president) and include representatives from USDA, EPA, and the Departments of Housing and Urban Development and of Transportation.

If a formal entity with dedicated resources is preferred, Congress would have to create it with legislation. A task force that draws on existing experts and funding could probably be created by executive order (of the president or secretary of agriculture), although close coordination with Congress in the latter case is likely required, too.

#### **Adjust federal agricultural policy to better address growing urban populations and health challenges.**

We recognize that removing long-held and pervasive distortions in agriculture policy is, to be blunt, unlikely. However, there are policy modifications that will be quite helpful in the real world and more politically palatable in Washington. These include:

- Clarifying USDA authority for the Business and Industry (B&I) Loan Guarantee Program to ensure that funds can be spent in urban areas while benefiting rural America; this would include increasing the benefits that can accrue to cities without violating the program's charter;
- Accounting for urban food needs when developing infrastructure so that distribution and storage resources expand;
- Endorsing diversified growing by focusing on new market development;
- Expanding the Planting Transferability Pilot Program (PTPP);
- Supporting the work of the National Institute of Food and Agriculture on hydroponics, vertical growing, etc.;
- Increasing the visibility of US Forest Service urban tree planting programs.

has since softened its approach, with other retailers entering areas of need, additional barriers to entry should be removed for those that can deliver healthy alternatives to residents. Neighborhoods should also look at alternatives such as farmers' markets to encourage fresh produce to enter key areas. Farmers' markets can also serve as an important education opportunity. Finding space and organizers to drive this can be a critical component to offering healthy alternatives.

Finally, developing opportunities for growing food in urban settings is vital. The Chicago Food Strategy has identified three models for developing these local food spaces, including public-private partnerships. Additionally, there is an opportunity to review rooftop farming options to increase capacity throughout the city. Local food sources and land access for growing should also be encouraged through effective land banks and transfer policies. Chicago has taken very positive steps in this direction and should continue to build momentum.

## **RECOMMENDATION 6**

### **Leverage opportunities for policy diffusion and advocacy.**

Due to shifts in international political environments, cities are increasingly important actors in global governance. Some cities are increasingly connected to global affairs, with municipalities forming transnational advocacy networks and mayors frequently having a global stage. These developments provide opportunities for the diffusion of norms, policies, and best practices from one city to another. They also provide opportunities for policy diffusion, as states and provinces as well as national governments adopt policy frameworks that have proven successful at the municipal level. Experiences in some of the world's largest cities are relevant to some of the world's smaller countries. A key example of this "vertical" policy diffusion is the adoption at the national level of progressive food security policies first developed by the municipality of Belo Horizonte, Brazil, and then adopted by the federal government of Brazil (see chapter 4). While food security is a challenging issue, especially on a global scale, cities are increasingly well positioned to lead the world toward a food secure future for everyone.

## **RECOMMENDATION 7**

### **Treat perishable supply chains as a vital asset.**

Chicago and other global cities, particularly those in developing countries, need to treat perishable supply chains as a critical and core asset. Governments across all levels should work to ensure supply chains and aggregators are in place and funded to support fresh food alternatives, eliminate spoilage, and aggregate supply from smaller farms. Specifically, cities should look to develop cold supply chain strategies and aggregators similar to the Mega Food Parks in India (see chapter 4). Several key steps to jump-start this effort include the following:

1. **List credible alternatives for building a cold supply chain in the defined countries**—Develop SWOT analysis for each alternative and ensure they help all stakeholders, both public and private.
2. **Develop a quantification/economic model for the most attractive alternatives**—Include attributes such as one-time costs, fixed costs, variable costs, returns, growth, service quality, and various types of risk mitigation.
3. **Recommend a specific alternative and strategy**—Outline a strategy and ensure the public and private roles are clear.
4. **Develop a project plan for implementation of the selected alternative and strategy**—After getting approval of the strategy, begin to build the plan and gain the appropriate buy-in.
5. **Outline variations of this strategy across regions or neighborhoods**—Make sure the plan is flexible and realistic.

## **RECOMMENDATION 8**

### **Build sustainable and resilient urban food ecosystems.**

Sustainability and resilience are key ingredients to an effective and equitable urban food system and must be taken into consideration when developing and assessing urban food security models. As mentioned in chapter 2, urban population growth and the resulting increased demand for certain types of food will put consider-

able strain on the world's natural resources. Any plan to better feed our cities should include more efficient use of natural resources—meaning investing in technologies that allow more productive use of land, water, and energy, while also developing solutions to reduce food waste.

An urban food system should also be as resilient as possible to economic, political, and environmental shocks that could negatively impact access and availability. Though occasional disruptions in price and supply are inevitable, an effective urban food system should aim to mitigate the long-term impact of these shocks—especially for the most vulnerable households.

## **RECOMMENDATION 9**

### **Take concrete steps to encourage entrepreneurial activities related to food security.**

This report highlights various innovative entrepreneurial efforts (both for-profit and nonprofit) around the world to address food security, but these efforts will only be able to scale with financial, governmental, and public policy support and greater encouragement to innovate and attract more entrepreneurial energy around urban food security. We encourage the for-profit entrepreneurial community to see this as an emerging market, and we encourage governmental entities to adopt policies that help facilitate research, development, and growth of this sector.

