INTEGRATING
FOOD
INTO URBAN
PLANNING

EDITED BY
YVES CABANNES &
CECILIA MAROCCHINO

UCLPRESS

FAO Food and Agriculture
Organization of the
United Nations

Integrating Food into Urban Planning

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**Food and Agriculture
Organization of the
United Nations**

Foreword

Food systems will play a central role in delivering the sustainable development agenda.

With the majority of people already living in urban areas – not only in large metropolitan areas, but also in secondary cities and small towns – a greater focus on urban planning as a way of influencing food systems development will be critically important.

Until recently, urban planners have paid little attention to food systems, emphasising 'traditional' urban priorities such as public transportation and decent housing. However, since the beginning of the current millennium, major national associations of urban planners have started to notice this scarce attention to food, which, ironically, was the magnet for creative city planning just a couple of centuries ago. National governments across the globe have now acknowledged, through the New Urban Agenda, the importance of local governments in achieving the 2030 Agenda, with food and good nutrition being a core element. Local governments, often with limited resources, have started to promote food system planning as an important entry point to ensuring improved well-being through availability of and access to proper nutrition for all city dwellers.

In 2018, we can safely say that significant momentum has gathered for a book that addresses, for the first time, how food systems thinking can be best incorporated into the planning of urban areas.

The Food and Agriculture Organization of the United Nations (FAO) has increasingly become a catalyst in multilateral governance mechanisms on urban sustainability and in helping sub-national governments to foster resilient and sustainable food systems. However, the growing demand for this assistance warrants more effective attention to what good food systems planning means. This requires a careful study of successful examples of urban and food systems design and planning, under different social, economic and environmental backgrounds. This is both to generate a clear understanding of the local situation and to provide a

sound basis for food system planning that pulls together urban planning and food system expertise. This book aims to provide a guide for the food system planner by bridging these two fields.

The book is the result of an extensive search to identify the best examples from across the world. A call for abstracts produced more than 200 submissions, which were carefully analysed by our editors. This publication presents examples from both developed and developing countries, with the objective of sharing essential knowledge about urban food planning which can be applied in different contexts and will withstand the test of time. The selected cases highlight that, although each urban and territorial scenario is unique when it comes to urban food planning, many of the challenges and potential solutions share similarities.

In its role as a knowledge broker, FAO relies on partnerships and alliances to deliver the best possible guidance on emerging global issues. For this reason, FAO teamed up with the Development Planning Unit of UCL and UCL Press, to publish these case studies on the innovations in food systems planning and on how to implement sustainable urban food planning.

Improved access to and utilisation of food is essential to current and future generations. With cities at the centre of our civilisation, it will become increasingly critical for food to be centrally reflected in the planning of urban areas. It is hoped that this publication will motivate city officials and their technical teams, urban planners and related professionals to view food as central to a truly systemic approach, and to contribute to the understanding of the different factors involved in the inclusion of food in all urban planning efforts.

<div align="right">

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Cecilia Marocchino is an urban planner with more than 10 years' experience in urban research and urban development planning in Africa, Latin America and the Middle East. Currently she works for FAO Headquarters in Rome as an urban food planning expert, involved in various projects and initiatives relating to food systems, food security and nutrition in urban areas in partnership with various stakeholders, including international city networks and local governments. She has previously worked in various cities around the world providing technical support to local governments on urban development planning and participatory multi-stakeholder engagement processes, urban agriculture, and formal and informal market and street vendors. Her expertise and main areas of professional interest are: (i) urban and territorial planning; (ii)

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Introduction
Food challenges faced by an urbanising world

Yves Cabannes and Cecilia Marocchino

While urbanisation worldwide sets up unprecedented challenges for feeding cities with accessible, affordable food and healthy diets, urban food security and food systems are receiving growing attention at an international level and in a growing number of cities of all sizes. However, the issue of food and urban planning is insufficiently covered in existing literature. How food is produced, processed, distributed, consumed, recovered and wasted and how local food systems complement rural agricultural production are issues that relate closely to urban planning, which can be either an opportunity to feed cities better or an obstacle to making food systems work sustainably. Although literature on this topic is limited, and there exist very few comprehensive planning textbooks that properly consider food planning and the integration of food systems, which may be part of formal and/or informal food systems, some cities and regions have made huge progress over recent years. However, their practices have not been made visible to a wide audience, and reflections on their limitations and successes deserve greater attention.

This book aims to address these gaps through a wide range of contributions written either by urban food practitioners or by scholars and researchers specialising in topics related to food system planning. These chapters are grounded in the reality of 20 cities and towns of quite different scales and sizes (see Table 0.1) and clearly indicate that innovations and critical reflections are emerging across the board, from small and medium-sized cities – according to international standards, of less than 500 000 inhabitants – such as Minneapolis or Providence in the US, up to megacities and metropolitan regions of well beyond 10 million inhabitants, such as Tokyo, New York and Hangzhou. Some of these experiences and this critical

Table 0.1 Population range of cities studied in this book

Number of inhabitants	Africa	Asia	Europe	Latin America	North America
Above 10 million		Tokyo [Japan]			
From 5 to 10 million		Hangzhou [China] Bangkok [Thailand]		Lima [Peru]	New York [USA] Toronto [Canada]
From 1 to 5 million	Cape Town [South Africa] Accra [Ghana]	Yogyakarta [Indonesia]	Milan [Italy]	Belo Horizonte [Brazil]	
From 500 000 to 1 million	Tamale [Ghana]	Surakarta / Solo [Indonesia]			Portland and Seattle [USA]
Below 500 000					Minneapolis Providence Dougherty and Chautaqua [USA]

Source: Authors.

research arises in regional capitals containing between one and five million inhabitants, such as Cape Town in South Africa, Yogyakarta in Indonesia, Milan in Italy and Belo Horizonte in Brazil. This selection of cities, of different size and dynamics, from all over the world – (see Figure 0.1) – substantiate some key lessons transcending local specificities or spaces. Some of them are mentioned in this introduction and expanded upon in the chapters. They, hopefully, bring insights applicable to the systemic food planning of tomorrow's cities.

This introduction highlights some food security and nutrition challenges faced by the twenty-first century's urbanising world which are crucial for professional and non-professional urban food planners engaging in food planning processes.

At least six major challenges can be identified and need to be taken into consideration by urban food planners:

- growing food insecurity, undernutrition and overnutrition;
- understanding what 'urban' means and its multiple dimensions in an urbanising world;
- urban poverty in an increasingly inequitable world;

- informal food sector and food street trading;
- challenges resulting from climate and environmental changes;
- access to secure urban land for food-related activities.

0.1. First challenge: growing urban food insecurity, undernutrition and overnutrition

In 2015 an estimated 54 per cent of the world's population resided in urban areas and the urban population is expected to increase to 6.3 billion by 2050, when 66 per cent of the world's population is projected to be urban (UNDESA 2014). The urban growth rate has been much faster in some regions than others and this is a challenge for planners in general and food planners in particular. Although urbanisation is clearly a global phenomenon, three areas in the world today are undergoing unprecedented urban revolutions, in terms of scale and rhythm, where cities are likely to eat up arable land at a prodigious rate and unprecedented challenges are arising for urban food security. The highest growth rate between 1995 and 2015 occurred in the least developed parts of the world; Africa is the most rapidly urbanising continent. Over the next 30 years, India will have to accommodate over 300 million new urban people and China is facing an urban revolution of about the same scale. It is therefore necessary to address urban food security not only as a global issue, but equally as a national and local one, bringing food planning issues of a quite different nature at each level. A complexity that this book addresses is precisely the changing nature of the effects of urbanisation in different locales.

0.1.1. Defining food security and indicating some of its limits

Before proceeding with the analysis of the integration of food into urban planning, we need to explore the limits of a commonly accepted definition of 'food security' used in this book: 'A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life' (Food and Agriculture Organization [FAO] 1996).

Based on this definition, four food security pillars can be identified: food availability, economic and physical access to food, food utilisation and stability over time (FAO 2008; FAO et al. 2014). A first observation is that the definition embraces both urban and rural situations and is not
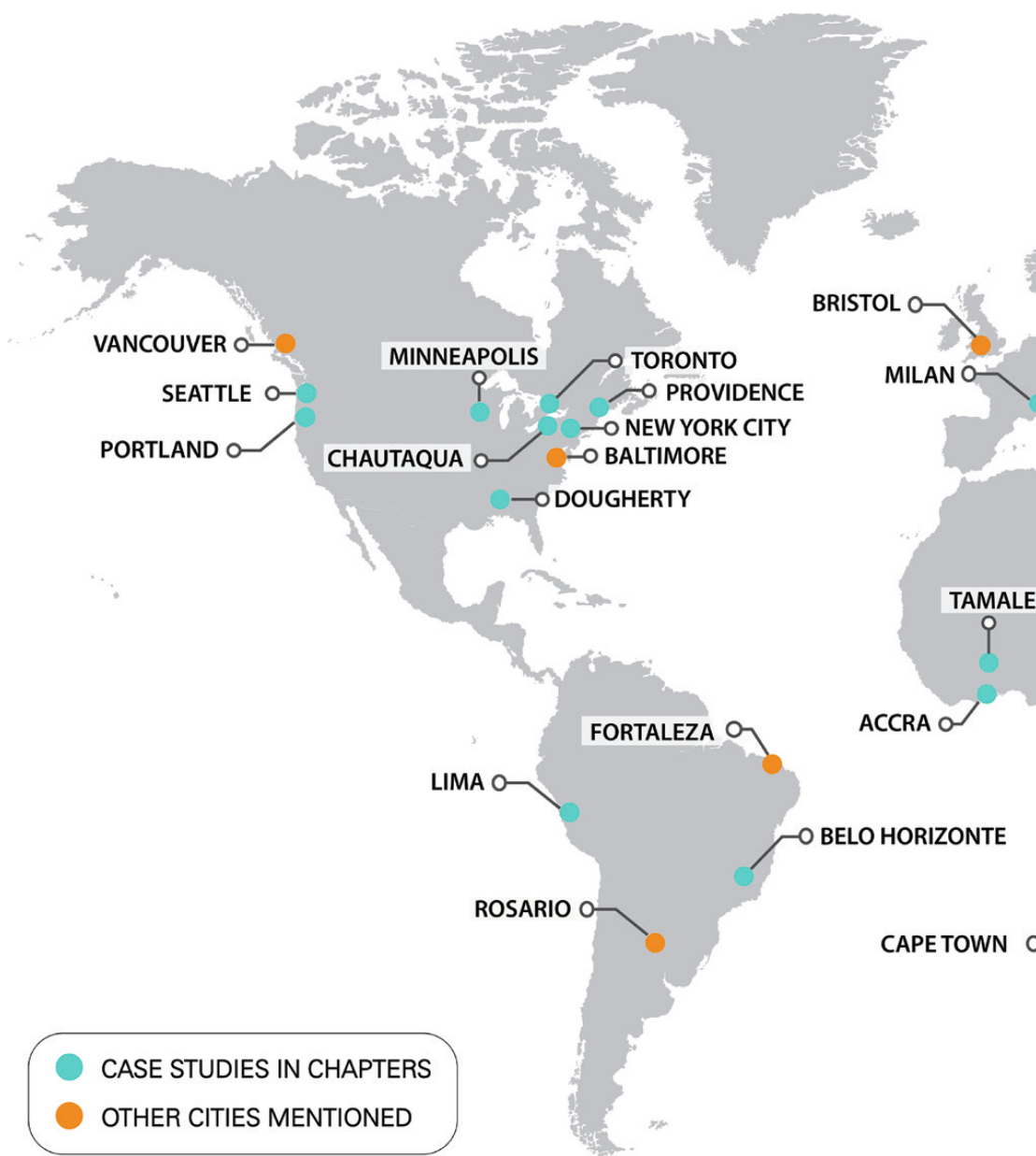
Figure 0.1 Location of cities referenced in this book

The map shows cities with two categories:
- CASE STUDIES IN CHAPTERS
- OTHER CITIES MENTIONED

City labels include: VANCOUVER, SEATTLE, PORTLAND, MINNEAPOLIS, CHAUTAQUA, TORONTO, PROVIDENCE, NEW YORK CITY, BALTIMORE, DOUGHERTY, BRISTOL, MILAN, TAMALE, ACCRA, FORTALEZA, BELO HORIZONTE, LIMA, ROSARIO, CAPE TOWN

TOKYO

HANGZHOU

BANGKOK

NAIROBI

SURAKARTA (SOLO)

YOGYAKARTA

specifically about urban food insecurity. A second observation is that the notion of food security, as part of the fulfilment of the right to food, is challenged by the notion of food sovereignty, an idea that largely originated from rural-based movements and food producers at the World Food Summit in 1996:

> Food Sovereignty is the right of peoples to define their own food and agriculture; to protect and regulate domestic agricultural production and trade in order to achieve sustainable development objectives; to determine the extent to which they want to be self-reliant; to restrict the dumping of products in their markets; and to provide local fisheries-based communities the priority in managing the use of and the rights to aquatic resources. (Via Campesina 1996)

A third observation is the recognition of food access as a key factor, bringing attention to inequality of access, resulting in greater policy focus on incomes, expenditure, market and prices and bringing food security closer to the poverty reduction agenda. The main limitation is that the spatial dimension of food access is not clearly highlighted. A fourth observation is that food security entails *access* to nutritious food, which is emerging as a major challenge in cities and a crucial issue for urban planners to take into consideration.

As expressed by authors such as Satterthwaite (2011), the issue of hunger in urban areas has long been neglected for various reasons. It seems that, despite a growing interest in food in cities of both the Global North and Global South (Battersby 2013), hunger and food security in urban areas of all kinds are still largely invisible and therefore their integration into planning remains overlooked. What we know is that the proportion of people who are food insecure is growing faster in cities than in rural areas and that hunger and malnutrition in urban areas are strongly related to the inequitable distribution of available resources (UN Habitat 2010).

Global figures on urban food insecurity remain scarce. However, a recent set of data at global level gathered by FAO gives a first approximation of the dramatic number of 'hungry voices' in different parts of the urban world. To sum up, 146 countries included in the study, as much as 19.8 per cent of the urban world population, are moderately food insecure, nearly one in five, whereas 7.3 per cent are considered severely food insecure. Moreover, 50 per cent of urban populations in the

least developed countries are food insecure, compared with 43 per cent in rural areas (World Bank Group and FAO 2017, 36).

Our point here is that food insecurity, and unfortunately severe food insecurity, is hitting nearly the same proportion of people in urban and rural areas, and in some regions the proportion is worse in urban areas. And this is new.

The vision of the cities as hubs of prosperity, wealth and development, compared with rural areas, is unfortunately not accurate when it comes to food insecurity. This is a challenge for developers and for planners.

Another myth that needs to be challenged is that hunger is essentially an issue of the least developed countries, landlocked countries or small developing island states. It is a problem in countries of these kinds, but, at the same time, food insecurity is present in Europe and North America, with similar proportions in rural and urban areas (nine per cent moderate food insecurity and 1.8 per cent severe food insecurity for Europe). In 2015, around 50 million urban Europeans were food insecure. In absolute terms, food security is predominantly an urban issue in developed regions and is becoming primarily an urban one in a growing number of urbanising developing countries as well.

Wealthy cities from the Global North have also failed to properly address food insecurity. In Chapter 16 of this book, Nevin Cohen points out that early efforts in food planning in New York City focused on reducing diet-related diseases. Of a population of approximately 8.5 million, about 1.36 million New Yorkers are food insecure and 1.8 million depend on federal Supplemental Nutrition Assistance Program (SNAP) benefits to buy food. Spatial planning is used to provide incentives for grocers to locate to neighbourhoods lacking access to fruit and vegetables and other nutritious food.

Some of the cities described in this book have been able to address these massive urban revolutions at scale and to significantly improve access to and the quality of fresh food for their population. This is the case for instance of Hangzhou in China, a metropolis of 9.19 million inhabitants in a metropolitan region of 21+ million (Chapter 12, this book). In less than ten years, through a relatively top-down planning process, with its own limitations, Hangzhou citizens are living within a 10–15 minutes' walk from one of the 177 renovated or newly built fresh food markets. Two mega-markets covering, respectively, 400 and 30 hectares are supplying the largest share of these fresh food markets. Forty per cent of the food comes from Hangzhou Metropolitan Area.

0.1.2. The challenge of malnutrition

Globally, one person in three is ill nourished and malnutrition embraces various lesser-known aspects – primarily undernutrition (underweight, stunting, wasting), micronutrient deficiencies and overweight and obesity – which affect all countries whether developed or developing. The different aspects of malnutrition coexist within countries, communities, households and individuals. Although income level affects overall consumer demand for food and consequently impacts upon the level of malnutrition, urbanisation is playing a key role in the 'nutrition transition', involving changes in lifestyle and dietary patterns. People in urban areas, where marketing has a stronger influence and supermarkets are more accessible, are expanding their food choices within the food environment, changing their diet in both positive and negative ways. In urban areas, diets are shifting towards increased consumption of food away from home (from street vendors, modern fast food chain, restaurants) with a large share of packaged and processed food often rich in salt, sugar and fat, leading to obesity and associated diet-related non-communicable diseases such as heart disease and diabetes.