## **RECOMMENDATION 10**

### **Position Chicago as a world leader in addressing urban food security.**

Chicago has a tremendous opportunity to be a leader in addressing urban food security. As we described in this report, Mayor Emanuel's administration has already taken steps to address food deserts, encourage the provision of healthy food, and promote urban agriculture. In addition, the state, the county, the Chicago Metropolitan Agency for Planning, and other governmental entities have taken steps to promote local food production and facilitate urban agriculture. At the same time, not-for-profit corporations and entrepreneurs have been pioneering new approaches to develop food production in the city. These efforts place Chicago in the forefront of addressing

urban food security issues. However, we believe there is an opportunity for an even more promising approach, using the Urban Food Model, to analyze and address urban food security issues in Chicago.

### **Convene a food security task force.**

The City of Chicago should convene a food security task force, comprised of members of the various sectors and industries best positioned to address access, availability, and utilization, as well as representatives of the citizens and stakeholders most vulnerable to food insecurity. In addition, because of the scale and many dimensions of the food security challenge, the task force should include adjunct members or consultants from metropolitan, state, regional, and national agencies. The task force should consider the vulnerabilities of Chicago as well as the advantages afforded by its deep economic history and its positioning as a leader in global affairs. The task force should use the Urban Food Model to identify opportunities, develop local policies, and make key recommendations regarding the removal of regulatory and policy barriers—at various levels—that may distort markets and undermine food security. Set in this context, the potential for policy diffusion to the state, regional, and national levels is significant.

### **Establish a transnational municipal network for urban food security.**

Furthermore, Chicago is well positioned to begin to address urban food security on a global scale. We think Chicago can and should be a leader in addressing the urban food challenges of the 21<sup>st</sup> century, just as Chicago's role in addressing the urban food challenges of a growing nation in the 19<sup>th</sup> century helped bring the city to global prominence. As a top 10 global city, Chicago's stature is significant. The City of Chicago has the visibility and credibility to catalyze a global movement of municipalities that recognize and address the challenge of urban food security. Chicago's stature, unique academic and industrial resources, and deep economic history make it perhaps a most appropriate founding partner for a transnational municipal network for urban food security. In this way, Chicago could become a hub, a center of ideas and action, for the development of comprehensive approaches to address not only Chicago's food security challenges, but those of the rest of world. This network could enable the diffusion of norms, policies, and best practices most likely to promote a food secure future for global cities, while

leveraging the stature of member cities to advocate for sensible policy developments on other levels. Such a network would be unique in that it would focus on cultivating local urban leadership—mayors and others—for the task of feeding our urban world.

With increased urbanization and changing demands for food around the world, urban food security is an emerging global issue. Yet it is an issue that cities have faced in different ways for a long time, as demonstrated by Chicago's own history. The 21<sup>st</sup> century challenges of urban food security differ across various parts of the world, but the objective of providing safe, secure, and healthy food and the framework of availability, access, and utilization apply to all cities. While the challenges related to urban food security are daunting, the opportunities are great. We hope this report motivates urban leaders globally to seize the opportunities to address these challenges.

## Appendix A

### Understanding the Urban Food Model

This section looks more closely at the specific criteria of the Urban Food Model and seeks to succinctly describe each. With a topic so broad, we found that it is often important to focus discussions on relevant points. As policymakers look to explain “what exactly are we talking about and what challenges are we attempting to address,” they may refer to these descriptions to help identify the problem at hand.

#### Model criteria: availability, access, utilization

##### Availability: the first set of model criteria

- *Supply sufficiency*  
While it may be possible to define and measure the supply of all food available after production, including exports and imports, is the supply sufficient relative to the current and anticipated size of the urban population? And for what period?
- *Micronutrient availability*  
Considering the breadth of foods available, calories are important, but the availability of iron, vitamin A, and other critical nutrients are crucial in the urban food supply. Are all key nutrients available in the urban food landscape?
- *Food aid capacity*  
In the event of a food shock, does the availability of alternative sources of supply meet the demand? Measuring availability may be easier than measuring demand for an undefined period and an unknown depth of shock to the supply. What should be the planning threshold in an urban environment?
- *Chronic food aid*  
Some level of chronic food aid is expected to be demanded in most if not all urban environments, often driven by external factors (i.e., prolonged unemployment). Measurement and demographic analysis of reliance on nonemergency food aid

(i.e., excess imports) within a city are crucial to understanding baseline needs and trends that can be improved upon.

- *Supply volatility*  
Understanding seasonal variability in food supply and its causes (e.g., systemic to the urban environment or exogenous such as production variability elsewhere) can assist in managing swings in the volume of produced and imported food impacting urban dwellers. What is the variance in availability, and what are the causes of over- and undersupply?

#### **Access: the middle set of model criteria**

- *Affordability*  
Even with a readily available supply of food, the ability of urban consumers across socioeconomic groups to purchase what they need to be food secure will vary. Understanding the broad implications of median urban income and the demographics associated with the range of incomes is critical to understanding who can afford what and how the answer to the question may change over time.
- *Safety net programs*  
Establishing and monitoring ongoing initiatives that protect the urban population from food-related economic or natural disaster-related shocks through appropriate and stable distribution of food is a real urban concern. Unlike “food aid capacity” under availability, this criterion focuses on the ability of urban programmatic systems to get food where it is needed when safety nets are called upon.
- *Distribution infrastructure*  
Does the urban environment continuously support the ability to transport and store materials and products to, from, and around the urban environment? Is this “mapped” separately from nonfood items in the interest of food security?
- *Economic infrastructure*  
Do market participants within reach of urban policymakers create sufficient security, and do they do so efficiently? Key components of understanding and analyzing this criterion would be

the extent of diversification of size, type (formal and informal), and geography of wholesale supplier and retail markets.

#### **Utilization: the bottom set of model criteria**

- *Diet diversification*  
In addition to the availability of food and the public’s access to it, the variety, nutritional quality, and safety of food are paramount to urban food security. Typical diets and diets unique to a city’s socioeconomic groups need to be understood and addressed. Diversification of the food supply promotes health and is equally critical for urban and rural residents.
- *Cultural preferences*  
Diet diversification must also be practical in its utilization. That means that what is available must take into account cultural, social, and religious preferences that impact consumption choice at the individual, family, group, neighborhood, and even citywide levels.
- *Civil society*  
This criterion focuses on how well urban areas adhere to their own (or regional and national) food security strategies, involving such things as dietary guidelines and education as well as the monitoring and surveillance of nutrition, educational achievement, and health outcomes. What systems are in place to coordinate at regional and national levels, and how is success being measured locally?

#### **Dimensions through which to view each criterion**

This section looks more closely at the five dimensions through which each of the above criterion needs to be considered.

##### **The institutional dimension: governance**

The influence of governing institutions over availability, access, and utilization of food is, not surprisingly, pervasive. Sometimes the link is obvious, sometimes it is more subtle. In almost every case it is apparent that local and national governments have a fundamental role in establishing rules and setting policies with far-reaching consequences for urban food security.

At the basic level, government provides the legal and regulatory framework to coordinate and facilitate food markets—from the enforcement of property rights and contracts to rules on health and sanitation, urban planning, and the provision of infrastructure that enables markets to operate. Furthermore, governments also provide basic public goods such as food safety nets, protection against food supply volatility, and nutrition education.

Governance structures differ greatly across countries in terms of centralization and functions carried out at local or national levels. Understanding the formal authority of different levels of government as well as the effective authority of the private sector, nongovernmental organizations, and international institutions will be fundamental to developing effective food security policies.

Next to governments and government agencies on the one side and private actors on the other, it is important to stress the role and relevance of intermediate bodies like NGOs (e.g., charities, religious organizations, and public-private partnerships). Both in industrialized and developing countries, NGOs perform a fundamental function in securing first-response intervention to food securities challenges, as is apparent by looking at food banks' safety nets and distributions of food emergency aid in case of natural catastrophes, famines, and conflicts.

### **The environmental dimension: sustainable production and sustainable consumption**

Food security must be both a short-term and a long-term goal, and it is necessary that the trade-offs between the two are fully understood. Hunger and malnutrition are evils of immediate concern, and yet, short-sighted policies aimed at addressing a present emergency might fail to address long-term causes. In extreme cases, short-term solutions may well preserve current problems. The key is sustainability: ideal solutions must be viable in the long term. Solutions must include an assessment of the environmental trade-offs, including the cost of resources, the exhaustibility and renewability of those resources, and the impact on biodiversity.

These environmental variables impact the availability and production of food as well as access to it—the distribution networks and infrastructure that support food markets. Environmental factors will also play a role in utilization, with the goal of having consumers fully internalize the long-term implications of their food choices, balancing taste, preferences, and tradition with the need for preservation

of natural resources and for the security of food resources for future generations.

### **The technological dimension: research, development, and innovation**

We cannot ignore the impact of innovation on food security along all dimensions. “Innovation” here is used broadly, both in technological sense and in terms of institutional evolution. On the technological side, R&D and technical transformation may have an important impact on improving the production of food, on transportation modes and its transformation into final goods as well on storage, distribution, and patterns of consumption (refrigeration is a case in point). Technology is unique in its ability to transform the options available to policymakers, from the tracking of logistics and shipments to patterns of distribution and upgrading refrigeration as well as the dissemination of timely information about needs and market conditions and the education of the public about sustainable and nutritious diets.

But institutional factors also matter, as firms, markets, and public authorities all affect final outcomes. Here innovation as institutional evolution takes the form of experimenting with solutions, learning best practices, and transmitting “lessons learned” by trial and error. The cooperation between governments, nongovernmental actors, and the public is also shaped by these institutional parameters. The flexibility to experiment and adapt to the circumstances is a critical factor in the successful management of food security challenges.

### **The economic dimension: supply and demand**

Next to governments, market forces are also at play in the production, distribution, and provision of food in urban centers. The strength and robustness of the supply sources as well as their resilience in the face of external shocks are key factors in addressing availability. Economic forces of supply and demand are also fundamental in determining access to food, determining food prices and hence the affordability of nutrients. Market structure—costs, economies of scale and scope, efficiency of distribution networks—also has an impact not just on prices, but on which nutrients will be available on the market in each urban area.