In New York City, more than half of all adults are overweight or obese, and 20 per cent of kindergarten students are obese, with rates significantly higher among African Americans and Latinos than Whites (Chapter 16, this book). More recent studies have highlighted the fact that lower-income households are most exposed to calorie-dense, salty or sugary foods that are high in energy, but nutritionally compromised (Chapter 9, this book). In addition low-income households often have limited access to clean water, sufficient space for cooking and storage, and limited access to energy sources for cooking, refrigerating and heating food, which further compromise the quality of their diet. Urban low-income households experience the coexistence of overnutrition and undernutrition even within the same households:

> In households of urban slums in Nairobi, a study of 3335 children and their mothers showed that only 7.5% of the mothers were underweight, while 32% were overweight or obese. Moreover, 43% of the overweight mothers and 37% of the obese mothers, respectively, had stunted children. (World Health Organisation [WHO] and UN Habitat 2016)

Economic access to nutritious food is clearly not the only driver to promote nutrition, which is a more complex issue with multiple place-based challenges relating to the physical and sociocultural food environment. Access to fruit and vegetables, perishable food rich in nutrients is, for example, strongly linked to the efficiency of the food logistics systems. FAO (2011) estimates that losses and waste of fruit and vegetables can reach as much as 50 per cent, throughout the supply chain, from production to end consumption, causing an increase in cost for the final consumer and consequently limiting adequate access. Our argument here is that urban planning could have positive direct and indirect influences on the food environment and on access to nutritious food, impacting on consumers' choices and the quality of their diet. Geographical proximity to nutritious food, land use planning, zoning regulations, food infrastructure, regulations that favour food logistics efficiency in the last mile, and typology of food outlets are all part of the food environment; modifying them will have an impact on consumers' food choices.

0.2. Second challenge: understanding what 'urban' means in an urbanising world

Stating that our world is becoming predominantly urban, even if this is quite real, begs the question of what is actually meant by 'urban'. On the one hand, definitions of 'cities' and 'urban' vary greatly from one country to another, which makes generalisation quite difficult. On the other hand, an important aspect to be considered by food planners is in which categories of urban areas the growth is taking place.

In 2030, 40 per cent of the world population will live in rural areas and another 23 per cent in settlements with less than 300 000 inhabitants. It is estimated that 9.8 per cent will live in 'small' cities between 300 000 and one million people (*The Economist* 2015). The fastest-growing urban centres will be small and medium-sized cities with less than one million inhabitants, which account for 59 per cent of the world's urban population and 62 per cent of the urban population in Africa (UN Habitat 2016). According to FAO (2017), 85 per cent of the global population live in urban areas or within three hours' travel time from an urban centre with 50 000 people or more. Half of the world's population resides within or in proximity to small cities and towns, compared with 35 per cent living in or near

larger cities. In developing regions these shares go down to 49.5 and 32 per cent, respectively.

The fact that a larger share of the world population lives in or gravitates around medium-sized and small cities means that these latter are likely to play an important role in food demand. Even if small towns are spread over a territory, networks of small towns, taken as a whole, do play a crucial role within a food supply system. In East Africa, small cities are rapidly diversifying their economic base and generating strong linkage to rural areas. Latin America has seen explosive growth in towns that are economically linked to both their surrounding rural areas and to a larger urban agglomeration (FAO 2017).

Because of their hinterland and peri-urban areas, their livelihoods base or their availability of land, they can become food security hubs and net producers of food. Where food is concerned, they share relatively little with megalopolises or demographically decaying cities. A one-size-fits-all food planning approach does not work and this book presents experiences from around 20 different urban situations, reflecting their diversities and potentials and how food planning has addressed local and regional specificities.

0.3. Third challenge: urban poverty in an increasingly inequitable world, and its impact on urban affordability and accessibility

Multiple evidence suggests that food accessibility in urban low-income areas is strongly connected to employment instability and the low cash income of the urban poor. A large majority rely on informal sector activities and casual labour, which provide only low and irregular earnings. Food security and nutrition in urban areas are therefore deeply connected to urban poverty and slum[1] prevalence in urban areas. In slum areas people live in congested and overcrowded situations, with insufficient space for cooking and storage. Small living spaces with no or small kitchens and expensive cooking fuel costs also influence household diets, with the result that households rely heavily on ready-made or fast food. High reliance on street foods has health implications when vendors are poorly regulated in terms of food safety and hygiene. Additionally, poor water, sanitation and health conditions result in poor food utilisation (Mohiddin et al. 2012; Tacoli and Vorley 2015; Kimani-Murage et al. 2014).

People spend a quite different share of their income on food according to whether they are rich or poor and live in the Global North or Global

South. In the US, for instance, urban households spent between 10 and 40 per cent of their income on food, depending on their economic status (Pothukuchi and Kaufman 1999). In developing countries, the share that poor people spend on food is much higher and has a direct effect on the affordability and accessibility of nutritious food: 85 per cent in Dar es Salaam and 60 per cent in Bangkok and Kinshasa (Redwood 2009). In analysis of the food expenditure share, a clear pattern emerges that follows Engel's law:[2] evidence demonstrates that, in comparison with poorer households, wealthier households spend a much smaller proportion of their household's budget on food. For instance, the food expenditure share in Port au Prince is 58 per cent for the poorest segments of the population, but 33 per cent for the wealthiest (World Food Programme [WFP] Global Food Security Cluster 2016).

More recent and extremely detailed research undertaken by the poor themselves and coordinated by the Asian Coalition for Housing Rights (ACHR) (Boonyabancha and Kerr 2015) in four different Asian countries points up important elements of food planning. It gives the share of monthly monetary expenses that urban poor and very poor people spend monthly on food and drinking water: Nepal 43.5 per cent; Thailand 50.3 per cent; Sri Lanka 51.9 per cent; the Philippines 43.5 per cent (the very poor).[3]

A huge challenge for urban and regional planners is to integrate food into urban planning not only to make food affordable for cities as a whole, but to propose solutions that will improve access to nutritious food for the poor and the very poor. The challenge is much more serious in poor countries, and even more so for the poor and the very poor. From the perspective of economic planning, and taking the four countries analysed by ACHR and the grassroots, food emerges as the main economic driver in low-income neighbourhoods. The conventional idea that housing, basic services and neighbourhood improvement are the urban economic development engine is therefore seriously challenged by facts and figures. A very poor urban household of four people spends immensely more on food and drinking water than for housing: five times more in Nepal, 15.4 times more in Sri Lanka, 8.2 times more in the Philippines and 20.5 times more in Thailand. Figures are of the same range when considering the poor and not the very poor.

Our central argument in this section, and perhaps for the book, is that urban development planners are one of the pillars of the systemic food planning approach developed in this book. Urban planners need to take the above-mentioned data (relating to food as an urban economic development engine) as a major finding for planning equitable cities in the future, grounded in cities' actual monetary dynamics.

0.4. Fourth challenge: informal food sector and food street trading

Informal food systems embrace a variety of activities: food produced or prepared/processed at home and sold in the street or market; food prepared in outdoor public spaces; fresh and processed food sold by mobile street vendors (see Figure 0.2); food sourced from wholesalers and sold at different locations; food transferred from family members based in rural areas or shared through neighbourhoods (World Bank Group and FAO 2017, 36) and food remittances;[4] even food scavenged from garbage dumps. The stakeholders involved are quite often the most vulnerable, primarily women, refugees and displaced populations, since informal food systems require little start-up capital and no formal education. (World Bank Group and FAO 2017; FAO 2016). According to a study of street vendors in 10 cities in developing countries,[5] vulnerability is more prevalent among fruit and vegetable vendors than among vendors of other goods and services (Roever 2014).

Even if the available information on informal food systems remains limited, various studies (International Institute for Environment and Development [IIED] 2016) highlight the clear contribution of informal food systems to the urban economy, to the preservation of the food culture and to urban food security, particularly for low-income households.

Figure 0.2   Street market in Amman, Jordan. (*Source*: Yves Cabannes)

In Cape Town (see Chapter 9, this book), despite the supermarkets' expansion even in low-income areas, poor households continue to buy their food from informal sector outlets that are more responsive to their needs in terms of opening times, unit size and opportunities to buy on credit. Despite their pivotal role, informal food vendors in developing countries are quite often victims of abuse by the authorities, including police harassment and arbitrary confiscation of merchandise, or restrictions relating to licences and fees. They also have limited access to public space, infrastructure and services. This lack of recognition of the informal sector as part of the urban food economy helps to make it invisible in official statistics. Integrating informal food systems into urban planning means going beyond simple regulation, a few food safety interventions or the assigning of public spaces for production or trade. It means understanding the roots of informality as quite often reflecting a weak institutional environment that generates barriers with complicated registration and licence mechanisms or unaffordable taxation. Effective mechanisms, and planning should be one of them, are needed to support the informal sector, which quite often generates wealth and jobs and contributes to alleviating poverty and increasing food security. A central argument in this book is that food systems planning should include both formal and informal food systems stakeholders, recognising both of them as crucial resources for understanding the local food environment and addressing food security and nutrition with place-based solutions.

0.5. Fifth challenge: the challenge of climate and environmental changes

The multiple effects of climate change, including the growing number of shocks and extreme weather events such as floods, droughts and storms, impact on urban areas and affect primarily the urban poor, the places they live and their physical and economic access to food. Greenhouse gas emissions (GHG) originating from the whole food cycle range between 19 and 29 per cent of the total (Vermeulen et al. 2012) and therefore food systems could play a crucial role in bringing down GHG. The land used for food, the way food is distributed and consumed and the management of food waste are important elements in decreasing GHG and climate change adaptation.

A crucial challenge is how urban and regional planners will integrate climate and environmental constraints in food systems planning and integrate food-related issues in cities' climate action plans. Current experience and emerging research highlight a number of elements important for planners to consider: better integration in spatial planning of urban agriculture, nutritious food outlets and farmers' markets; short supply chains, which means localising food production in and around cities in order to reduce the environmental impacts of food transport (see Figure 0.3) and waste, reduce water footprint and increase opportunities for poor households to access nutritious food; sustainable post-harvest logistics and improvement of food distribution mechanisms; promotion of the circular economy as an alternative model in which food waste is significantly reduced through composting, redistribution and recovery. A clear task for planners includes working with those most at risk from various shocks and extreme weather events and facilitating planning partnerships between local stakeholders and local government. Food councils or related mechanisms, as developed in this book, provide opportunity to engage communities and different actors and support changes on the ground.

Figure 0.3   North Road between Cap Haitian and Ounaminthe, Haiti. Improvement of roads and local transport systems is an integral part of city region food systems planning from the perspective of improving nutritious food security. (*Source*: Yves Cabannes)

0.6 Sixth challenge: access to secure urban and peri-urban land for food-related activities

The challenges relating to climate change, only briefly mentioned here, are probably, together with the challenge of accessing urban and peri-urban land for food-related activities, the most difficult and uncertain ones to address. On the one hand, expanding cities are eating up their arable land and drinking up scarce water resources that have significantly contributed for centuries to feeding urban populations immensely smaller in numbers. On the other hand, the data on land grabbing of arable or pastoral land are alarming (Rulli et al. 2013; Bren d'Amour et al. 2017) and entire rural and peri-urban territories are converting to industrial farming for food export goods. As a result, rural migration continues, turning rural farmers into food-dependent urbanites without land on which to cultivate crops, raise animals or transform locally produced food.

Food planners have a strategic role to play in preserving agricultural land in and around cities, and expanding and securing areas that will provide multiple spaces for an effective food supply chain and hybrid food systems to blossom. In doing so, they can help to increase food security for all and open the way to urban food sovereignty. There are signs of hope in this book, since some quite positive solutions are presented that demonstrate that urban land challenges can be successfully addressed in multiple ways. Some city-based experiences allow us to foresee a future in which economic growth, protection of the environment, the promotion of healthy living spaces and demographic increase can go hand in hand with the preservation and even the expansion of cultivated land and non-agricultural natural spaces, in line with adaptation to climate change. Food systems planners have a role to play in making this alternative equation possible, from the perspective of social and spatial justice in an urbanising world.

Notes

1. UN Habitat defines 'slum' as a contiguous settlement that lacks one or more of the following five conditions: access to clean water, access to good sanitation, sufficient living space that is not overcrowded, durable housing and secure tenure.
2. Engel's law is an observation in economics stating that as income rises, the proportion of income spent on food falls, even if actual expenditure on food rises. In other words, the income elasticity of demand for food is between 0 and 1. The law was named after the statistician Ernst Engel (1821–96).
3. Source of primary data: Boonyabancha and Kerr (2015). Processing of data: Cabannes (2015).

4. 'Remittances include both cash and in-kind goods flow, including food. Data, knowledge, policy dialogue on food remittances are quite limited. The studies undertaken in Zimbabwe and Namibia highlighted clearly the role that food remittances play on urban food security and nutrition. Food remittances foster urban–rural links and are fundamental to the ability of the poor urban households to survive' (Crush and Caeser 2017, 8). 'Food Remittances: rural-urban linkages and food security in Africa'. IIED. 2017:8. Accessed 25 February 2018 http://pubs.iied.org/pdfs/10793IIED.pdf).

5. The Informal Economy Monitoring Study (IEMS) was undertaken initially at two points in time, 2012 and 2016, in 10 cities around the world: Accra, Ghana; Ahmedabad, India; Bangkok, Thailand; Belo Horizonte, Brazil; Bogota, Colombia; Durban, South Africa; Lahore, Pakistan; Lima, Peru; Nakuru, Kenya; and Pune, India. The study combines qualitative and quantitative research methods to provide an in-depth understanding of how three groups of urban informal workers – home-based workers, street vendors and waste pickers – are affected by and respond to economic trends, urban policies and practices, value chain dynamics, and other economic and social forces (Roever 2014).

References

Battersby, J. 2013. 'Hungry Cities: A Critical Review of Urban Food Security Research in Sub-Saharan African Cities', *Geography Compass* 7(7): 452–63.

Boonyabancha, S. and Kerr, T. 2015. 'How Urban Poor Community Leaders Define and Measure Poverty', *Environment and Urbanization* 27(2): 1–21.

Bren d'Amour, C., Reitsma, F., Baiocchi, G., Barthel, S., Güneralp, B., Erb, K.H., Haberl, H., Creutzig, F. and Seto, K.C. 2017. 'Future Urban Land Expansion and Implications for Global Croplands', *Proceedings of the National Academy of Science* 114(34): 8939–44. Accessed February 2018. http://www.pnas.org/content/pnas/114/34/8939.full.pdf

Crush, J. and Caeser, M. 2017. 'Food Remittances: Rural–Urban Linkages and Food Security in Africa', IIED. Accessed 25 February 2018. http://pubs.iied.org/pdfs/10793IIED.pdf

The Economist. 2015. 'Bright Lights, Big Cities: Urbanization and the Rise of the Megacity', 4 February 2015. http://www.economist.com/node/21642053

FAO. 1996. *Report of the World Food Summit 13–17 November*. Rome.

FAO. 2008. *Food Security Information for Action*. Rome.

FAO. 2011. *Global Food Losses and Food Waste: Extent, Causes and Prevention*. Rome.

FAO. 2016. *Street Food in Urban Ghana. A Desktop Review and Analysis of Findings and Recommendations from Existing Literature*. Rome.

FAO 2017. *The State of Food and Agriculture SOFA. Leveraging Food Systems for Inclusive Rural Transformation*. Rome.

FAO, IFAD and WFP. 2014. *The State of Food Insecurity in the World 2014. Strengthening the Enabling Environment for Food Security and Nutrition*. Rome: FAO.

Habitat III. 2015. *Issue Papers 10. Urban Rural Linkage*. New York.

IIED. 2016. 'Informal Food Systems and Food Security in Rural and Urban East Africa'. Accessed 15 February 2018. http://pubs.iied.org/pdfs/17336IIED.pdf

Kimani-Murage, E.W., Schofield, L., Wekesah, F., Mberu, B., Etthar, R., Egondi, T., Kyobutungy, C. and Ezeh, A. 2014. 'Vulnerability to Food Insecurity in Urban Slums: Experiences from Nairobi, Kenya', *Journal of Urban Health: Bulletin of the New York Academy of Medicine*. Accessed 31 January 2018. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4242851/

Mohiddin, L., Phelps, L. and Walters, T. 2012, 'Urban Malnutrition: A Review of Food Security and Nutrition among the Urban Poor', report commissioned from Save the Children UK to Nutrition Works, International Public Nutrition Resource Group. Accessed 31 January 2018. http://www.securenutrition.org/sites/default/files/resources/attachment/english/nutrition-works_2012_urban-malnutrition.pdf

Pothukuchi, K. and Kaufman, J. 1999. 'Placing the Food System on the Urban Agenda: The Role of Municipal Institutions in Food Systems Planning', *Agriculture and Human Values*, 16(2): 213–24.

Redwood, M. 2009. *Agriculture in Urban Planning: Generating Livelihoods and Food Security*. Ottawa: IDRC.

Roever, Sally. 2014. *Informal Economy Monitoring Study Sector Report: Street Vendors*. Cambridge, MA: WIEGO Women in Informal Employment Globalizing and Organizing.

Rulli, M.C., Antonio Saviori, A. and D'Odorico, P. 2013. 'Global Land and Water Grabbing', *Proceedings of the National Academy of Science* 110 (3):892–7. Accessed 15 February 2018. https://doi.org/10.1073/pnas.1213163110

Satterthwaite, D. 2011. 'Why Are the Main Means by Which Urban Dwellers Avoid Hunger Ignored?', IIED. Accessed 26 September 2016. http://www.iied.org/why-are-main-means-which-urban-dwellers-avoid-hunger-ignored

Tacoli, C. and Vorley, B. 2015. *Reframing the Debate on Urbanization, Rural Transformation and Food Security*. London: IIED.