Metropolitan areas should be able to establish large, specialized networks for food distribution and foster availability of a broader variety of nutritious food because of the critical mass of popula-

tion. In fact, this is not always the case. Oftentimes food markets fail, even in developed countries. Understanding the causes of these market failures, both in their economic and institutional dimensions, is a necessary step in the development of appropriate policy recommendations.

### **The social and cultural dimension**

Finally, the consumption of food is as much a cultural and social artifact as a biological necessity. Patterns of consumption, selection of food categories, and market access are to some extent the result of the societies in which we live, family and group traditions, religious beliefs, gender roles, and intergenerational bonds. Among these complex social dimensions, we have singled out women and children as two areas of immediate concern—women because of their traditionally key role in food decisions and children because of their particular vulnerability.

In light of our concerns about women and children, we concluded that social and cultural dynamics would be essential to understanding food security challenges in all three areas of availability (such as the reliance on chronic food aid), access (such as what constraints limit such access), and utilization (such as cultural and social preferences).

## **Appendix B**

### **Components of US and Canadian Urban Food Security Strategies**

As mentioned in chapter 5, many metro areas such as Vancouver, Philadelphia, Seattle, Los Angeles, and Chicago have recently developed urban food strategies to guide their goals, metrics, and policies over the next decade. While each strategy is unique, they typically include several key components:

- Outlining dietary guidelines, diversification, and education programs,
- Building healthy neighborhood food systems,
- Monitoring nutrition and key health outcomes,
- Encouraging local food sources,
- Developing an appropriate “fresh food” distribution infrastructure.

While the second, building healthy neighborhood food systems, is discussed in the US case studies in chapter 5, the other components are described in more detail here.

#### **Outlining dietary guidelines, diversification, and education programs**

The first step in city and regional strategies is defining the dietary guidelines for healthy nutrition and educating consumers about these guidelines. Creating a common baseline is vital for each city plan and regional strategy.<sup>113</sup> Guidelines also need to be developed across the many areas related to food such as school lunches, incubators, food distribution, neighborhood markets, livestock, soil, and urban gardens, just to name a few.

113. United States Department of Agriculture, “Dietary Guidelines for Americans,” [www.choosemyplate.gov/dietary-guidelines.html](http://www.choosemyplate.gov/dietary-guidelines.html).

Education will be a key factor in the success of food security initiatives. Football Coach John McKay was once asked by a reporter how he felt about his team's execution. He quickly replied, "I'm all for it." The same could be said for urban food strategies and education. While "education" is mentioned many times in the strategies we have reviewed, the specific approach and execution plan for developing the messages, curriculum, and target groups are usually vague and unclear.

Food strategies will typically include the need for education, the outline of an initial marketing campaign, and education efforts that are currently under way. As Chicago's food strategy points out, just telling people to eat healthier and exercise more has not been enough to reverse the growing problem of obesity. That is why the bulk of the plan focuses on the higher-impact strategy of changing the context for food consumption. But education and marketing about healthy food choices will be essential elements in shifting the culture, creating consumer demand, and supporting the context-changing components of the plan. For example, a strong marketing campaign, combined with other policy initiatives, has helped create positive health outcomes in other areas such as tobacco use. A coherent set of government policies is needed to discourage unhealthy practices and provide incentives for healthier choices. But these policies must be publicized and reinforced with educational programming and awareness campaigns to help individuals make healthy choices.

## Monitoring nutrition and key health outcomes

Sometimes the metrics and measurement of food security initiatives can be the most challenging aspects. Measuring the impact of food strategies for cities is no different. There are many food security programs that can be implemented and that certainly get much of the attention. However, measuring the long-term impact of a strategy is vital and important.

Urban policymakers need to give serious thought to establishing an end-to-end approach for measuring the impact of their strategies. This includes several key steps and priorities:

- **Identify the metrics**—Identify key metrics needed to support and measure the effectiveness of the urban food strategy. Should include socialization with key stakeholders to ensure alignment on key measures and how it measures the impact of

the strategy. Metrics should include both short-term and long-term measures.

- **Outline the approach to collect data**—For each of the metrics, develop an approach to collect the needed data to develop the metrics and reports. Key accountability should be assigned, but the process should be flexible to ensure resources can be swapped and brought up to speed.
- **Establish dashboards and reports**—Design the reports and dashboards and share with key stakeholders and leadership. Make modifications to the dashboards and reports as needed, but ensure trends are being collected over time. Results should be shared and published for both short- and long-term metrics.

## Encouraging local food sources

Globally, urban agriculture is gaining acceptance as a viable use in urban neighborhoods. The most obvious benefit is that fresh produce would be available nearby. Urban agriculture also benefits the environment, the economy, and social well-being of citizens because it plays an important role in creating vibrant gathering places, greening the environment, supporting the local food economy, and promoting social inclusion.

This desire for local food is not going without notice from retailers. Consider several key points about the emerging importance of local food production and consumption.

- "Local retail is the biggest food trend we've seen in decades," according to deputy secretary of agriculture Kathleen Merrigan.<sup>114</sup>
- The 2011 National Grocers Association survey found that 86 percent of consumers believe availability of local foods in a store greatly influenced where they shopped.<sup>115</sup>

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114. Caren Bagniski, "'Local' is biggest food trend in decades, says USDA," newhope360, March 21, 2012, <http://newhope360.com/news/local-biggest-food-trend-decades-says-usda>.