UNDESA. 2014. *World Urbanization Prospects: The 2014 Revision, Highlights*. New York.

UN Habitat. 2010. *State of the World Cities 2010/2011. Bridging the Urban Divide*. London: UN Habitat and Earthscan.

UN Habitat, 2016. *Urbanization and Development: Emerging Features. World Cities Report 2016*. Nairobi.

Vermeulen, S.J., Campbell, B.J. and Ingram, J.S.I. 2012. 'Climate Change and Food Systems', *Annual Review of Environment and Resources* 37(1): 195–222.

Via Campesina. 1996. 'Definition of Food Sovereignty'. Accessed 31 January 2018. http://www.corrientesaldia.info/99842/Que-es-la-Soberania-Alimentaria

WFP Global Food Security Cluster. 2016. *Adapting to an Urban World. Urban Case Study: Port au Prince*. Rome.

WHO and UN Habitat. 2016. 'Global Report on Urban Health. Equitable, Healthier Cities for Sustainable Development'. Accessed 31 January 2018. http://www.who.int/kobe_centre/measuring/urban-global-report/ugr_full_report.pdf

World Bank Group and FAO. 2017. *Food Systems for an Urbanizing World*. Washington: World Bank.

1
Food and urban planning
The missing link

Yves Cabannes and Cecilia Marocchino

Section 1 of this chapter explores the links between food and urban planning, which have gradually developed from a situation in which food and urban planning were foreign to each other, to the promising moment of mutual exploration and operational links to which the chapters of this book testify. Section 2 is more conceptual and examines the very notion of urban food system planning, encompassing the various trends and dynamics that are emerging in the cities analysed here and beyond. Section 3 focuses on lessons learned about how food is being integrated into urban planning. Special emphasis is given to the innovative tools and instruments that have been designed, tested and analysed in the selected cities. The last section highlights an agenda for emerging research and policy issues.

This chapter is primarily informed by the narratives included in this book, along with an extensive review of other experiences around the world and a comprehensive literature review covering food, planning food and urban food planning. Special attention was given to the abundant grey literature and evaluation reports from projects such as Cities Feeding People and others implemented by the International Foundation for Urban Agriculture and Food Security (RUAF) and contained in their database.[1] The debates, publications and information exchanged within the food for cities network[2] and in the recently created Urban Food Action Platform[3] under the auspices of FAO generated a great deal of imagination and cutting-edge ideas. Content analysis of various food strategies and plans, over 150 selected international declarations and more than 30 food charters relating to urban and food issues covering the last 40 years brought substantive understanding of the evolution of the links between food and urban planning.

1.1. Links and bridges between food and urban planning

This section discusses the evolution of the links between food and urban planning and explores also the extent to which international declarations and agendas have been slowly establishing links between them.

Urban planning literature still largely ignores food issues, although they received some attention at the turn of the twentieth century from planners and architects linked to the Garden City movement (Howard 1902), which aimed at generating an alternative to the overcrowded and industrial city. The Garden Cities, at least the earliest ones, addressed key elements of the food system, including production, distribution, consumption and waste recycling, as an integral part of the city (Cabannes and Ross 2017; Pothukuchi and Kaufman 2000).

In general, if we exclude the Garden City movement, food remained 'a stranger to the field of urban planning' (Pothukuchi and Kaufman 2000: 113) until the early 2000s, when the first studies started in the US to understand why food was not part of urban planning. A survey of 22 US planning agencies in 1997 and 1998 concluded that the perceived urban–rural divide was a central reason: food and agriculture were considered a rural topic; 'our city is in an agricultural area, but the city doesn't deal with agriculture or farming issues' (Pothukuchi and Kaufman 2000: 116). Some years later, Sonnino (2009: 428) reached a similar conclusion: 'the existent urban–rural divide has misled planners and policy-makers into looking at urban food supply failure as farm failure, rather than as a failure in distribution'. That implies a malfunctioning in the food systems across the rural–urban continuum.

The prevailing sectoral planning and decision-making approach, and its lack of a holistic perspective, seems another reason explaining why 'food has been a stranger' to urban planning. Moreover, in most cities of the Global South, master planning has failed to take into account the challenges of food insecurity (UN Habitat 2009). So there is a general disjunction between the prevailing urban planning system, contemporary cities and the needs of their urban residents, including their needs for nutritious food.

That being said, some cities and regions, primarily in the Global North, have made progress over recent years in understanding the benefits of better integration and in starting to build bridges between food and planning. Conclusions from a national survey of planning practitioners in the US in 2014 indicate that 'food is no longer a stranger to planning practice': local governments are starting to view food systems as a top

priority and to be involved in food system planning, incorporating food in their planning agenda prioritising comprehensive plans, zoning and other regulatory forms instead of financial investment or physical infrastructure (Chapter 6, this book).

Some of these experiences are discussed in the book, but these are far from giving a complete picture of the wide array of policy and planning documents that have been produced and put into practice. Here are a few of them: (a) food strategies/policies including planning elements, such as London Food Strategy in 2006, Proeftuin Amsterdam in 2007, Seattle Food Action Plan, Melbourne Food Policy in 2012, Vancouver Food Strategy in 2013 (City of Vancouver 2013), a good food plan for Bristol in 2013, Sustainable Providence Food Plan 2014, Toronto Food Strategy 2015 and Gent and Gard Food Policy 2016; (b) comprehensive urban plans with food components, such as Portland Plan in 2012, Toronto Official Plan in 2015 and City of Burlington Municipal Development Plan 2014; (c) thematic food sections in long-term sustainability plans and in sectoral development plans, such as Baltimore Sustainability Plan in 2009 and 2015, Greenest City Action Plan Vancouver 2020, Healthy City Strategy Vancouver 2014–2025, Transportation 2040 Plan Vancouver, Plan NYC 2030 and Chicago Go to 2040 Comprehensive Regional Plan (Ilieva 2016).

However, in most cases this integration is limited to particular sub-sectors of the food system, such as urban agriculture, which provide an easy entry point, in the cities of both the Global North and South, whereas integrated food planning interventions are quite limited (Chapters 6 and 9, this book). In short, although food is beginning to be integrated into planning in various cities and regions, local practices have not yet been made visible to a wider audience and, just as importantly, reflections on their limits and successes remain scarce.

1.1.1. Review of international agenda and declarations over the last 40 years

There are still no global or regional legal instruments such as covenants or declarations that deal specifically with the relations between food and urban planning. However, when we look back to the first summit on Cities and Human Settlements which took place in Vancouver in 1976, we see that these two worlds have been slowly getting closer in international declarations, and have generated a somewhat better local environment for the integration of food into urban planning. Three periods can be identified.

During most of the 1980s and 1990s food and urban agendas were developed separately, largely ignoring each other. On the one hand, the human right to food was fully established as early as 1966, but it was only in 1996 that the urban dimension of food security for all, including urban dwellers, became a central part of the landmark Rome Declaration on World Food Security, which encouraged for the first time 'urban agriculture … where appropriate' (World Food Summit, 1996).

The Istanbul Declaration on Human Settlements made during the Second United Nations Summit on Cities in 1996 did not refer to food. The Habitat Agenda, endorsed by governments during the same summit simply mentioned food security, access to food, and nutrition, without any explicit commitments.

A second period opened up in the early 2000s, spearheaded by local governments in a context of decentralisation and under the pressure of a more organised civil society. The Quito Declaration for Latin American and Caribbean Cities (2000) remains a milestone among international declarations bridging food with urban: it referred directly to urban agriculture and encouraged local governments to be strongly committed to developing it. It clearly pointed out the need to include urban agriculture in territorial planning and environmental protection (Cabannes 2012). It was followed throughout the 2000s by a string of city-based declarations such as the Nyanga one on Urban and Peri-urban Agriculture (2002) and one signed in Harare in 2003. A long list is provided in Appendix 1 and analysis of them strongly indicates that over the years these declarations integrated new and each time richer aspects of urban food security that would eventually better integrate food into planning. An illustration is the Malabo declaration, signed in 2014, that raises the importance of local food systems 'encouraging and facilitating increased consumption of locally produced food items, including the promotion of innovative school feeding programs that use food items sourced from the local farming community' (African Union 2014, Malabo Declaration: 4).

Since the beginning of 2010s, the integration of food, food security, food systems and new food planning approaches, such as city region food systems (CRFS), into declarations referring to the future of cities has advanced in both quality and quantity. These declarations do not come solely from international organisations such as the United Nations, but also from local and regional governments, international city networks such as ICLEI, and alliances of mayors, and as in the past from local and regional governments.

The Bonn Declaration of Mayors signed in 2013 highlighted the importance of the newly coined concept of city region food systems to

achieving food security in cities: 'We invite local governments to develop and implement a holistic ecosystems-based approach for developing city region food systems that ensure food security' (ICLEI, 2013). The Windhoek Declaration of Mayors of Namibian Cities (2014) and the Seoul Declaration (ICLEI, 2015) are other examples of the internationalisation of the message about the need to more effectively consider food and food planning in cities.

The year 2015 and the formulation and subsequent signing of the Milan Urban Food Policy Pact by 120 cities will remain a landmark in the closing of the gap between food and city. The pact proposes a set of measures that cities should take to increase the food security of their citizens, starting with policies and planning: 'since food policies are closely related to many other urban challenges and policies, such as poverty, health etc. It is essential to adopt an approach that is comprehensive, interdisciplinary and inter-institutional'.

Another important dimension of the pact is that it connects with a rights-based approach that had been promoted primarily by food-related organisations and not so much by cities or urban actors: 'provide healthy and affordable food to all people in a human rights-based framework, that minimise waste and conserve biodiversity while adapting to and mitigating impacts of climate change' (Milan Urban Food Policy Pact, 2015).

Another major milestone at the international level in reducing the gap between food and urban planning was achieved in October 2016 when the New Urban Agenda (NUA) adopted in Quito at the Habitat III Summit posited food security and nutrition as an integral part of the Declaration on Sustainable Cities and Human Settlements. Promotion of urban planning and design instruments that strengthen food system planning, promotion of public spaces to improve food security and nutrition, and food security in urban deltas, coastal areas and other environmentally sensitive areas are also topics included in NUA.

One limitation of the NUA as far as food is concerned is the lack of an explicit reference to the right to food, which along with the rights to housing, adequate water and sanitation, and decent employment, among others, is crucial to living with dignity (FAO, Habitat III 2016). In addition, the NUA lacks strategies to address the shrinking of arable land and the evictions of urban farmers which result from the expansion of cities.

In summary, food is less a 'stranger to urban planning' than 40 or 20 years ago: local practices are mushrooming and some presented here testify to these developments. At the same time, international declarations and agendas are highlighting the need for better integration. The coming years will be a time of opportunity to make food an integral part of urban

planning at different scales, from neighbourhood to city regions. One challenge now is to turn the good intentions enshrined in declarations into practice, and at the same time to shift scale from experimental or small scale to full city scale and to disseminate planning practice in cities and in professional practices. This remains a precondition to addressing the huge challenges mentioned in the introduction.

1.2. From food systems to multi-scalar food system planning

This section debates various definitions of *food systems* and then explores conceptual approaches to *food systems planning*. It proposes an operational definition of multi-scalar food system planning which encompasses the existing notion of city region. It is informed by the different chapters' conceptual approaches, existing definitions contained in international declarations, and current literature.

1.2.1. Exploring food systems

One widespread definition of food systems was proposed by FAO (2013):

> Food systems encompass the entire range of activities involved in the production, processing, marketing, consumption and disposal of goods that originate from agriculture, forestry or fisheries, including the inputs needed and the outputs generated at each of these steps. Food systems also involve the people and institutions that initiate or inhibit change in the systems as well as the socio-political, economic and technological environment in which these activities take place.

One virtue of the definition is that it specifies the various steps of food value chains and embraces not only agriculture but also forestry and fisheries (see Figure 1.1). A second aspect is that food systems are about 'people and institutions' and therefore, in planning food systems, the need to initiate processes that involve people and institutions can be underlined. A third interesting aspect is that the definition places food systems within a larger 'socio-political, economic and technological environment'. These three considerations make clear that food systems are complex. One of its limitations is the lack of differentiation between urban and rural food systems and the connections between them. It

Figure 1.1 Drying of local fish, Djakarta, Indonesia. A good example of a short food circuit. Local fish are sun dried and provide affordable protein to part of the population of one of the largest metropolises in the world. (*Source*: Yves Cabannes)

also lacks the spatial and multi-scalar dimensions that are crucial to the planning of food systems.

The notion of food systems is gradually being integrated and used by cities and local government, mainly in the Global North, and some food strategies and food charters, which will be discussed below, explicitly make reference to them – as in the case of Hamilton, Ontario, a city of 500 000+ inhabitants: 'A food system is the complex set of activities and relationships in the food cycle: growing, producing, processing, distributing, marketing, retailing, storing, preparing, consuming and disposing' (City of Hamilton 2014). This definition again highlights the different steps of the food cycle that lie at the core of the system, echoing the FAO definition.

Academic efforts to move to more conceptual approaches are interesting, since they illuminate the links with environmental and social dimensions and a more metabolism-based focus, insisting on feedback mechanisms: 'Food systems are social–ecological systems, formed of biophysical and social factors linked through feedback mechanisms' (Tendall et al. 2015). They comprise, at a minimum, and as similarly expressed in the previous definitions, activities in the food cycle: food production, processing and packaging, distribution and retail, and consumption (Ericksen 2008). 'These activities encompass social, economic, political,

institutional and environmental processes and dimensions, referred to as scales. The processes play out at different levels, that is, at different positions on a scale' (Tendall et al. 2015). Again all these contributions underestimate the spatial and territorial dimensions that are essential to make them possible.

1.2.2. Food systems and city region food systems

The literature review of CRFS by Blay-Palmer and colleagues (2015) is the first systematic effort to examine various angles of the notion and to bring an explicit food planning approach. The review identifies 'food planning' as one of the four most important approaches to understanding the CRFS concept through the existing literature. Of prime interest to conceptualising urban food systems planning is the review's conclusion that 'This approach is driven more by policy priorities, in particular planning, with a view to a healthier and increasingly sustainable development' (Blay-Palmer et al. 2015). Several of the contributions in this book, primarily those from North America (see Cohen's chapter on New York, Baker's on Toronto and Raja et al.'s assessment on the US) do coincide with the healthier city edge of food system planning. The connection between food and health is considered key in various contexts that recognise the crucial role of food systems planners in promoting long-term measures to address obesity, such as a viable urban environment for walking, running and cycling together with public spaces where nutritious food is readily accessible (Morgan 2009). The healthier city edge of food systems planning coincides as well with the perspective of other food system planning city champions, such as Vancouver, which connects its food systems strategy to 'nutritional well being' (City of Vancouver, 2007).

Books and journal articles on urban food systems planning are few and far between. They focus mostly on urban architecture and design for urban agricultural production, which are important things to consider in planning (Gorgolewski et al. 2011), or particular components of urban agricultural systems in the Global North (Hanson and Marty 2012; Rich, 2012).

The present book intends to complement, through city-based narratives from the Global North and Global South, various recent books on the planning field, all of them largely focused on urban agriculture. *Integrated Urban Agriculture*, edited by Robert France (2016), focuses primarily on urban food production in Global North contexts. *Cities and Agriculture: Developing Resilient Urban Food Systems*, edited by Henk

de Zeeuw and Pay Drechsel (2015), offers an up-to-date contribution to understanding the role local agriculture plays in feeding cities, but does not focus on urban planning per se. Its opening chapter shows how urban food policies and programs around the world have catered to various development objectives. *Food and the City: Histories of Culture and Cultivation*, edited by Dorothée Imbert (2015), is mainly concerned with historical perspectives of built-environment disciplines (urban designers, planners, landscape architects) on food activities in the city. The book concentrates mostly on Global North experiences. Its chapter on 'Urban Agriculture in Cities of Global South: Logics for Integration' complements our book, since it interrogates how formal planning may take account of the following logics over time: land rent, value adding, multiple functions of particular sites and resource circulation among different agricultural land uses and between these and other non-agricultural land uses.

1.2.3. The spatial dimension of food systems

The territorial dimension of food systems has gradually been allowed to reconceptualise the notions of urban, peri-urban and rural, and to reconceptualise urban–rural linkages and the role they play in food systems (Tacoli 1998; 2006; Sonnino 2014; Dubbeling et al. 2016).

Wiskerke (2015), in introducing the notion of *hybrid food systems*, brings an original spatial angle to the concept: 'an urban food system encompasses the different modes of urban food provisioning, in other words, the different ways in which locations where food eaten in cities is produced, processed, distributed and sold'. Here the notion of food cycle is considered again, but stressing the locations where each step of the cycle is taking place. Quite rightly he underlines that 'the food provisioning system in any city, whether small or large … is always a hybrid food system, i.e combining different modes of food provisioning'. Some cities may be largely fed by their immediate hinterland or region, with little dependency on imports, whereas others are essentially fed through food-provisioning systems located in remote countries. Chapters in the book provide clear illustrations of the city region and local–global nature of urban food systems. The narrative on Tsukiji (Tokyo) Fish Market (Chapter 8, this book), which offers around 2000 species of seafood and fish caught or farmed in multiple countries and is deeply connected to local food systems and neighbourhoods' life and culture, constitutes an excellent illustration of the hybridity of food systems. One remaining challenge for food planners is how to address this hybridity of food systems.

In the context of hybrid food systems, the capture of peri-urban agricultural production by the demand of larger, richer markets in larger cities of the same country (for example, from Cuenca to Guayaquil in Ecuador), or for export to other countries (for instance, broiler poultry from peri-urban farms in Vietnam to space-scarce Singapore), is becoming a serious issue. A strong tension exists between the export-oriented corporate food distribution sector and local food production supplying local markets. Therefore hybrid food systems can help us to understand how global–local food systems can work without having adverse impacts on the small-scale local production sector. In many cities, large corporations dominate lower-income urban markets by offering cheaper products that are negatively affecting local food production and distribution. At the same time, in larger cities with growing middle-class markets, local producers are developing niche markets for higher-value products and may even supply specialities to corporate outlets. Whether or not food systems planning involving local governments, civil society and the local formal and informal private sector will be able to address in a significant way these tensions between export and import food corporations and local food systems supplying local people remains an open question that needs to be put in a wider political context.

The FAO invitation, in referring to CRFS, is to move 'beyond city limits' and therefore brings a clear focus upon the spatial dimension. This is essential if urban and regional planners are to be able to develop an 'approach that aims to foster the development of resilient and sustainable food systems within urban centres, peri-urban and rural areas surrounding cities by strengthening rural–urban linkages'.[4] Throughout the food chain, an ideal CRFS fosters four interconnected elements: (1) food security and nutrition; (2) livelihoods and economic development; (3) sustainable natural resources management; (4) social inclusion and equity (FAO and RUAF 2015). This definition conceptually demands better connections among cities and towns and between them and their rural surroundings: 'This holistic and multidisciplinary approach advocates for a strengthened connectivity between urban centres and their surrounding areas' (FAO and RUAF 2015). The key contribution of the definition is to highlight the key elements that compose a food system and that planning should help to connect in a comprehensive way.

1.2.4. Highlighting the role of planners engaging with food systems

Exploring food systems planning leads naturally to the role that city and regional planners play in the process. Current practice and research results suggest that important changes are taking place. Kevin Morgan (2013) highlights that the emergence of food planning as a movement and a growing practice 'involves more than professional planners; indeed, it is a highly diverse social movement in which planners are one group among a cocktail of organisations drawn from the professions, civil society organisations and municipal government departments, all of which can lay claim to being part of the food planning movement'. Rositsa T. Ilieva (2016) underlines that 'food systems planning is a social innovation whereby government planners, architects, researchers and activists step out of their daily routines and the traditional remits of their professions to engage with food systems goals'. She recognises that the purpose is about 'caring for people in the city … and provide a canvas for collective social actions'. Most chapters from the book are clear illustrations of situations where professional planners are only one of the players, with quite a different role from their predecessors, even those who integrated food into the design of Garden Cities in the UK and elsewhere (see for instance the narrative on Bangkok in Chapter 2, this book).

What it means to shift from being a city planner to a food systems planner is vividly explained by W. Mendes, who for long periods between 2001 and 2015 was a planner at the City of Vancouver and worked on advancing the city's food systems portfolio and food policy (American Planning Association's Food Systems Planning Interest Group [APAFIG] 2015). Her reflections on her past practice are interesting because they imply three important issues as far as planning is concerned: (a) the need to educate other planners about food as a system; (b) envisioning food systems as a means for education and a catalyst to bring different people and institutions together; (c) the need to connect food systems to other urban systems:

> In the early days of my food policy work, I spent a lot of time educating colleagues about food as a system, and about how the food system is connected to other urban systems … we need to consider connections between transportation, housing, economic development, public space, etc … If you are a systems planner that wants to connect the dots and work within and across systems – you aren't going to be one particular type of planner. Personally, I think we

need planners who can think using a systems approach, and connect systems, including the food system. (APAFIG, 2015)

1.2.5. Multi-scalar food systems planning

Planning multi-scalar food systems consists of giving an overall coherence to three different spheres that are closely interconnected:

The first concerns the entire *food cycle* and encompasses the entire range of activities involved in the production, processing, marketing, consumption and disposal of goods that originate from agriculture, forestry or fisheries. In that sense, 'food systems' refer to *sectoral* and *inter-sectoral* food activities that may interrelate with non-food sectors. In its sectoral and inter-sectoral dimensions planning will aim to define food strategy and food policies and create mechanisms to coordinate with other urban sectors.

The second sphere involves *all the actors* concerned with food: people of different ages, faith or culture (as producers and consumers), social economy enterprises and corporations, government institutions at local, regional and national levels, research centres and scholars, etc. Food system planning is therefore a multi-stakeholder and community-based process that will involve gradually wider circles in a true public exercise.

Giving consideration to the dimension of people and institutions requires that multi-stakeholder planning should include food social networks at various levels and be conducive to new forms of *democratic* governance (such as food councils) able to manage the power relations between the different stakeholders to decide upon *food charters* and *strategic plans* for the city, the neighbourhood or the region.

The third sphere concerns the *multiple spaces and scales* where institutions, people, enterprises, etc., develop activities relating to the food cycle, from streets to community, neighbourhoods, towns, cities or regions. These different spatial scales and their multiple relations that justify the term 'multi-scalar' encompass the term 'city–region' and embrace as well the rural–urban continuum (See Figure 1.2). They draw attention to the way the different spatial levels can complement each other and will specifically contribute to people's food security, whether we think of the house with its balconies and sometimes its backyard and frontyard gardens; or housing tenements with possibly green roofs and green façades; or neighbourhoods with food assets in their streets, pavements or open spaces; or districts with possibly larger parks, cultivated or not; or cities as a whole, with open fairs, supermarkets, food hubs or

Figure 1.2 Central Market in Riga. One of the largest food markets in Europe, it consists of four main pavilions (meat, fish, vegetable and dairy) that enclose commercial rows and stalls. (*Source*: Yves Cabannes)

wholesale markets; or peri-urban areas that may have cultivated areas and a rural hinterland. This third component applies the principle of *food subsidiarity*, a concept at the heart of the decentralisation process that has been gradually taking place worldwide.

Considering food system planning in terms of its spatial dimension will require planning to translate a food strategy and its sectoral dimension into spatial terms, and at the same time to materialise the vision of the different actors, usually through a *master plan* at city and regional levels, complemented by *physical and land use plans* as well as zoning regulations at neighbourhood and district levels.

One key finding from this book's contributions is that when food systems planning processes begin they have quite different entry points, such as hunger mitigation, nutritious food, emergency or economic development. In different cities they can be led by quite different actors, from local governments to activists, to groups of producers or grassroots organisations interested in urban agriculture. And they can start in quite different territories: sometimes a neighbourhood or a group of neighbourhoods, sometimes a district or the city as whole or even a metropolitan region.

Food systems planning lies at the intersection of these different spheres and deals primarily with envisioning a future shared by multiple *actors*. It

deals as well with defining *which activities* should take place in order to satisfy the ambition of food security and good nutrition for all. Finally, it must define and guarantee *where* such activities should take place.

1.3. Integrating food into urban planning: highlights of lessons learned

1.3.1. Urban food systems planning as a process

One recurrent question in urban food systems planning is whether or not there is a better entry point to generate a sustainable process and high-quality food planning results. Cross-sectional analysis of the different experiences contained in this book and of other successful cases clearly demonstrates that the entry points and early drivers are quite varied, specific and depend a lot on local political, historical and social conditions: acute hunger in Belo Horizonte in the mid 1990s; an anti-poverty programme on the periphery of Lima metropolitan region; a socioeconomic emergency proposal in Rosario in response to the collapse of the neo-liberal privatisation model in the early 2000s; encouraging a healthy diet to address food desert, obesity and food-related disease in various North American cities; economic development and environment issues in Milan metropolitan region; the connection between food and waste management for the Tamale, Northern Ghana multi-stakeholder process; the environment in Oregon and Portland in the mid 1970s.

Integrating food into urban planning does not depend so much on the entry point, and the cases mentioned clearly indicate a multiplicity of such, all valid simply because they were the entry points that were possible. What is at stake, to get to a systemic plan that will be sustainable over time, relates to the capacity of the urban food planning process to gradually connect the different dots (hunger, poverty, food waste, health, etc.) in a coherent, comprehensive and systemic way. Bridging these different sectors lies at the heart of food system planning. However, it is only part of the challenge. One could develop a similar way of thinking for spaces (from street to neighbourhood to city to region) and for the actors involved, gradually enlarging the number of stakeholders associated with different sectors and different spatial scales.

Even if systemic urban food planning processes are not that numerous, and various authors underlined this limitation, even in countries such as the US or Canada where they are more frequent,

some of them span more than three decades and allow us to draw some observations about the urban food planning timeline. The first and foremost observation is the length of the planning process to achieve significant results for citizens and for their environment. It can take decades: 15 years for Rosario, Argentina; 14 years already for Providence ('From 2003–2015, Providence made significant strides in integrating food into urban planning and policy'); Belo Horizonte Food Security Program started formally in 1993; the Lombardy Regional law that established the Agricultural Park of South Milan (Parco Agricolo Sud di Milano – PASM) was passed in 1990, 26 years ago, to keep 47 000 hectares as productive land. None of these cases, even if quite iconic, was a linear process; they all suffered accelerations or stop and go moments. However, and this is the point to be made here, they were able to achieve 'milestones' whereby the process had reached intermediate points of no return at planning, policy, legal and institutional levels: a city planning act, comprehensive city plans with a food chapter, land use plans, urban food policies, municipal reform to establish a nutritious food department, specific laws, land development acts, etc. The capacity of the food planning processes we see in these cities to produce formal outcomes (food charter, food strategy, land use plans, zoning ordinances, etc.) and get them approved at city level and legitimised by a large array of actors or stakeholders seems key to successful and long-term integration of food into urban planning. One key lesson, substantiated through most of the chapters in this book is the central role that people and their organisations must play in the planning of sustainable multi-scalar food systems. This conclusion is important because it makes the planner not so much the one with prime responsibility to produce planning documents but, more importantly, the guiding spirit who builds connections among actors, sectors and spatial scales and conducts a participatory process.

1.3.2. Urban agriculture, a trigger for local food system planning

Another lesson learned from analysis of the narratives, complemented by a review of the literature, relates to the role played by urban agriculture, and the urban agriculture community, in sparking a food planning process. The concept of urban and peri-urban agriculture (UPA) needs to be clarified and discussed, since it has generated misunderstanding between urban planners and agronomists, food supply professionals and the rural-based professional community. Definitions of UPA are relatively recent even if quite numerous. Mougeot (2005) was one of the first to

give a holistic definition reflecting also the diversity of local situations. One of its virtues was to go far beyond the limited 'backyard gardening' notion that had prevailed for years and was one of the sources of miscommunication:

> Urban agriculture is an industry located within, or on the fringe of a town, a city or a metropolis, which grows and raises, processes and distributes a diversity of food and non-food products, re (using) largely human and material resources, products and services found in and around that urban area, and in turn supplying human and materials resources, products and services largely to that urban area.

This definition is interesting because it contemplates two important characteristics of UPA. Firstly, in terms of location, urban agriculture is generally not only *intra-urban* and tends to take place on the fringes of expanding cities as *peri-urban* agriculture. Secondly, the definition alludes to the spatial and land use dimension of UPA and takes account of the huge variety of spaces where it takes place. These include: (i) houses, on terraces and balconies; (ii) private plots, even if without property title, around the home; (iii) along highways, railways or pathways; (iv) public parks and open spaces; (v) non-urbanised patches of land within and on the fringes of the city; (vi) areas where construction should not be taking place, such as on flood plains and other risk-prone lands; and (vii) institutional properties, for instance schools, hospitals or large enterprises (Cabannes 2012).

Several of the narratives fuel the debate with evidence. Stefano Quaglia and Jean-Baptiste Geissler in their chapter on Milan underline, 'The creation of the Milan Agricultural District (Distretto Agricolo Milanese) certainly appears to be a key component of the integration of urban planning and food systems in the neo-ruralisation of the city' (Chapter 14, this book). The narrative on Bangkok again mentions the importance of urban farming: 'We have also learned that the encouragement of urban farming is an integral part of food planning. Many Bangkok residents, particularly the poor, have moved from rural areas to live in the city and have farming skills' (Chapter 2, this book). In the case of Providence, a community land trust dedicated to urban agriculture played a seminal role in the whole process and took the lead in the Providence Urban Agriculture Task Force that over the years would play a central role in the different planning instruments that were produced: 'This upsurge in interest was inspired and urged on by the work of Providence's earliest food-related NGO, the Southside Community

Land Trust (SCLT). Founded in 1981, SCLT was the first and remains the nation's only community land trust (CLT) that is uniquely dedicated to urban agriculture' (Chapter 3, this book). Alain Santadreu, in his narrative on Lima, highlights again the role of urban agriculture movements and early experiences in municipalities on the outskirts of the metropolitan region to explain how and why a metropolitan policy could become a reality: 'Beginning in 2000, various NGOs, universities, cooperation agencies and some district municipalities started to promote urban agriculture as an activity being carried out both within the city limits as well as on the outskirts … It is likely that the District Municipality of Villa María del Triunfo was the first municipal government to institutionally promote urban agriculture' (Chapter 5, this book). In Nairobi urban agriculture was a crucial driver of introducing food on to the municipal agenda. In 2015 the Nairobi City County passed the Nairobi Urban Agriculture Promotion and Regulation Act recognising urban agriculture as crucial to boosting food security. Since 2016, Nairobi County with the support of FAO, has nurtured a shift from a sectoral approach focused on urban agriculture to a more systemic, multi-stakeholder and multi-sectoral approach. The establishment of the Food Liaison Advisory Group (FLAG) (food governance mechanism) and the identification of 'hotspots' through rapid urban food systems appraisal have prompted the ongoing development of the Nairobi Food Systems Strategy and Action Plan (FAO 2018).

The argument here is that urban agriculture is a catalyst, at least in early stages of a food planning process. Understanding this role helps to reconcile urban agriculture promoters and activists with rural-based or food security champions who may underestimate the role played by urban agriculture as a catalyst to integrate food into wider urban planning processes.

1.3.3. Central role of food distribution within food systems

Various experiences described and analysed in this book illuminate how food distribution is planned through considering the myriad of stakeholders involved in the food system, at which scale planning is taking place and how the planning could be a real opportunity and not an obstacle for enhancing food security and nutrition. At the same time, they confirm the idea (Sonnino 2014) that the food distribution component plays a key role in food system planning. Here are some highlights of the lessons learned. (See Figures 1.3 and 1.4.)

Figure 1.3 Metropolitan region of the capital city of Costa Rica, San José. (*Source*: Jorge Fonseca)

Figure 1.4 Karwan Bazaar Market, Dhaka, Bangladesh. One of the largest wholesale and retail markets for fresh products in Dhaka and one of the largest wholesale markets in South Asia. (*Source*: Peter Batt)

1.3.3.1. Addressing food distribution in an integrated and systemic way
Belo Horizonte is an outstanding example from the Global South of a systemic approach to food distribution which encompasses a myriad of initiatives aiming to improve citizens' access to sufficient, affordable, nutritious and nutritious food and to connect food needs to other planning outcomes. As Cecília Delgado (Chapter 10, this book) describes, the food planning initiatives in Belo Horizonte include: (i) education about healthy food; (ii) market regulation of selected products to make nutritious food affordable for all; (iii) reduction of distance between local producers and consumers and promotion of local food for all; (iv) increasing spatial and social justice, especially for the low-income families living in the most deprived areas; (v) restaurants offering 17 000 nutritional meals a day at affordable prices in various neighbourhoods, including poor ones; (vi) job creation and stimulation of local agricultural product diversification; (vii) management of losses through a food bank linked to the Zero Hunger National Strategy.

Moreover, the municipality 'developed a unique systemic institutional design approach involving decision-makers, civic society and entrepreneurs from the private sector in food policy planning'. The city food system's 'collaborative planning' includes also legal instruments, spatial planning tools and monitoring systems. As Cecília Delgado states, even the integration of food into the municipal master plan, with the inclusion of a specific subchapter on food supply and distribution, was the result of the systemic approach to food with a strong and continuous interdepartmental collaboration within the municipality.

In a similar way, the experience of Portland described by Nunzia Borrelli (Chapter 4, this book) highlights the interconnections between various planning sectors and the importance of planning along all the food chains. The food system in Portland includes the preservation of agricultural land, a sustainable food programme that aims to foster the inclusion of food in all the territorial planning tools, the Portland Plan Food System report (preparatory for the Portland Comprehensive Plan), the Climate Action Plan (which promotes the local food system among other spatial planning tools) and the Portland food hubs as an online platform that brings together various food actors and many other initiatives at city and metropolitan levels. The food distribution system in Portland, including farmers' markets, food carts, online food hubs, among other components, cannot be understood if it is separated from other food initiatives.