115. Phil Lempert, "National Grocers Association's 2011 Consumer Report," Supermarket Guru, [www.supermarketguru.com/public/pdf/Consumer-Panel-Survey-2011.pdf](http://www.supermarketguru.com/public/pdf/Consumer-Panel-Survey-2011.pdf).

- Wal-Mart pledged to double purchases of locally grown fruits and vegetables to 9 percent of its US total by 2015.<sup>116</sup>

- What are the comparative benefits of each of these alternatives for the stakeholders?

## Developing an appropriate “fresh food” distribution infrastructure

When it comes to fresh foods, urban residents want to see the best products available at the lowest prices so they can identify value in the retail food offering. For retailers, making sure stores are stocked with quality fresh produce, meat, fish, and frozen food is a fundamental component of a successful urban food strategy.

Fresh food continues to be an important foundation of a healthy diet as well as a source of growth for major retailers—both within the United States and internationally. Fresh food categories drive increased store visits and often have a higher profit margin than other food products. Stores like Walmart continue to experience increased sales in this category, and fresh food provides an excellent opportunity to drive “local flavor” for global companies like Wal-Mart and Whole Foods. A supply chain for chilled food (“cold chain”) is a necessary enabler in fresh foods and can serve as a source of competitive advantage for retailers that can create and optimize this important asset.

For fresh produce, meat, and frozen food, there are significant supply chain challenges compared to dry grocery and general merchandise. For example, suppliers range from local to national to international, with differing economics, quality, and capabilities. Expiration/code life management creates complexity in distribution centers, replenishment, and stores. Additionally, the transportation and storage challenges of varying temperature requirements, special handling needs, food safety, and regulations contribute to supply chain complexity.

Several key questions need to be answered by policymakers and private enterprises. These questions include:

- What are the alternatives for developing an urban perishable supply chain infrastructure that helps all stakeholders?
- What are the merits of each of these alternatives?

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116. Stephanie Clifford, “Wal-Mart to Buy More Local Produce,” *The New York Times*, October 14, 2010, [www.nytimes.com/2010/10/15/business/15walmart.html?\\_r=0](http://www.nytimes.com/2010/10/15/business/15walmart.html?_r=0).

## Appendix C

### Characteristics of Recent Reviews

Review paper	Systematic review?	Number of studies screened	Studies retained for review	Period of studies retained	Agricultural activities included
Ruel (2001)	N	Not specified	14	1995-1999	Home gardens, small animals, aquaculture, BCC*
Berti et al. (2004)	N	36	30	1985-2001	Home gardens, animal husbandry, irrigation, cash cropping, credit, land distribution
Leroy and Frongillo (2007)	Y	Not specified	14	1987-2003	Animal husbandry, aquaculture, poultry, credit, BCC
World Bank (2007)	N	Not specified	52	1985-2007	All forms of agriculture activity
Bhutta et al. (2008)	Y	Not specified	29	1985-2004	Home gardens, animal husbandry, small ruminants, BCC
Kawarazuka (2010)	Y	Not specified	23	2000-2009	Aquaculture
Masset et al. (2011)	Y	7,239	23	1990-2009	Biofortification, home gardens, aquaculture, poultry, husbandry, dairy development
Arimond et al. (2011)	N	>2,000	39	1987-2003	All forms of agriculture activity
Girard et al. (2012)	Y	3,400	37	1990-	Home gardens, biofortification, BCC, husbandry, poultry, aquaculture

\*BCC = Behaviour change communication (nutrition/health education)

Source: Webb and Kennedy 2012.

Important conclusions
<ul style="list-style-type: none"> <li>• “Information now available to judge the effectiveness of food-based strategies... is inadequate.”</li> <li>• “Basic information on efficacy is needed.”</li> </ul>
<ul style="list-style-type: none"> <li>• “Mixed results in terms of improving nutrition.”</li> <li>• “Home gardening projects usually had a higher success rate than other types of intervention.”</li> <li>• “Negative effects were not uncommon.”</li> </ul>
<ul style="list-style-type: none"> <li>• Measured of impact “on nutritional status are rare.”</li> <li>• “Only 4 studies evaluated impact on nutritional status and found a positive effect.”</li> <li>• “Integrated [activities] generally found positive results.”</li> </ul>
<ul style="list-style-type: none"> <li>• “Agricultural interventions have not always been successful in improving nutritional outcomes.”</li> </ul>
<ul style="list-style-type: none"> <li>• “Dietary diversification strategies have not been proven to affect nutritional status or micronutrient indicators on a large scale.”</li> </ul>
<ul style="list-style-type: none"> <li>• “Data on the linkage from improved dietary intake to nutritional state were scarce.”</li> <li>• “Nutritional outcomes were not clearly demonstrated.”</li> </ul>
<ul style="list-style-type: none"> <li>• “Very little evidence was available on changes in the diet of the poor.”</li> <li>• “We found no evidence of impact on prevalence rates of stunting, wasting and underweight among children.”</li> </ul>
<ul style="list-style-type: none"> <li>• “Very few agricultural interventions with nutrition objectives have been successfully scaled up.”</li> <li>• “Many of the studies... were weakly designed.”</li> </ul>
<ul style="list-style-type: none"> <li>• “Of the 37 studies reviewed here, only one was graded as high... when biases, weaknesses were considered. All remaining studies were graded low to very low.”</li> <li>• “Estimates for effects on stunting... were not significant.”</li> </ul>

## Resources

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### Emerging Leaders Program Class of 2013

#### **Carolyn Baer**

*Senior Reproductive Health Advisor – Emergencies  
CARE International*

Carolyn began her position with CARE International in January 2013. Prior to this, she helped launch the Center for Global Health at Northwestern University in 2009, where she managed medical research and educational opportunities around the world. In early 2010 she was a key coordinator for the Chicago Medical Response Team to Haiti, a collaboration of six Chicago institutions that has received multiple awards for its medical response to the earthquake in Haiti. Prior to Northwestern she worked with the US Centers for Disease Control and Prevention in Nairobi, Kenya, on the infectious disease surveillance and prevention program and was also a US Peace Corps volunteer in Burkina Faso. She earned a bachelor's degree from the University of Kansas, where she studied abroad in France, and a master of public health with a concentration in refugee health from the Tulane University School of Public Health and Tropical Medicine.

#### **Kaberi Banerjee Murthy**

*Program Director  
Crown Family Philanthropies*

Kaberi leads the education, arts and culture, and civic affairs work at Crown Family Philanthropies. Previously, she worked with the Picower Foundation, the Lloyd A. Fry Foundation, and Hemenway & Barnes. Her extensive civic involvement includes helping to found the Asian Leadership Council of the Chicago Foundation for Women and the Saffron Circle and serving on the boards of the Chicago Crossroads Fund, Resource Generation, and Grantmakers for Education. She chaired the Carleton College Multicultural Board and was selected as a Leadership Greater Chicago fellow in 2010. She earned a bachelor's degree from Carleton College and a master of education degree from Harvard University.

#### **John DeBlasio**

*Executive Director  
GPD Charitable Trust*

John retired in 2012 from Sallyport Global Holdings, which he founded in 2004 to provide contracted support for reconstruction efforts in Iraq. He then expanded its operations throughout the Middle East and Africa. He has served in Operation Iraqi Freedom as a major in the US Army Reserve, for which he was awarded the Bronze Star Medal and Joint Service Commendation Medal, and has worked in the private sector. He is a fellow with the American Assembly Next Generation Project and was appointed to the Commerce Department's US–Iraq Business Dialogue. He earned a BS from the US Military Academy at West Point, a masters of international business studies from the University of South Carolina, and a master of military studies degree from the School of Advanced Military Studies in Fort Leavenworth.

#### **Deb Fiddelke**

*Executive Vice President and Midwest Practice Lead, Public Affairs  
Edelman*

Deb joined Edelman in 2010 and leads the public affairs practice. She recently served in the White House under President George W. Bush as a legislative liaison to the US Senate, including the Foreign Relations and Armed Services committees. She has also worked at the White House Council on Environmental Quality and in the offices of US Senator Chuck Hagel and US Representatives Deborah Pryce and Doug Bereuter. She worked on international and government relations for Chicago's bid for the 2016 Olympic Games and serves on the board of directors for Almost Home Kids and on the University of Nebraska Foundation Campaign Committee. She earned bachelor of arts and bachelor of journalism degrees from the University of Nebraska and a master of policy management from the George Washington University Graduate School of Political Management.

**Amy Francetic**

*Chief Executive Officer  
Clean Energy Trust*

Amy has over 18 years of operational and executive management experience in the high-technology sector with specialties in clean-tech and information technology. She helped found Clean Energy Trust with Mr. Nick Pritzker and Mr. Michael Polsky. Prior to Clean Energy, Amy worked as an investment professional for MVC Capital and commercialized R&D as an entrepreneur-in-residence for Stanford Research Institute. Earlier in her career she was cofounder and CEO of Zowie Intertainment, which was sold to Lego Systems. She holds a bachelor of arts in psychology and political science from Stanford University. She serves on the Illinois Institute for Technology's Knapp Center for Entrepreneurship board. She was recognized as a Woman to Watch by Crain's in 2011 and was named Prominent Woman in Tech at the 2013 ITA CityLIGHTS awards. Amy also received a Chicago Magazine Green Award in 2013.

**Bridget Gainer**

*Commissioner, Cook County Board of Commissioners  
Director of Public Strategy, Aon Corporation*

Bridget is a member of the Cook County Board of Commissioners, where she chairs the Pension Committee and leads the reform of the county's foreclosure policy and treatment of women and mothers incarcerated at Cook County Jail. She also leads Aon's public strategy group, directing national policy issues. She previously served in a variety of positions for the City of Chicago and founded Senn High School Youthnet, a community center on Chicago's north side. She has served on several boards, including the Big Shoulders Fund, Women Employed, the Center for Economic Progress, and the Parkways Foundation. In 2005 she was named a Leadership Greater Chicago fellow and a British American Partnership fellow. She earned a BA from the University of Illinois Champaign-Urbana and an MBA from the University of Chicago Graduate School of Business.