1.3.3.2. Negative impact on food access when food distribution planning is inappropriate

The retail market system has been changing rapidly with the expansion of supermarkets, which now dominate most of the cities of both the Global North and Global South. As demonstrated in the experience of Cape Town (Chapter 9, this book), the absence of a clear food planning strategy facilitates the diffusion of the supermarkets even in low-income areas with the result that in Cape Town 'the most commonly used source of food was the supermarket, for both food-secure and food-insecure households'. This 'supermarket revolution' has direct impact on small traditional general shops (spazas) that cannot compete with supermarkets on price per unit, which has an impact on both small vendors and the urban poor. The 'urban food markets do not inevitably have to transition towards supermarkets'; this happens if the local government does not promote or incentivise the local food system, as in the case of Cape Town, where the government gives advantages to the supermarkets also by distributing to vulnerable people state social grants to to be spent in the supermarkets.

Food distribution planning should take into account the powerful market-driven process promoted by large corporations, quite often managing hypermarkets, supermarkets and negatively impacting on food access and diet. In the chapter on Bangkok, P. Boossabong gives a detailed account of how alternative and community-based actors and social enterprises as well as the central government deal with large food corporations. Despite a complex power struggle relation, he identifies good signs of moving forwards in a better way that may enable agribusinesses and civil society to meet at some point along the way (Chapter 2, this book).

1.3.3.3. Food retail distribution planning plays a positive role in improving the diet of urban residents

Food retail distribution planning has an impact on access to nutritious food. As highlighted by Battersby and Watson, 'the arrival of the supermarkets has made it easier for the urban poor to purchase bulk goods at lower prices' (Chapter 9, this book). On the other hand, the food distribution planning of Belo Horizonte has a great impact on access to nutritious food for all, fostering connections with local producers, using public procurements to connect local producers to popular restaurants, regulating the price of selected nutritious products in food shops, institutionalising permanent and non-permanent (evening market) open air farmers' markets and organic food markets.

Mobile street food vendors' 'food carts' could be an additional innovative solution to increase access to fresh food in underserved areas. For example, Green Food Carts sell fruit and vegetables in New York City, in the neighbourhoods that have limited access to nutritious foods (Kapell et al. 2008). Moreover, as highlighted in the paragraphs below on innovative planning tools and instruments, even spatial planning tools such as zoning or the development of food hubs can help people to have healthier diets.

1.3.3.4. Pro-poor, inclusive and flexible planning to optimise food distribution

Street food vendors and informal markets are increasing in many cities, playing a significant role in reaching the poor in slums and underserved areas to make food more accessible and affordable. As Battersby and Watson highlight, street food traders and informal markets sellers continue to play a key role even in the South African context of steady supermarket expansion in both low- and high-income areas. The informal traders are able to reach the underserved 'food desert areas' anytime, selling in small units and sometimes offering credit. Even in the low-income areas of Cape Town, where the supermarkets are the main source of food, 'day-to-day purchases [are] made from the informal sector'. Despite the key role of the informal sector in facilitating the urban poor's access to food, the Cape Town Development Plan refers to food only in relation to food safety and control regulation. In general, the eviction of urban informal workers is common practice in African cities. Planning could play a much more positive role in facilitating the integration of their activities. This is what some of the cities included in the book are aiming to do.

Both Indonesian cities discussed in this book (Chapter 11) illustrate how planning can positively impact on or limit the integration of informal food distribution within cities. As Song and Taylor highlight, participatory planning needs to go 'far beyond persuading informal food vendors to abandon public spaces' and offering property rights in a new market. It is necessary to move from an aesthetic approach to a pro-poor inclusive spatial interventions that pay attention to both the real needs of the vendors and the timing and rhythms of urban life. Song and Taylor highlight also the importance of integrating spatial planning interventions with socioeconomic interventions that pay attention to the needs of vendors, such as facilitating access to credit and supporting vendors' organisations.

1.3.3.5. When the formalisation of the informal food distribution system is inclusive, 'formal exclusion' of low-income vendors and consumers is avoided

In the case of Hangzhou City, Shuwen Zhou (Chapter 12, this book) describes how the government, with a top-down approach, could develop an efficient food distribution system: (i) increasing the number and the capacity of wholesalers, retail markets and community-based fresh food markets so that 'a resident of Hangzhou need walk for 10–15 minutes at most to buy food'; (ii) increasing the variety of food products prioritising local production; (iii) improving the food safety standards and monitoring system ('each food market is equipped with a special office to test chemical residuals in fresh food. Consumers can just walk in to check whether the food they bought and put in their basket is safe'); promoting consumers' participation in the planning and supervision process. The main questions are how inclusive are such efficient food distribution systems and what are the real costs for the low-income vendors and consumers? In Hangzhou 'food in formalised neighbourhood fresh food markets is in general 50 per cent more expensive than in informal ones', the rent is too high for small vendors and even the food transport costs are higher because of the change in the means of transport from man-powered tricycles or carts to fuel-powered vehicles.

1.3.3.6. Food distribution planning sustains social vitality and preserves the food culture of retail marketplaces

Historically, food retail markets have been part of neighbourhood life, places for social interaction, connection and exchange. As highlighted in Alice Covatta's chapter, Tsukiji wholesale fish market in Tokyo functions at a global level, but is also a neighbourhood fish market that influences strongly the life of the surrounding communities. Tsukiji is not just a physical place; it is a complex system that includes all the social and economic activities accumulated in its long history and all its spatial transformations. Despite its traditional importance and its social and economic function, Tsukiji market is going to be relocated to an artificial island, which shows how current city planning fails to preserve the traditional shopping environment or to recognise the key role of the market in neighbourhood vitality.

1.3.4. Innovative planning tools and instruments

An important lesson learned from examining the contributions to this book is that a solid set of food system planning tools have been designed, experimented with and adapted to local realities. This may well be one of the book's most significant contributions, since these tools and instruments, put together, clearly demonstrate that we are technically equipped to address food security challenges in cities and to shift from limited-scale to multi-scalar food systems planning. All these tools have been organised into six blocks (below) and probably deserve to be better documented and to be integrated into a manual for urban food planners which highlights their applications. Together they constitute a huge asset that should be applied to the planning steps of the different food systems, even if they are rarely, as previously highlighted, sequential or linear. This emerging issue will be further addressed in the section on emerging research and policy agenda.

1.3.4.1. Food asset mapping, land mapping, green mapping and food retail environment mapping

Food asset mapping is well explained and illustrated by L. Baker in the chapter on Toronto and the Greater Golden Horseshoe Region. The interesting thing here is that two complementary mappings were worked out, one for the metropolitan region and the other at ward level for the City of Toronto. Asset mapping at various levels (metropolitan or regional, municipal, ward, communities) is essential not only to 'provide an important baseline of information to understand how the agriculture and food sector changes over time' (Chapter 13) but to allow multi-scalar planning, and to define (Chapter 2, this book) the respective roles and contributions of public, community and private actors.

In addition to food asset mapping, land mapping of potentially cultivable areas and areas for food systems (e.g. markets, street vendors, etc.) has been developed and tested in cities such as Cienfuegos (Cuba), Valladares (Brazil) and Rosario (Argentina), where it was consolidated and systematised in the early 2000s as part of the Municipal Urban Agriculture and Food Related Program and the Master Plan for the Metropolitan Region. The method was further simplified for cities in the Global North and tested in London as 'green mapping' (Cabannes 2009).

In Bristol (Carey 2011), mapping and audit of productive land, including identification of the best agricultural land and of risks and threats from impacts such as change of land use and flooding, are

proposed as an effective baseline for the preservation of agricultural land in pursuit of a more sustainable and resilient food system. In the case of Rosario, land mapping not only helped to identify where food-related activities should take place and become part of the municipal plan, but was the starting point to the establishment of a municipal land bank, to make land accessible to poor urban farmers, through fiscal incentives for the owners and temporary leases to the producers (Mazzuca et al. 2009).

In Baltimore, a food environment map has been developed with the aim of addressing inequality in access to nutritious food. The process includes the identification of criteria for the nutritious food priority areas, and an in-depth analysis to identify geographical areas that should be prioritised for nutritious food access. The maps consider different components of the food retail environment, including farmers' markets, nutrition assistance programmes and urban agriculture (see Figures 1.5 and 1.6). The maps support the development of the Baltimore Healthy Food Environment Strategy addressing aspects of food access beyond food retail. The approach recognises the importance of engaging with residents and working across sectors with multiple actors to develop integrated solutions (Misiaszek et al. 2018).

Another ground-breaking experience took place in Fortaleza, a city of three million inhabitants in north-east Brazil. With the international support of the Urban Management Program, and the drive of a local NGO, Ágora XXI, social movements and other local hunger-related actors, a first-of-its-kind *hunger map* was produced to locate in which favelas and neighbourhoods hunger was more intense (Melo Neto Segundo 2002). This map with a single qualitative indicator (felt hunger) mirrored the answers to the question, 'How many times a week have you felt hungry during the last few months?' The key dramatic and shocking finding was that 48.3 per cent of the population suffered hunger at least once a week, and close to 10 per cent every day, data quite far from official statistics. The map highlighting this data was the starting point for a media campaign that quick-started a zero hunger plan. It played a seminal role in the Brazilian Zero Hunger policy that was launched a couple of years later under the newly elected left-wing government. Such an experiment echoes FAO's Voices of the Hungry,[5] which measures food insecurity (moderate and severe levels), based on eight questions relating to how people access – or do not access – adequate food. These instruments are paving the way for an emerging research agenda that will be developed in section 4.
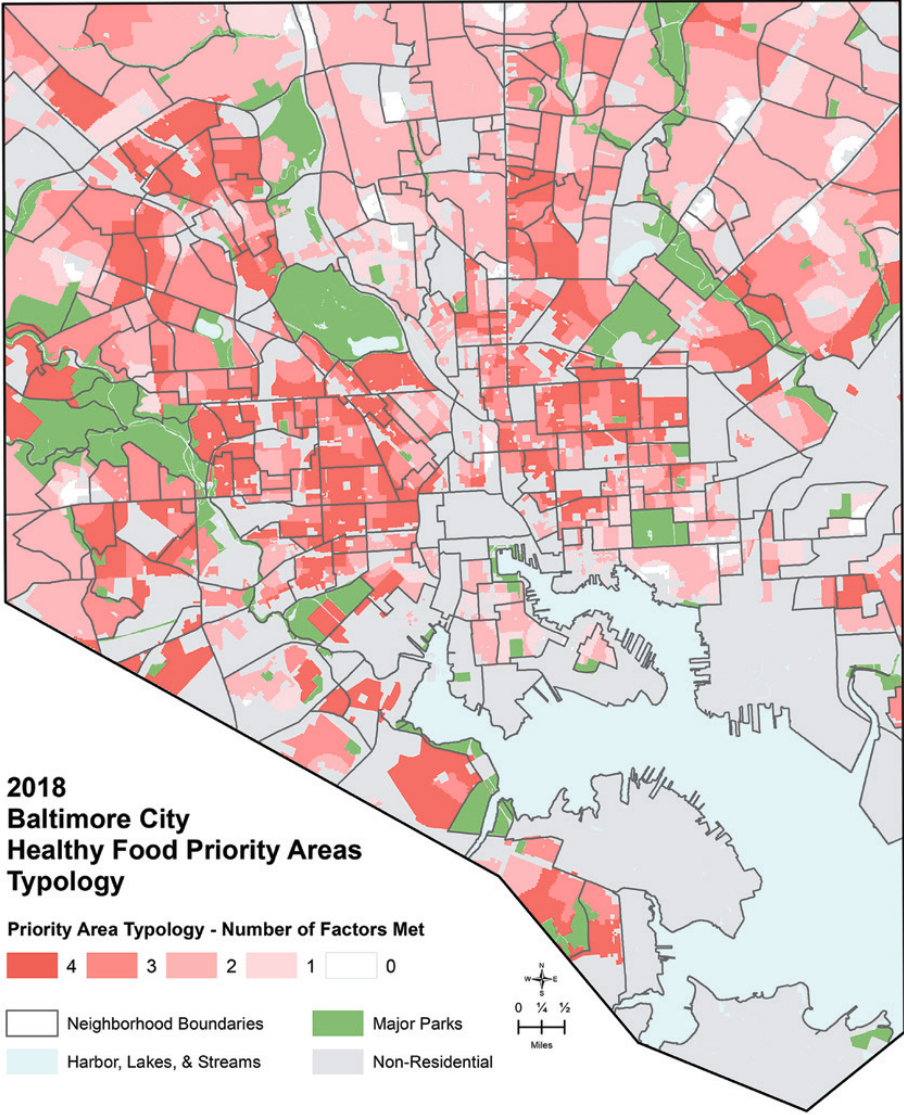
Figure 1.5 Baltimore City 2018. Healthy food priority areas typology. (*Source*: Johns Hopkins Center for a Livable Future, Johns Hopkins Bloomberg School of Public Health)

2018 Baltimore City Urban Agriculture

⬠ Urban Farms

⬠ Community Gardens

█ Healthy Food Priority Areas*

☐ Neighborhood Boundaries

█ Harbor, Lakes, & Streams

█ Major Parks

* A Healthy Food Priority Area is an area where: 1) The average Healthy Food Availability Index score for all food stores is low, 2) The median household income is at or below 185% of the Federal Poverty Level, 3) Over 30% of households have no vehicle available, and 4) The distance to a supermarket is more than 1/4 mile.

Figure 1.6 Baltimore City 2018. Urban agriculture. (*Source*: Johns Hopkins Center for a Livable Future, Johns Hopkins Bloomberg School of Public Health)

1.3.4.2. Spatial indicators

A second set of instruments that can be part of a baseline survey and help planners and actors to make decisions are what Bristol calls 'multiple deprivation maps' (Carey 2011), a method fairly similar to the pioneering Index of Urban Life Quality (IQVU) presented in this volume as part of the Belo Horizonte narrative.

Various methods have been developed; in a nutshell they consist of 'spatialising' indicators by wards, communities or even census units in order to visualise better-off areas and the most deprived ones. What is new is that one of the dimensions of these maps relates to food deprivation (or quality of access to food) and takes account of consumers. Local actors have a key role, usually, selecting city-specific sets of indicators. The maps are very useful for (1) land use planning and food zoning, (2) channelling public or private investments, as brilliantly shown for Belo Horizonte, and (3) monitoring the implementation of the plan and the improvement of the access to nutritious food. We shall come back to this point shortly.

1.3.4.3. Food charters

A food charter is usually a 'vision of values, principles and priorities' (City of Hamilton, 2014) which results from a process involving different food-related actors. Its nature, length, substance and level of legitimacy vary slightly from place to place but in most cases they 'outline, in one or two pages, the vision and the principles about the food that a county, a city or a region consider most important' (Simcoe County, 2012). In Simcoe, 'rather than a policy document, a charter is a guide for making decisions intended to improve the local food system for all residents'.

Food charters emerged in Canada in the 2000s, with beacons such as Toronto (2000) and Vancouver (2007), and have expanded swiftly since then to at least 16 more locales. Since the late 2000s they have spread into the US (Philadelphia, 2008; Durham Region, North Carolina, 2009; Michigan Good Food Charter, 2010; etc.) and into the UK with the landmark London Food Charter (2010), followed by cities such as Plymouth (2010), Newcastle (2013), Birmingham, Cambridge and Oxford (2014). They have reached Australia as well. (See Appendix 1.)

Interestingly enough, the 32 food charters analysed referred to quite different spatial and political/administrative scales: seat of district, district, county (Simcoe County), city (London), metropolitan region (Toronto and Greater Golden Horseshoe Region), region (York, Canada) or state (Michigan Good Food Charter, or Minnesota Food Charter).

A food charter is an important tool for food systems planning and especially for strategic long- and medium-term plans. They facilitate the gathering of all kinds of different actors and food champions to discuss their visions of the city they want, as far as food is concerned. A key moment is the collective and multi-actor envisioning of the city, ideally through consensus building. A vision will then help in defining basic principles to guide the formulation of a proper food plan, as in the vision presented for Vancouver:

> The City of Vancouver is committed to a just and sustainable food system that:
> Contributes to the economic, ecological, and social well-being of our city and region;
> Encourages personal, business and government food practices that foster local production and protect our natural and human resources;
> Recognizes access to safe, sufficient, culturally appropriate and nutritious food as a basic human right for all Vancouver residents;
> Reflects the dialogue between the community, government, and all sectors of the food system;
> Celebrates Vancouver's multicultural food traditions.
>
> (City of Vancouver, 2007)

Food charters can help to frame food planning interventions within an 'overall initiative to address food system governance at the local government level', as Battersby and Watson suggest in their conclusions (Chapter 9, this book). A challenge still to address is to understand why food charters have been limited to Anglo-Saxon countries and what should be done to get them developed in cities and spaces in the Global South. The narrative on Bangkok presented in this book illuminates the difficulty of having a single vision that is intended to embrace quite different and antagonistic logics and interests.

1.3.4.4. Multi-stakeholder and community participatory planning

A fourth set of approaches concerns multi-stakeholder and community participatory planning. Again, various tools have been designed, tested and refined for food planning, and probably the one that has been most widely implemented in different contexts is the multi-stakeholder policy formulation and action planning (MPAP) method. The method draws

from a vast array of pre-existing partial methods and was implemented by RUAF and its partners over a period of 10 years in 20 cities in 17 countries (Dubbeling et al. 2011).