**Christian P. Hagen**

*Vice President and Partner  
A.T. Kearney*

At A.T. Kearney, Christian advises many of the world's largest organizations across multiple industries, including retail, consumer products, high-tech, financial services, and government. He has led several global studies for A.T. Kearney and authored over 50 published papers on low-cost competition, organizational governance, e-commerce, technology innovation, and strategy. Prior to joining A.T. Kearney, he traded options at the Chicago Board of Options Exchange and worked at KPMG Peat Marwick LLP. Christian has a BA from Valparaiso University, an MBA from Indiana University, and an MS in public policy and management from Carnegie Mellon University.

**Andrea Jett Fletcher**

*Senior Program Officer, Civics Program  
Robert R. McCormick Foundation*

Andrea manages the youth civic engagement, youth civic education, and public policy grantmaking initiatives at the McCormick Foundation. She has previously worked with the University of Chicago Cultural Policy Center, the City of Chicago Department of Cultural Affairs, the Brookings Institution, and the African Development Bank. She serves on the boards of the Chicago Committee of the Human Rights Watch, the Mikva Challenge, and the Young Center for Immigrant Children's Rights, where she has acted as guardian *ad litem* to represent minors during the asylum application process. She earned a BS from Georgetown University, where she studied abroad in Spain, and a master of public policy from the University of Chicago's Harris School of Public Policy Studies.

**Murali Kanakasabai**

*Managing Director  
Environmental Financial Products LLC*

At Environment Financial Products, Murali specializes in inventing, designing, and developing new financial markets for the environmental marketplace. Previously, he served as senior vice president at the Chicago Climate Exchange (CCX) where he focused on research and new product innovation and led the its business development

efforts in South Asia. At CCX he was part of the core team that established environmental commodity markets in six countries across four continents. He is a frequent speaker on economics, environmental issues, and agriculture as well as on India and South Asia. He earned a BS in agriculture from the Tamilnadu Agricultural University, an MS in extension education and rural sociology from the Indian Agricultural Research Institute, and an MS in economics and PhD in agricultural economics from the University of Kentucky.

**Seema Kumbhat**

*Medical Director-Biologics  
Hospira*

Seema leads the clinical development of Hospira's biosimilar program. In this capacity, she oversees drug clinical trial development and execution and provides ongoing support for approval and post-market activities for overall portfolio success. She also directs medical technology innovation in addition to performing due diligence for strategic alliances and risk management activities. She has extensive experience in leading healthcare technology companies, including McKesson Provider Technologies and Epic Systems Corporation, and has traveled the world to examine healthcare disparities in other countries. She trained in general surgery and earned a BS from the University of Miami, Florida, and an MD from its School of Medicine, where she was national student president of the American Medical Women's Association.

**Adolfo Laurenti**

*Deputy Chief Economist and Managing Director  
Mesirow Financial*

Adolfo analyzes global financial markets and economic trends for a variety of industries and is a frequent speaker to diverse audiences in the United States and abroad. He has worked as an economist in the United States and Italy and was also a noncommissioned officer in the Italian Army. He serves on the board of the National Association for Business Economics, is a member of the Federal Reserve Bank of Chicago Industrial Roundtable, was chairman of the Chicago Opera Theatre Bravo Club, and was awarded the NATO-Fontainebleau Youth Foundation Scholarship. He earned an MSc from the Università L. Bocconi in Milan, an MA and a PhD ABD from George Mason University, and has studied in Denmark and Hungary.

**John Lucas**

*Senior Vice President for Academic Programs  
World Learning*

John serves as chief academic officer for SIT Graduate Institute, SIT Study Abroad, and the Experiment in International Living, overseeing their programs in more than 50 countries. He has extensive experience in Spanish language education and cultural training, having previously worked with the Council on International Educational Exchange in Barcelona and Alicante, Spain. He has advanced proficiency in four languages and has served as a member of the Fulbright Scholarship Selection Committee. He was a Rotary International Scholar in Spain and a Salzburg Seminar Fellow in Austria. He earned a BA from Central College in Iowa, an MA from Penn State University, an MIIM from the School for International Training, and a PhD from Penn State.

**L. Heather Mitchell**

*Principal, Investor Relations  
Capri Capital Partners, LLC*

Heather manages existing pension fund client relationships for Capri's domestic commercial real estate business and leads marketing initiatives for the firm's global emerging market investment platform in Africa, India, and the Middle East. She also heads the Real Estate Executive Council and the Capri Foundation. Prior to Capri, Heather worked with the Delaware Public Policy Institute and Chamber of Commerce and in the education field with the Steppingstone Scholars Program. She currently serves as a board member of Steppenwolf Theater, as president of the board of the Primo Center for Women and Children, and was a former board member of San Miguel Schools. Heather earned a BA from Williams College and an MA from the Dartmouth College Graduate School of Arts and Sciences, where she was awarded the Graduate Student Community Service Prize and the Samuel McGill Graduate Student Award.