Among its innovative aspects one should underline the linking of policy formulation with concrete and immediate planning of actions, and at the same time the importance given to setting up a multi-stakeholder council or group that should mirror the different interests of all the food system's actors. The narrative on Tamale, Northern Ghana, in this book highlights the tensions that can exist between different actors and indicates how such issues can be addressed. A recent assessment of various MPAP experiments in cities such as Beijing, Cape Town, Bulawayo, Lima and Amman (Veenhuizen, 2016) confirms the validity of this planning method and the need to link up MPAP outcomes with policy formulation and implementation: 'When working in complex urban agro-food systems it is highly recommended to apply a multi-stakeholder approach in the analysis and planning of a sustainable food system, and further coordinating policy and planning.'

1.3.4.5. Land regulations, land zoning and land uses

A fifth set of instruments are better known to planners and consist of land regulations, land zoning and land uses, the only difference being that these instruments consider land in terms of land for production, retail and wholesale markets, mobile vendors or agro-industrial zones. In many cities cultivating land is not legal (even if it is sometimes tolerated). The various impacts on the food system that came from legalising some areas for cultivation in Kampala (KUFSALCC 2005), along with the voting in of various food ordinances, are extremely significant and strongly linked to urban planning. Land zoning can be also used to limit unhealthy food outlets and as an obesity prevention strategy, as highlighted by Cohen (this book) in East Harlem, New York City.

Among the book chapters dealing with land regulations and land zoning, Chapter 14 is of particular interest because it links up two scales of land regulations: one at regional level (PASM) and one at the level of municipal districts. In both cases, the land regulations were quite well crafted and as a result PASM is one of the main agricultural parks in Europe, covering as much as a third of the Milan metropolitan area, encompassing 61 municipalities and 1400 farm activities. The productive nature of this space is different from the green belts of other cities such as London's and the peri-urban parks of Paris. The creation of the Milan Agricultural District (Distretto Agricolo Milanese) certainly appears to be a key component of

the integration of urban planning and food systems into a neo-ruralisation of the city. The strategic plan 'piano del distretto rurale di Milano' is oriented towards the promotion of production, marketing, territorial protection and safety, and ecosystem and landscape services improvement. An important lesson to be learned is that a city can be well known for economic growth, and an epitome of fashion and design, and at the same time have an expanding agricultural base. Planning and political will were probably, as the authors highlight, key reasons for such a positive outcome.

1.3.4.6. Monitoring tools

A sixth set of instruments comprises the monitoring tools of both community initiatives and local governments. Food deprivation maps such as those of Bristol (Carey 2011) and Belo Horizonte are excellent examples. They allow us to see in a blink of an eye the progress made to reduce food access inequities and map the changes that are occurring in the city in question. In the case of Belo Horizonte the IQVU map enables one to locate the various actions undertaken by the municipality as part of its food plan. More importantly, it provides clues to perceive to what extent food inequities have been reduced over time.

1.3.5. Key role of food councils in accomplishing food planning and democratic governance

One of the major lessons learned in this book and from the cities analysed is the critical role played by city food councils in generating participatory urban food plans, and, more importantly, in implementing such plans without their losing too much of their community or informal sector angles and the proposals from these two groups during the planning process. The experiences of Belo Horizonte in Brazil, Providence in the US and Toronto in Canada are of prime interest to better understanding the essential role played by city food councils, which can have quite varied names and forms and certainly deserve serious comparative research.

As explained by Lauren Baker in Chapter 13 of this book, the Toronto Food Policy Council, established in 1991, has made a significant contribution to key documents such as the Toronto Food Charter and the Official Plan. The City Council has also played another key role in planning where it links up with the metropolitan level – it 'facilitated city engagement with the Greater … and Farming Alliance' – and with the community level through community asset mapping.

Similarly, as described by Cecília Delgado in Chapter 10, in order to comprehend why the first municipal master plan in Belo Horizonte, in

1996, included quite an innovative food supply and distribution subchapter, one needs to recognise the critical role of the multi-stakeholder municipal council, COMASA (Conselho municipal de abastecimento e segurança alimentar). This food council, composed of members from the municipal executive, civil society, consumers' organisations, workers, inhabitants and entrepreneurs, played a critical role in policy-making. In both cases (Toronto and Belo Horizonte) a council tailored to the complex local institutional landscape provided conceptual guidance so that plans could be implemented over long time frames without losing the original vision and plans.

The Providence narrative in Chapter 3 of this book illuminates the process through which local actors grouped together to advocate for local food systems, then created an Urban Agriculture Task Force in 2004 that became instrumental to formulating Providence Interim Comprehensive Plan. Later this task force guided the development of the final comprehensive plan approved in 2014, which provided 'even more robust treatment of food systems objectives and strategies relating to various components of the food system'. Food planning, in most narratives, appears to be not only a means to formulate an adequate plan, but just as importantly *a catalyst* for gathering local food champions and actors together in a formal entity, in most cases a food council.

The lack of a strong and legitimate food council, involved in food planning and able to remain a driving force when plans were implemented, contributed to the partial failure of street vendor relocations in Solo and Yogyakarta. What is remarkable is that in Solo, as narrated in Chapter 11 by John Taylor and Lily Song, a strong participatory process was put into place and the mayor 'invited the street traders and other stakeholders to over 50 open dialogue meetings'. 'However, further examination reveals that the success of such policies is limited, many relocated vendors returning to the streets within a few years.' This indicates the limits of participatory planning and it seems that new forms of democratic governance such as food councils can be a place where problems can be anticipated and discussed and solutions found. At the same time, these councils can become unique spaces in which to monitor the implementation of an urban food plan, to formulate specific policies to implement the plans, and, just as importantly, to develop adaptive measures to guarantee that the interests of the community and the informal sector, among other interests, are not set aside. It goes without saying that strong, permanent political will is critical for plans' successful implementation.

Both John Taylor and Cecília Delgado, in quite distant locales (Brazil and Indonesia), highlight the importance of more democratic forms of urban food governance. For Belo Horizonte, it seems that *collaborative* governance forms that developed throughout the 20-year process largely explain the success of the food policy. On the other hand, Taylor suggests that a shift from top-down to *adaptive and collaborative* governance as conceptualised by Healey(2006) might have avoided the failure of the food markets' relocation in Solo and Yogyakarta. These changes should happen first *among* vendors (promoting vendors' organisations) and second *between* vendors and civil society groups. It is only then that vendors will be in a position to engage with government planners. What remain to be discussed and envisioned, however, are more permanent forms of collaborative governance that will endure and strengthen once the planning exercise has taken place. Lessons from experience in the field and from beyond the scope of this book suggest that city food councils should be broad and inclusive enough to gradually provide a space not only to organisations, institutions and actors, formal and informal, dealing only with one particular stage of the food chain, such as street food vendors, but to all those with a stake in the food chain, from production to transformation and distribution, and to consumption and waste recycling.

Chapter 15 in this book illuminates the capacity of MPAP to kick off a process that could end up generating the kind of longstanding democratic governance that will be instrumental to properly implementing a city agenda resulting from MPAP. The experience highlights difficulties and limitations despite apparently huge efforts to keep the process as participatory as possible. A multi-stakeholder platform and a core working group for MPAP like those set up in Ghana's capital city of Accra (AWGUPA, Accra Working Group on Urban and Peri-urban Agriculture) could not be established and this probably explains the shortfalls and difficulties in implementing the city agenda that was formulated in Tamale. This facilitation role is central for accomplishing a city agenda or urban food plan that takes into account the diverging and converging interests of the various groups. However, the big challenge that MPAP processes and more broadly community and multi-stakeholder planning processes face is whether or not these fora, working groups or animation groups will have the capacity to transform and consolidate into a more permanent governance structure such as a food council. A second challenge is how to sustain the energy of the planning stage beyond the approval of a

city agenda or a food plan. Some cities, including those mentioned in this section, are lighting the way and showing that a food planning process can be a facilitator for new forms of democratic governance which, in their turn, are indispensable to the implementation of urban food plans.

1.4. Emerging research and policy agenda

Despite innovative food system planning practices at neighbourhood, county, city, metropolitan or regional levels and despite the growing recognition at international level, building up a twenty-first century urban development planning theory that would fully integrate food remains challenge for the years to come. An emerging research and policy agenda if properly addressed could pave the way in such a direction. Some of them will be briefly highlighted.

1.4.1. Going beyond city region as a metaphor

The term 'city region' when referring to food systems emerges in the literature, in professional practice and in several of this book chapters as a central notion for food systems planning. Commonly understood to be 'a given geographical region that includes one or more urban centres and their surrounding periurban and rural hinterland' (Dubbeling et al. 2017), 'City region' encapsulates quite different realities from country to country, or from region to region. An earlier definition coined by FAO and RUAF highlighted the dynamic and complex nature of a food system – 'complex network of actors, processes and relationships to do with food production, processing, marketing, and consumption' – and clarified the term 'city region' as referring to 'a given geographical region that includes a more or less concentrated urban centre and its surrounding peri-urban and rural hinterland; a regional landscape across which flows of people, goods and ecosystem services are managed'[6] (RUAF 2015).

The term works far better as a metaphor than as a concept, from a strictly planning perspective. However, this metaphor is quite useful to move from one level of food planning (be it a city, a town, a region, a county or a district) to a multi-scalar approach intended to link up spatial scales of quite different sizes (small agriculture-based urban settlements, towns, medium-sized cities, megacities, metropolitan regions, etc.) and their hinterland.

A comparative analysis published by the International Society of City and Regional Planners (Cabannes et al. 2017) looks at how four food planning experiences (Rosario, Argentina; Garden Cities in the UK; Portland, US; Milan, Italy) approached and defined city regions. Each of them introduced a specific definition and it seems difficult to place the 'social city' of the Garden City movement and its implementation around Letchworth in the United Kingdom in the same category of 'region' as metropolitan Rosario or Milan or Portland and its hinterland. Additional research to better define a city region in political, governance, administrative, geographical or environmental terms will be needed for the planning agenda of the future and to give it a more universal and therefore scientific value.

In addition, the *region* side of the city region may be misleading in some contexts, since it does not apply well for small nations, including most of the 49 island nations, primarily in the Pacific and the Caribbean. From a planning perspective, 'city region' is not quite appropriate for small island nations such as Grenada, the Bahamas or Tuvalu, since none of these is a 'region' as such and most of them have only towns and no cities. And yet these island nations represent about 20 per cent of all existing nations according to conventional United Nations definitions. More importantly, they are particularly vulnerable to climate change hazards, to peak oil effects and to threats to their residents' food security. Specific policy research is needed to adapt the notion of city region to their geographical and environmental specificities as well as to their farming systems.

Another ambiguity of the term 'city region' which needs further exploration relates to its definition in the English language, including in the UK, where 'cities' and 'towns' are quite different entities. To move beyond the term's metaphoric value, planners need to explore diverse food system realities in order to appropriate the concept and use it in their daily practice.

1.4.2. Mechanisms to better include the informal food sector in food system planning

Much still needs to be done to define planning methods and instruments that properly connect informal and formal food-related activities and actors. A major point of concern, on which the present book's contribution is limited, is how to address in urban food planning the needs and specificities of the informal sector, which is commonly greatly involved, at least in cities of the Global South, in UPA, food distribution and limited processing of locally produced food. Addressing this question forces us to explore the specificities, differences and connections between two

notions: the 'community' of residents involved in food-related activities for part of their time, on the one hand, and the informal food sector, on the other. The second research question that emerges is *why*, despite innovative efforts in some cities and despite its clear contribution to the food security of the poor, the informal sector in its multiple expressions remains a stranger to urban food planning.

1.4.3. Potential and limitations of information and communication technologies (ICTs) in urban food systems planning

A quickly developing field of practice is the multipurpose applications of ICTs and open data to food-related activities in cities; not only value chains from production to distribution, but also the geography of such chains and the ways in which they interact with other urban activities, particularly in the larger cities. They are transforming business models of urban agriculture in the Global North (e.g. urban farms); they may also be transforming some of the informal sector activity in cities of the Global South.

Evidence from the chapters of this book and a review of existing literature indicates that ICTs are playing a growing, critical and innovative role in food systems in terms of:

producing information on formal and informal food systems;

mapping the food retail environment and food assets utilising geographic information systems (GIS) and geospatial tools, for instance satellite maps to identify vacant land and food desert areas;

facilitating the exchange of information, for instance using innovative digital technologies such as big data;

coordinating mechanisms to shorten and simplify the supply chain (e.g. food hubs using web-based technologies to coordinate food and information exchanges and the virtual supermarket);

virtual learning to enhance capacity development and facilitate exchange on food systems policy, planning and action in urban areas.

Despite the existence of ever more examples of integrating ICTs into food systems planning, more research is needed to critically document these practices in order to better understand to what extent ICTs contribute to the sustainable and equitable development of cities and in order also to better explore their risks. How urban spatial planning should take account

of and support the role of ICTs is another emerging field of research that needs further discussion in order to better appreciate the strengths, the pitfalls and the potentials of ICTs in urban food system planning.

1.4.4. Food systems assessment and analysis tools for policy-makers

Another key component of food systems planning are the food systems assessment and analysis tools that, locally, regionally and globally, can inform planners and policy-makers about food system hotspots in order to prioritise interventions, to measure progress in interventions and, just as importantly, to draw lessons on how to effectively integrate food into urban planning. There are a number of experiences from cities of both the Global North and Global South. Some tools analysed in the present book, like food assets mapping in Toronto, food environment mapping in Baltimore, food deprivation maps in Bristol, IQVU in Belo Horizonte, are quite promising and usually focus on some key aspects of food systems (food distribution, access to nutritious food, land availability for urban agriculture, zoning practices). Developing a comprehensive food system profile as a tool for urban policy-makers without losing the systemic approach to food is the main challenge. FAO is currently developing a comprehensive food systems assessment tool and a set of comprehensive indicators for food systems monitoring based on the Milan Urban Food Policy Pact. Despite these experiences a specific research agenda is needed to combine all the existing instruments and propose a comprehensive food systems assessment tool to support food planning.

1.4.5. Food security and nutrition index

Global data on urban food security and nutrition which reflect local realities are still quite limited, even if a wealth of city-based studies provide evidence on the scale and nature of urban food insecurity. The development at local level of an urban food security and nutrition index would greatly enhance understanding of global food insecurity today. It would also be helpful for international organisations such as FAO, national and local governments, and civil society organisations and food producers to have better knowledge of urban hunger, food insecurity and all forms of malnutrition in a specific locale. FAO has made significant refinements to its monitoring methodology, particularly since 2011/12, and has launched initiatives that include food security indicators through the

State of Food Insecurity in the World reports. However, currently there are no well-documented or accepted indices or indicators particularly oriented to understanding the conditions of urban food insecurity and malnutrition.

As a result, one line of research and policy in the years to come will be the design, testing and monitoring of a community food security and nutrition index that will locally and globally be able to inform planners and decision-makers about the progress made and, just as importantly, to draw lessons on how to properly integrate food into urban planning. Some tools critically analysed in this book are paving the way in such a direction.

1.4.6. Optimising the last food mile remains a key challenge for urban food systems planners

The 'last food mile' is generally understood to mean 'the physical distribution of food occurring in the last part of the food supply chain. It refers to the final delivery of perishable goods to urban food outlets' (Morganti 2011). The limited space for storage capacity and the general change there has been in the last food mile (e.g. just-in-time deliveries and higher delivery frequencies with time flexibility) have had a tremendous impact on city congestion in the absence of any kind of coordination among all the vehicles that deliver the same products in various parts of the city (Morganti 2011).

Innovative answers have been given by a growing number of cities, such as Parma or Paris, but remain little documented. These are, however, a major field of research and policy agenda for food systems planners and for improving access to fresh food while complying with climate change imperatives. One of the innovative answers is food hubs, supported by cities and/or regional authorities, that actively connect the food supply side and demand side. As Morganti 2011 highlights, they can be wholesale or retail markets or even a producer cooperative carrying out food-hub activities, usually including services such as coordination or technical assistance not traditionally provided by wholesalers. The successful experience of the Centro Agro-alimentare e Logistica (CAL) is one of the few that has been documented. It supports the last food mile within the historic and traditionally heavily congested city of Parma, delivering products through electric vehicles and facilitating access to fresh and locally produced food. Its positive impact on reducing city congestion and carbon emissions in a relatively short period of time and for a reduced cost invites more attention to last food mile solutions as an eminent field of research in the urban and regional planning fields.

1.4.7. Urban food systems planning in an urban metabolism perspective

Urban metabolism refers to the analysis and understanding of the flows of materials, people, fluids and energy within cities considered as an ecosystem. An early definition by C. Kennedy et al. (2007) defined the model as 'the sum total of the technical and socio-economic process that occur in cities, resulting in growth, production of energy and elimination of waste'. Over the last decade, theories on urban systems as urban metabolisms have been developing primarily from a political ecology perspective (Biel 2016). They have introduced innovative and essential understanding of urban systems as a whole, refining earlier definitions:

> Cities are dense networks of interwoven socio-spatial processes that are simultaneously local and global, human and physical, cultural and organic. The myriad transformations and metabolisms that support and maintain urban life, such as, for example, water, food, computers or hamburgers always combine infinitely connected physical and social processes. (Heynen et al. 2006)

On the other hand, progress in connecting food systems to the other elements of urban metabolism has been rather limited, even if significant (Biel 2016); various food nexus primarily with energy or water are increasingly emerging in the literature and in cities' planning practices. Two chapters in the present book contribute to bridging the knowledge gaps: Chapter 7 connects food and the recycling of urban solid and liquid waste, and Chapter 6 explores growing food connections through planning in the US. An emerging research and policy agenda essential to integrating food into urban planning focuses on better connecting food as an urban sub-system to cities as urban metabolism, and especially to waste, water, energy and transport. Much more needs to be done to turn this knowledge into planning practice, and 'integrating food system planning into urban metabolism' will remain a challenge for the years to come.

1.4.8. Planning regulation and integration of informal and street markets and use of open spaces

Street food vendors and informal markets are increasing in many cities, playing a significant role in responding to citizens' needs and in reaching the poor in slums and underserved areas, making food more accessible and

affordable and consequently contributing not only to the local economy but also to food security and nutrition in urban areas. The most common interventions with respect to street food vendors relate to food safety and relocation owing to road congestion, hazardous location and re-zoning and rarely address the integration of the informal sector in urban planning.

Research acknowledging the economic and social importance of this sector has become quite significant over recent years. However an emerging connected field of research that requires more attention is the extent to which urban food planning could facilitate the development and the optimisation of these activities so they may flourish in a harmonious manner. A sensitive policy issue that is also emerging as an important research field for planners are the planning instruments that could help to regulate street and open-space food-based activities to allow a city for all. Participatory planning methods that pay attention to both the real needs of the vendors and the rhythms of urban life are emerging as a crucial topic to investigate. The visibility of the market, connectivity with residential or commercial areas, authorisation to sell in public spaces when people are going to or from work are just some of areas relating to the integration of street food vendors into urban planning that deserve more attention. Ways to include street food vendors in the development of regulations for the use of public spaces is also emerging as a crucial field that could help to avoid the usual approach of considering informality a problem to be controlled instead of a possible solution that needs innovative participatory planning mechanisms.

Another key challenge is the importance of integrating spatial planning interventions with socioeconomic interventions that attend to the needs of vendors, such as facilitating access to credit and supporting vendors' organisations. These city-based solutions trigger our imagination to recognise that, from a planning perspective, how to deal with the multiple informal food systems is still an unsolved question.

1.4.9. Food planning in an urban–rural continuum

Integrating food systems planning within an urban–rural linkages framework remains another crucial research and policy agenda. On the one hand, some progress has been achieved in integrating food into multi-scalar and city region planning. On the other hand, research and policy papers on the role of rural–urban linkages and a rural–urban continuum after years of an urban–rural divide have greatly contributed to better understanding of the multiple interconnections among spaces, peoples and activities. What remains to be explored is how to

better integrate and link up food systems planning and urban–rural linkages and draw lessons on the new forms of governance at various levels which are needed to transform planning documents into transformative actions.

Some of the experiences presented in this book demonstrate that local governments and deepening decentralisation processes are key players in food system planning. The integration of food into the local agenda is crucial to stimulating articulation between urban and rural areas and fostering integrated spatial and sectoral planning among regions, cities and towns. What is less known and deserves further attention are innovative governance mechanisms such as food policy councils or similar mechanisms that could play a driving role in fostering connection among food systems stakeholders, promoting partnership and strengthening the linkage between urban and rural areas.

1.5. Concluding remarks

Various experiences suggest that urban and regional food system planners need to go beyond their professional boundaries and promote a holistic and multidisciplinary approach using the multi-functional character of food. Their role could be crucial to connecting the different actors and sectors involved in food systems and related sectors. At the same time, they could significantly contribute to linking the different spatial scales involved in food-related issues. Participatory planning research grounded in transformative practices, the mainstreaming of food in urban-related policy at all levels, and research to nourish existing and future practitioners as well as engaged citizens and committed decision-makers all remain essential if we want to effectively integrate urban planning and food in order to improve food sovereignty in cities.

Notes

1. http://www.ruaf.com
2. food-for-cities@dgroups.org
3. http://www.fao.org/urban-food-actions/en/
4. http://www.fao.org/in-action/food-for-cities-programme/overview/what-we-do/en/
5. http://www.fao.org/in-action/voices-of-the-hungry/fies/en/
6. Definition agreed during a meeting of City–Region Food Systems partners in Rome, December 2013.

References

African Union. 2014. 'Malabo Declaration on accelerated agriculture, growth and transformation for shared prosperity and improved livelihoods'. Accessed 4 December 2017. http://www.resakss.org/sites/default/files/Malabo%20Declaration%20on%20Agriculture_2014_11%2026-.pdf

APAFIG. 2015. 'Faces of Food System Planning: Wendy Mendes'. Accessed 4 December 2015. https://apafig.wordpress.com/2015/11/02/faces-of-food-systems-planning-wendy-mendes/

Biel, R. 2016. *Sustainable Food Systems. The Role of the City*. London: UCL Press.

Blay-Palmer, A., Dubbeling, M. and Renting, H. 2015. 'Understanding the City Region (CRFS) Food System: Planning for a More Food Secure and Resilient City'. Accessed 30 January 2018. http://www.ruaf.org/sites/default/files/City%20Region%20Food%20Systems%20literature%20review.pdf

Cabannes, Y. 2009. 'Green Mapping, Manual for Urban Agriculture', UCL/ DPU, Urban Buzz Research Project, unpublished report.

Cabannes, Y. 2012. *Pro-poor Legal and Institutional Aspects of Urban and Peri-Urban Agriculture*. Rome: FAO.

Cabannes, Y. and Ross, P. 2017. 'Food in Garden Cities in Planning Theory and Practice: Revisiting the Concept of City-Region in Letchworth and Surrounding Garden Cities', in *Smart Communities, Review 13*, 81–108. The Hague: ISOCARP.

Cabannes, Y., Marocchino, C. and Fonseca, J. 2017. 'City Region Food Systems as Human-Centered Planning', in *Smart Communities, Review 13*, 74–83. The Hague: ISOCARP.

Carey, J. 2011. *Who Feeds Bristol? Towards a Resilient Food Plan. A Baseline Study of the Food System that Serves Bristol and the Bristol City Region*. Bristol: Bristol Green Capital, NHS Bristol and Bristol City Council.

City of Hamilton. 2014. 'Food for All. A Food Charter for Hamilton'. Accessed 31 January 2018. https://hamiltonfoodcharter.files.wordpress.com/2014/01/food-for-all-2014.pdf

City of Vancouver. 2007. 'Vancouver Food Charter'. Accessed 31 January 2018. http://vancouver.ca/files/cov/Van_Food_Charter.pdf

City of Vancouver. 2013. 'What Feeds Us. Vancouver Food Strategy'. Accessed 30 January2018. http://vancouver.ca/files/cov/vancouver-food-strategy-final.PDF

De Zeeuw, H. and Drechsel, P. 2015. *Cities and Agriculture: Developing Resilient Urban Food Systems*. New York: RUAF and Earthscan.

Dubbeling, M., de Zeeuw, H. and van Veenhuizen, R. 2011. Cities, Poverty and Food: Multi-stakeholder Policy and Planning in Urban Agriculture. London: Practical Action.

Dubbeling, M., Bucatariu, C. and Santini, G. 2016. *City Region Food Systems and Food Waste Management: Linking Urban and Rural Areas for Sustainable and Resilient Development*. Bonn: Deutsche Gesellschaft für Internationale Zusammenarbeit.

Dubbeling, M., Santini, G., Renting, H., Taguchi, M., Lançon, L., Zuluaga, J., De Paoli, L., Rodriguez, A. and Andino, V. 2017. 'Assessing and Planning Sustainable City Region Food Systems: Insights from two Latin American American Cities'. Accessed January 2018. http://www.mdpi.com/2071-1050/9/8/1455/pdf.

Ericksen, P.J. 2008. 'Conceptualizing Food Systems for Global Environmental Change Research', Global Environmental Change 18(1): 234–45.

FAO. 2013. *The State of Food and Agriculture 2013. Food Systems for Better Nutrition*. Rome.

FAO. 2018. *Our World Is Urbanizing. Is Food in Your Agenda?* Rome.

FAO and RUAF. 2015. *A Vision for City Region Food Systems: Building Sustainable and Resilient City Region*. Rome: FAO

FAO, Habitat III. 2016. Final report, Cross-Cutting Expert Group Meeting (CC-EGM), Integrating Food into Urban Planning, UN Headquarters, New York, May.

France, R.L. 2016. (ed.). *Integrated Urban Agriculture, Precedents, Practices, Prospects*. Faringdon: Green Frigate Books.

Gorgolewski, M., Komisar, J. and Nasr, J. 2011. *Carrot City: Creating Places for Urban Agriculture*. New York: Monacelli Press.

Hanson, D. and Marty, E. 2012. *Breaking through Concrete: Building an Urban Farm Revival*. Berkeley and Los Angeles: University of California Press.

Healey, P. 2006. *Collaborative planning. Shaping places in Fragmented Societies*. New York: Palgrave Macmillan.

Heynen, N., Kaika, M. and Swyngedouw, E. (eds). 2006. *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism. Questioning Cities Series*. New York: Routledge.

Howard, E. 1902. *Garden Cities of To-morrow*. London: S. Sonnenshein.

ICLEI Local Government For Sustainability. 2013. 'Bonn Declaration of Mayors. Annual Global Forum on urban resilience and adaptation'. Accessed 4 December 2017. http://resilient-cities. iclei.org/fileadmin/sites/resilient-cities/files/Resilient_Cities_2013/MAF_2013_Bonn_Declaration_of_Mayors.pdf

Ilieva, R.T. 2016. *Urban Food Planning. Seeds of Transition in the Global North.* New York: Routledge.

Imbert, D. 2015. *Food and the City: Histories of Culture and Cultivation*. Cambridge, MA: Harvard University Press.

Kapell, H., Katon, P., Koski, A., Li, J., Price, C. and Thalhammer, K. 2008. 'Food Cartology: Rethinking Urban Spaces as People Places', Master of Urban and Regional Planning Workshop Projects, Paper 42. Accessed 31 January 2018. https://www.portlandoregon.gov/bps/article/200738

Kennedy, C., Cuddihy, J. and Engel-Yan, J. 2007. 'The Changing Metabolism of Cities', *Journal of Industrial Ecology*, 11(2): 43–59.

KUFSALC and Urban Harvest. 2005. 'The Kampala City Urban Agriculture Ordinance: A Guideline'. Accessed on 31 January 2018. https://assets.publishing.service.gov.uk/media/57a08c64e-5274a31e00011b6/ZC0244e.pdf

Mazzuca, A., Ponce, M. and Terrile, R. 2009. *La agricultura urbana en Rosario: balance y perspectivas*. Lima: IPES Promoción del Desarrollo Sostenible.

Melo Neto Segundo, J.J. de. 2002. 'Mapa da Fome ne Região Metropolitana de Fortaleza', unpublished project report, Agora XXI, Programa de Gestión Urbana UN Habitat/UNDP.

Milan Urban Food Policy Pact. 2015. 'Milan Urban Food Policy Pact'. Accessed 4 December 2017. http://www.milanurbanfoodpolicypact.org/wpcontent/uploads/2016/06/Milan-Urban-Food-Policy-Pact-EN.pdf

Misiaszek, C., Buzogany, S. and Freishtat, H. 2018. 'Baltimore City's Food Environment', report. Accessed 31 January 2018. https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/projects/bal-city-food-env/baltimore-food-environment-digital.pdf

Morgan, K. 2009. 'Feeding the City: The Challenge of Urban Food Planning', *International Planning Studies* 14(4): 341–8.

Morgan, K. 2013. 'The Rise of Urban Food Planning', *International Planning Studies* 18(1): 1–4.

Morganti, M.E. (2011). 'Urban Food Planning, City Logistics and Sustainability: The Role of the Wholesale Produce Market. The Cases of Parma and Bologna Food Hubs'. Accessed 31 January 2018. http://amsdottorato.unibo.it/4186/

Mougeot, L. 2005. *Agropolis. The Social, Political and Environmental Dimensions of Urban Agriculture*. London: Earthscan.

Pothukuchi, K. and Kaufman, J. 2000. 'The Food System: A Stranger to the Planning Field', *Journal of the American Planning Association* 66: 113–24.

Rich, S.C. 2012. *Urban Farms*. New York: Abrams.

RUAF. 2015. 'City Region Food Systems', *Urban Agriculture Magazine* 29: 8–11.

Simcoe County. 2012. 'Food and Agriculture Charter'. Accessed 4 December 2017. https://fpa.simcoe.ca/Shared%20Documents/PDF_Charter_Printable.pdf

Sonnino, R. 2009. 'Feeding the City: Towards a New Research and Planning Agenda', *International Planning Studies* 14(4): 425–35.

Sonnino, R. 2014. 'The New Geography of Food Security: Exploring the Potential of Urban Food Strategies', *Geographical Journal* 182(2): 190–200.

Tacoli, C. 1998. *Bridging the Divide: Rural–Urban Interactions and Livelihood Strategies*. London: International Institute for Environment and Development.

Tacoli, C. 2006. *Earthscan Reader on Rural–Urban Linkages*. London: Earthscan.

Tendall, D.M., Joerin, J., Kopainsky, B., Edwards, P., Shreck, A., Le, Q.B., Kruetli, P., Grant, M. and Six, J. 2015. 'Food System Resilience: Defining the Concept', *Global Food Security* 6: 17–23.

UN Habitat. 2009. *Global report on Human Settlement. Planning Sustainable Cities*. Nairobi.

UN Habitat. 2016. *Urbanization and Development: Emerging Features. World Cities Report 2016*. Nairobi.

Veenhuizen, R. van. 2016. 'Multi-stakeholder Policy Influencing and Local Urban Food Initiatives', *Urban Agriculture Magazine* 31: 29–32.

Wiskerke, J.S.C. 2015. 'Urban Food Systems', in *Cities and Agriculture: Developing Resilient Urban Food Systems*, edited by H. de Zeeuw and P. Drechsel, 1–25. New York: RUAF and Earthscan.

World Food Summit. 1996. 'Rome Declaration on World Food Security'. Accessed 4 December 2017. http://www.fao.org/wfs/index_en.htm

2

Articulating public agencies, experts, corporations, civil society and the informal sector in planning food systems in Bangkok

Piyapong Boossabong

Bangkok is the capital of an agriculturally productive country. There are both full-time and part-time farmers, both modern and conventional markets and both mainstream and alternative food chains. A survey in 2016 found that the number of full-time farming households working in Bangkok's peri-urban fringe was 13 774. It can be estimated that the proportion of farming households per total households was 1:195. Although the exact number of farmers was not recorded, it can be estimated that each household would have 2–3 farmers. Thus, the number was in the range 27 000–42 000 (Policy and Planning Division 2016). They cultivated in the peri-urban areas 37 310 hectares out of the total land area of 156 522 hectares (23.84 per cent). The amount of land per farm was about 0.7–1.0 hectares. In particular, paddy land amounted to 20 031 hectares, while vegetables, cut flowers and ornamental plants were cultivated in the area of 6473 hectares. A 2016 report also informed that 22 974 hectares were owned by farmers, while 13 870 hectares were rented and 475 hectares were mortgaged or used free of charge (Office of Agricultural Economics 2016, 178–81). Bangkok produced 124 600 tonnes of rice annually, of which the value was US$30 524 167 (2016, 10–12). The data on livestock in Bangkok showed that the numbers of cattle, broilers, laying hens, native chickens and ducks were 2522, 17 220, 8250, 40 974 and 26 137, respectively (2016, 123–32). In overview, this agricultural sector contributed to the metropolis's economic gross product US$72.93 million (0.08 per cent of the total) (Policy and Planning Division 2016).

Whereas the full-time farmers are market oriented, the part-time farmers who grow food on a small scale within the inner city are subsistence, leisure and recreation oriented. About 130 community gardens also exist, developed by these part-time farmers, and play a significant role in building a sense of community as an interactive public space (City Farm Program 2014). The part-time farmers play the leading role as well in food-growing innovations, such as vertical gardens, rooftop gardens and container gardens. So, the use of new methods of food growing differentiate part-time farmers from the majority of full-time farmers, who employ traditional farming methods. They have also initiated a variety of platforms including online social media to share information and resources (Boossabong 2017).

There are three main central fresh food markets. Retailers transport food from these facilities to sell at the 337 local traditional fresh food markets in the inner city. Some retailers also sell vegetables directly at customers' houses by carrying food on a truck as a mobile market and some are street venders. The number of food actors in this informal sector is roughly 1600–1700 (Bangkok Soi Idex 2016). They improve access to food for at least 225 907 urban poor households in 1266 poor communities (Community Organisations Development Institute 2008).[1] Fresh and frozen foods are also sold in modern trade markets. Instant foods, in particular, are easy to find at the 1109 convenience stores located in every corner of the city (Working Group on Food for Change 2012). For customers seeking alternative markets, the city has a lot of green markets, shops and food box delivery services.[2]

Bangkok's food systems are shaped by various forces, and the different forces are driven by different actors through their planning exercises. Key actors include public agencies, planning experts, food corporations, civil society and the informal sector. Their roles play out on multiple scales, and to see the articulation of different actors and their planning practices is to understand how the food systems of this city are created.