**Justin P. Oberman**

*Vice President, Public Sector and Alliances  
icix*

Justin has 17 years of experience in transportation and finance, with emphases on aviation, public policy, and homeland security. He is currently a business development and public sector executive at a Bay Area SaaS company called icix. icix provides supplier risk and performance management in the cloud. Justin joined the company in 2012 and created the public sector practice; his responsibilities include engaging with regulatory agencies, including FDA, USDA, and NOAA. He has served in senior positions at the US Departments of Transportation and Homeland Security, including as a founding member of the Transportation Security Administration (TSA) after 9/11. Justin returned to Chicago in 2005 and was a candidate for Illinois state treasurer in 2010. Earlier in his career, he was one of the youngest managers at Arthur Andersen, coestablishing its aviation practice with clients in the United States, Europe, the former Soviet Union, and Southeast Asia. He is a Truman National Security Project Fellow and graduated from Wesleyan University.

**Girish Rishi**

*Senior Vice President and General Manager, Enterprise Solutions  
Motorola Solutions, Inc.*

Girish leads the enterprise solutions business unit for Motorola, which serves customers in retail, logistics, manufacturing, and other sectors. Prior to joining Motorola, Girish was with a start-up that was acquired by Symbol Technologies and was general manager for Symbol's Europe, Middle East, and Africa operations. He was twice awarded the Distinguished Leadership and Service award by Northeastern Illinois University and has written extensively on a wide range of topics. He received his undergraduate education from the University of Bombay, India, an MBA from the University of Hartford Barney School of Business and Public Administration, and a masters in international public policy from the Nitze School of Advanced International Studies at Johns Hopkins University.

**Christopher Roth**

*International Director  
Jones Lang LaSalle*

Chris directs a nationwide federal real estate team representing the US General Services Administration (GSA) and testified about the GSA's National Broker Contracts before the US Congress in 2009. His work with Jones Lang LaSalle since 1998 has involved a variety of public-private partnerships. He has been recognized for his contributions, receiving the company's LaSalle Club and Top Gun awards in 2006, 2010, and 2011. He became a registered architect in 1995 and earned a BArch and an MArch from the Tulane University School of Architecture, where he studied vernacular housing in Guatemala and urban design in Italy. He earned an MBA from the University of Chicago Booth School of Business.

**Joseph Seliga**

*Partner  
Mayer Brown*

Joe practices in state and local government law with a focus on major infrastructure public-private partnership transactions. He has advised on the leases of the Chicago Skyway Toll Bridge and the Indiana Toll Road, which received the Project Finance North American Transport Deal of the Year Award, as well as many other projects in the United States and abroad. He was appointed to the Illinois Campaign Finance Reform Task Force and is a sponsor and mentor to students through Link Unlimited. He earned an AB from Georgetown University, an MA from the University of Leicester, and a JD from the Northwestern University School of Law. He was a Marshall Scholar at the University of Leicester and the University of Oxford.

**Noah Toly**

*Director of Urban Studies and Associate Professor of Politics and  
International Relations  
Wheaton College*

Noah leads the Urban Studies and Wheaton in Chicago programs of Wheaton College. He is the coauthor or coeditor of five books and has published numerous articles, chapters, and reviews on topics such as global cities, environmental issues, and religion. He is editor

of the Routledge series, *Cities and Global Governance*. He previously worked on energy and sustainable development issues with the University of Delaware and conducted field research in Costa Rica and Mexico. He is a member of the Council on Faith and International Affairs, the Urban Affairs Association, and the International Studies Association. He earned BA and MA degrees from Wheaton College and an MA and a PhD from the University of Delaware.

**Eric Weinheimer**

*President and Chief Executive Officer  
The Cara Program*

Since 1996 Eric has led The Cara Program, a nonprofit organization that provides comprehensive training, job placement, and support services to individuals who are homeless and struggling in poverty. The Cara Program has become a national model for the alleviation of poverty and has won numerous awards for managerial excellence, including the Alford-Axelson Award and the Goldman Sachs Capacity Building Award. Eric has shared The Cara Program's best practices and results with similar organizations in Europe and Africa. Eric earned a BS from Boston College and was recently awarded the Distinguished Alumni Award for Public Service from the University of Chicago Booth School of Business.

**James Wildman**

*Managing Director, Corporate Finance  
William Blair & Company, LLC*

Jamie is a partner in the corporate finance department at William Blair where he manages the firm's relationships with buyout and growth equity funds. Jamie joined William Blair's corporate finance department in 2004 from Bear Stearns and began his investment banking career in 1997 at Cowen & Company. Jamie is vice chairman of the board of directors of Bernie's Book Bank and is a member of the board of directors of the American Red Cross of Greater Chicago and the Gorton Community Center Foundation in Lake Forest, Illinois, where he serves as treasurer. He also serves on the Men's Golf Pro-Am Committee for the Ann & Robert H. Lurie Children's Memorial Hospital. Jamie received his BA cum laude from Vanderbilt University and his MBA with honors from the University of Chicago Graduate School of Business.

# Emerging Leaders Class of 2013

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CARE International

**Kaberi Banerjee Murthy**  
Crown Family Philanthropies

**John DeBlasio**  
GPD Charitable Trust

**Deb Fiddelke**  
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**Amy Francetic**  
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**Bridget Gainer**  
Cook County Board of Commissioners  
and Aon Corporation

**Christian P. Hagen**  
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**THE CHICAGO COUNCIL**  
**ON GLOBAL AFFAIRS**

332 South Michigan Avenue  
Suite 1100  
Chicago, Illinois 60604  
[thechicagocouncil.org](http://thechicagocouncil.org)