2.1 The different food actors

2.1.1. State-led food systems planning: working together among public agencies and think-tanks

The planning of food systems in Bangkok is firstly driven by the cooperation of central, regional and local governments that are guided by self-sufficiency principles promoted by the late Ninth King. The Bangkok

Metropolitan Administration (BMA), which is the regional government, takes care of the whole Bangkok metropolitan region. BMA performs several food-related tasks. It plays a role in analysing the importance of farmlands in the peri-urban areas to feeding the city dwellers. It controls land use in order to maintain peri-urban farming areas as a green belt. BMA also develops and maintains agricultural infrastructure, particularly the irrigation systems.

BMA, in cooperation with the central government, also built the central fresh food markets. These markets, including Talat Thai and See Mum Moung, distribute fresh food from peri-urban farms, enabling inner city retailers to transport food to sell in the city. Thus, the central markets play an essential role in bridging rural, peri-urban and urban areas by providing good access to food provision.

The establishment of the central markets was done in parallel with controlling the quality of the hundreds of local fresh food markets scattered within the inner city. The BMA rates the quality level of those local markets and provides incentives to them to improve their hygiene. BMA also plays a role in facilitating the investment of food corporations in the city by building hypermarkets, supermarkets and convenience stores that can be accessed by each urban community.

Local urban communities are governed by the District Administration Offices (DAOs), which work under the BMA plans. These local governments[3] promote not only nutritious food, but also nutritious food and the well-being of city dwellers. Building upon the King's ideas, 50 DAOs in Bangkok have launched a variety of programmes to support farming in the city, such as the establishment of urban farming learning centres. Some DAOs have also created their own initiatives, such as the development of a rooftop garden and organisation of city farming training courses (see Figure 2.1). They promote organic food production and markets in their area. Some of them also link ordinary people to private sector businesses by facilitating the contract leasing of vacant private lands.[4]

Professional urban planners and planning think-tanks have also played an important role. Smart Growth Thailand was one of the agencies that provided academic and technical assistance to the food agenda planning process. This consultancy proposed the idea that conserving peri-urban farmlands would also address problems relating to urban sprawl. It advised the BMA to consider zoning the centre of each urban community to enable food markets to develop (Bunyapravitra 2015). Planning think-tanks, from academic units in public universities, advocated developing technologies to enable vertical farming in urban

Figure 2.1   City farming training course provided by Laksi local government. (*Source*: Piyapong Boossabong)

settings and promoted urban agriculture as a method to mitigate climate change. For example, Kasetsart University experimented with 'lightweight soil and food growing plants' for use with vertical gardening and created a vertical garden campus lab as a model to promote green universities. Thammasat University, Chulalongkorn University and Mahidon University integrated urban farming and water governance agenda and supported the calculation of draught and flood compensation for urban farmers. With their supportive research, the BMA has moved the focus from supporting rice production to supporting aquaculture. Farmers have accepted the change because they can sell their soil, from digging ponds, to the building sector.

2.1.2. Corporation-led food systems planning: connectedness of agribusiness, retailers and social enterprises

Food corporations play a large part in planning the production, processing and distribution of a variety of instant foods and some fresh foods. Large agribusinesses own the modern retail trade system throughout the

whole country, including thousands of hypermarkets, supermarkets and convenience stores in Bangkok. The top 25 largest stores were built on a total land area of 468 hectares, which is more than the total land taken up by the 25 largest public parks in Bangkok[5] (Thai Climate Justice 2012). They are also attempting to develop their own brands. Traditionally, they cooperate rather than compete with one another, and they have established close links with the central government and BMA by supporting political parties. They have benefited from national and regional policies throughout modern Thai history.

It should be noted that the Green Revolution has affected the Thai food regime since 1961, when the first Thai development plan (1961–6) included the principles of the Green Revolution as a strategy for development. The government changed the way people grow food; increasing productivity by supporting research about agricultural science and technology and by promoting chemical fertilisers (National Economic and Social Development Board 1961).

As a result of the Green Revolution, a few large agribusinesses monopolised the majority of farming production, technologies, food processing and distribution throughout the country (Leaunjumroon 2011). These companies also control hybrid seeds valued at roughly US$55 million per year (97 per cent of the total hybrid seeds used in Thailand) (Thai Seed Trading Association 2011). Large-scale agribusiness also shaped consumer food culture and partly affected the reduction of local food diversity, since the growth and expansion of the modern trade system have gradually destroyed small and medium-sized enterprises as well as the local food system within the city.

However, the importance of large-scale agribusiness should be taken into account in parallel with the criticisms. It should be recognised that agribusiness has helped to boost employment in Thailand by creating around 1 171 000 jobs and the number has increased roughly 3.1 per cent per year (Food Intelligence Centre Thailand 2017). In addition, large-scale agribusiness has provided the effective food distribution services to the aforementioned 1109 stores and 337 local markets accessed by city dwellers who live in the inner city (Working Group on Food for Change 2012). Small retail and wholesale food businesses also benefited from large-scale agribusiness, since they earned from distributing its products, such as seeds, fertilisers and technology, to small-scale urban farmers.

Social enterprises are a new type of food corporation that promotes a different approach. These private companies focus on sustainable agribusiness such as organising green markets, opening green restaurants

Figure 2.2   The backyard of Health-Me green restaurant. (*Source*: Piyapong Boossabong)

(see Figure 2.2), publishing magazines about farming experiences and know-how, and opening farming training centres.[6] These companies both earn money from agribusiness and contribute to the promotion of alternative and more sustainable food production and markets. Although these initiatives cannot challenge the structural injustice of the food regime, they contribute by proposing a pathway towards more resilient food supply chains and more inclusive growth.

2.1.3. Civil-society-led food systems planning: the collaboration of non-governmental and community-based organisations

Non-governmental organisations and community-based organisations (referred to as 'civil society') also play a role in planning food systems by facilitating the expansion of household, community and institution gardens within the inner city, especially in poorer communities. They complement rural agriculture by promoting safe, healthy and fair local food systems. They support neighbourhood planning and the role of urban agriculture by raising environmental awareness, adapting to

Figure 2.3   Weekly green food market. (*Source*: Piyapong Boossabong)

climate change, managing waste (reuse and recycling) and facilitating learning for urban kids. They also work with social enterprises to propose alternative food sources and distribution by promoting short food supply chains through the development of weekly green markets (see Figure 2.3), food fairs and vegetable box delivery directly from producers to customers.

These civil-society-led groups also promote community building practices. For example, a sense of community was instilled through the development of shared 'edible green space' (space for growing food). These collective gardens were planned and developed by the collaboration of communities and the Sustainable Agriculture Foundation, the Media Centre for Development, the Working Group on Food for Change, and the City Farm Association. There was larger-scale collaboration in cases where poor communities were the target, such as the ones in which the Slum Dwellers Network and the Informal Labour Network were engaged. These civil society organisations started by advocating alternative food movements and then began to promote local food systems. They have strengthened many part-time farmers through resources provision, knowledge transfer, network development and the facilitation of public fora in which these farmers may

exchange opinions and experiences. At least 98 well-organised collective gardens from among about 130 are active in the network. These collective vegetable gardens are involved by roughly 4900 people. They commonly grow vegetables and herbs that are used in cooking Thai foods, such as holy basil, sweet basil, Chinese kale, chilli, aubergines, spring onions, lemons, morning glory, mushrooms, peppermint, lettuce, coriander, cucumbers, cabbage, ginger and galanga. Some fruit trees are also planted, such as banana, guava, mango, tammareen and papaya (Mahasarakham University 2013).

2.1.4. Everyday food systems planning: the emergence and transformation of street food and mobile markets

The Bangkok food system is also characterised by the daily practices of street food venders and mobile markets (including floating markets). This everyday service has no specific pattern and yet it plays a role in making Bangkok a lively city with plenty of food. The numbers of street food vendors and mobile markets are not static, but respond to stimuli such as the changing seasons, food demands and economic conditions. The vendors in each street can change at any time as a result of decisions to move to other places or changes in employment. There are more than 30 vendors along some streets, especially in commercial zones such as the Khawsarn, Sukhumvit and Sealom Roads. It can be estimated that each small street will have about 10 street vendors and mobile markets. As there are 650 streets in Bangkok (Policy and Planning Division 2008), the total number of street vendors and mobile markets in Bangkok may reach 6500.

Most of these vendors make decisions on a daily basis, especially those who sell food on trucks (*rod-kub-khaw/rod-pum-poung*) and food on boats. These everyday food distribution practices bypass the limitations of other methods because they can access customers at the household scale and distribute food to the poor by offering cheap prices. Their focus, thus, makes some members of middle and upper classes feel irritated by their loud voices, messy food arrangements and unfashionable food types. However, no one can deny that they play an important role in enhancing food diversity, since they provide a variety of food from different sources than those of the modern trade system. They also distribute local vegetables and seeds. Their role also encompasses that of being local food guardians, conserving the local traditional food types and species at the same time as they unintentionally sustain biodiversity in the city.
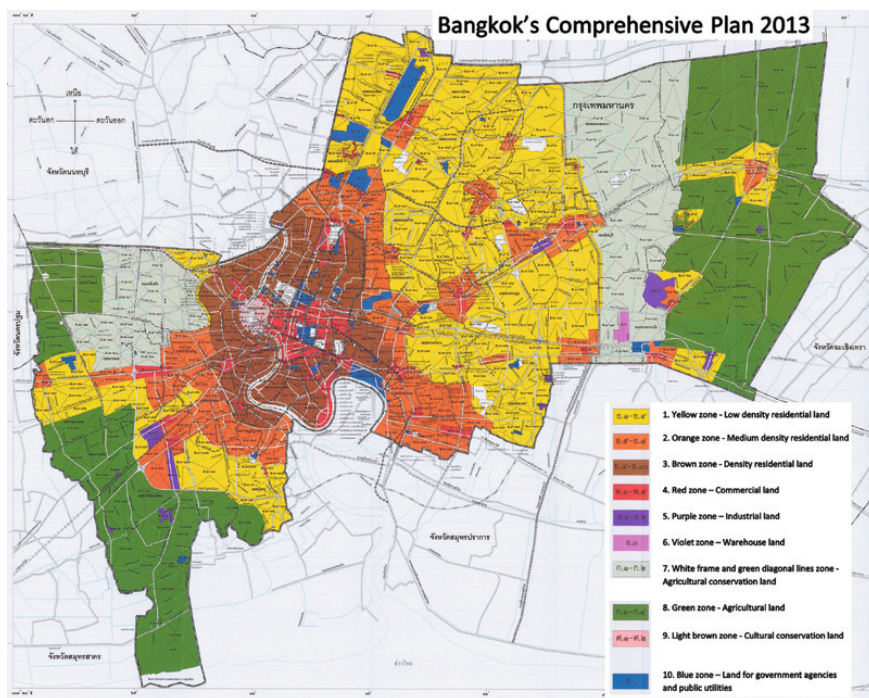
2.2. Planning approaches and instruments

2.2.1. Public agency planning

Food systems planning in Bangkok is, firstly, driven by the cooperation of public agencies and professional planning think-tanks. This state-led planning includes the conservation of peri-urban agriculture as a green belt and the development of irrigation systems by means of physical land use planning. It also supports food distribution by developing central fresh food markets that enable retailers to distribute food within the inner city.

The state-led planning is based mostly on physical land-use planning accomplished by professional planners. Supportive data are collected by the Policy and Planning Division working under the BMA in cooperation with academic units from public universities. Some information is delivered by DAOs, but the comprehensive plan is made at the regional scale before each DAO then makes its operational plan, which will focus on implementing the objectives in the comprehensive one within their sphere of authority and territory.

Technical and legal planning documents that directly relate to the promotion of food systems include the City Planning Act 1975, the Land Development Act 1982 and Bangkok's Comprehensive Plan 2013. The City Planning Act 1975 establishes the foundation of urban planning culture in Thailand, by which peri-urban agriculture is conserved as cultural heritage of Thai cities (Department of Public Works and Town & Country Planning 2016b). Since then agriculture has not been alienated from the city. Article 16 of the Land Development Act 1982 influences the protection of farmlands on the fringe of Bangkok and the development of irrigation systems, because this article specifies that soil fertility must be considered in land use and the fertile lands on Bangkok's fringe proved to be the best for growing food (Land Development Department 2016). Although this act has been replaced by the Land Development Act 2008, the language of article 16 remains. For Bangkok's Comprehensive Plan 2013 (see Figure 2.4), the previous two acts and the Building Control Act 1992/2015 are enforced at the same time as food markets and silos, for storing agricultural products, are zoned within the inner city (Department of Public Works and Town & Country Planning 2016a). The comprehensive plan also promotes small-scale farming in the inner city, particularly where it is zoned for housing (Department of City Planning 2013).

Figure 2.4   Bangkok's Comprehensive Plan 2013. (*Source*: Open access. Department of City Planning, Bangkok Metropolitan Administration)

There are other planning approaches and instruments that relate to food systems promotion either indirectly or through having spatial implications that affect food systems. To begin with, there are the four-year strategic plans adopted by BMA and the DAOs. Some of these strategic plans aimed to control the quality of food and market hygiene using specific measurable outcomes (BMA 2013; Klongtoei District Administration Office 2015; Laksi District Administration Office 2015). They also framed follow-up action plans relating to the urban food agenda, such as the Environmental Quality Management Plan, the Global Warming Reduction Action Plan and the Green Space Action Plan. The idea of edible green space is recognised by the Bangkok Green Space Action Plan 2009, while community gardens are promoted formally by the Bangkok Environmental Quality Management Plan 2012–16 (Environment Department 2012; 2009). The Global Warming Reduction Action Plan 2013–18, on the other hand, proposes measures to increase the number of public gardens, trees along the roads, and

green buildings. One strategy is to promote the planting of fruit trees, such as tamareen and mango. Another promotes the reuse of organic waste in gardening and farming activities (Environment Department 2013). Another state plan, called 'Bangkok 2020', looks forward to the future Bangkok and demands sustainable urban food systems.[7] This plan addresses the role of peri-urban farming areas to enhance urban resilience and envisions that such areas could be an emergency food source and floodways for draining water to the sea in times of severe flooding (Policy and Planning Division 2015).

2.2.2. Agribusiness planning

Secondly, Bangkok food systems are planned by large food corporations to control the agricultural industries and modern trade system that dominate the city food chains and take the largest portion of food distribution.

While agribusinesses influence state-led planning, they also have their own strategic business plans. In general these plans are coordinated with state-led plans and other business plans. For example, they planned to enhance profits from the market segments regulated by state-led plans – such as to link to economic crops the processing of agricultural products, food exports and food standards set by the state – and those market segments influenced by other food corporations' plans. They also identify desired changes to governmental regulation, such as changes to Bangkok's Comprehensive Plan. After a terrible flood that affected 72 per cent of the whole Bangkok area in 2011, it was found that some large agribusinesses planned to adapt by learning lessons from the interruption of food supply. They proposed to increase the number of distributive units to manage risks, which benefits the whole Bangkok food regime by enhancing the resilience of the urban food systems. For example, the large food agribusiness known as CP ALL was disrupted by flooding in 2011, which forced the closure of 10 per cent (about 600) of their convenience stores ('7–11'). After the flood, the agribusiness developed 100 new distributive units in Bangkok and its vicinity to enhance the efficiency of food distribution to their retail outlets, particularly in future risk situations. These distributive units supported the 10 main distribution centres of the corporation. In a similar way, Big-C established its new fresh food distribution centre in an area of 17 hectares. It was estimated that this new centre could prevent the loss, calculated as 15–20 per cent, if the supply chain of the corporation were again interrupted by floods. Moreover, 450 agribusinesses led by Tesco Lotus developed a new joint distribution centre in Bangkok. This model allowed them to share space and costs of

transportation as well as to create more flexible food supply chains. At the same time, distribution centres developed by a third party became the new business trend. They positioned themselves as providers of logistics to other corporations (Pornchaleumpong and Rattanapanon 2015).

2.2.3. Civil society planning

Thirdly, civil society organisations play a role in planning food systems by bringing about the expansion of household, community and institution gardens in the inner city. Civil-society-led planning proposes alternative food sources and distribution that promote both safe local food and fair food supply chains. They also support spatial neighbourhood planning to highlight the role of urban agriculture in enhancing social cohesion, raising environmental awareness and managing waste.

Civil-society-led planning adopted scenario and participatory planning approaches, but in their own way. They made a plan called 'Thailand Desires Food and Agricultural System 2033' by brainstorming experiences and visions of different civil society organisations using deliberative panels. So, it can be claimed that this plan is a shared vision of a network of civil society organisations. They dream of seeing the expansion of organic food production to 50 per cent of the total farmland, and 50 per cent use of local seeds, and of the food produced in Thai cities growing until it can feed the entire Thai population by 2033 (BioThai 2013).

To make their scenarios possible, civil society organisations have also stimulated communities to undertake spatial community and neighbourhood planning. The approaches adopted by them encouraged advocacy and collaborative planning. In their planning vision, community empowerment is one of key goals to be achieved. The network of civil society organisations expects that urban communities will be the main agent in reforming food and agricultural systems. The civil society organisations support community planning as a tool for raising awareness using a bottom-up approach to creating local food systems. They encourage farming communities to keep their lands, to strengthen their cooperatives, to change their production to be more sustainable, to develop farmers' markets and to think about alternative energy (BioThai 2013).

Aside from the highlights of each key planning instrument mentioned above, the connection between the various planning tools is that they share some foci and complement each other as shown in Table 2.1.

Table 2.1 Key focuses and the connections among various planning tools

Planning tools	To promote									
	Peri-urban farming	Agri cultural infra-structure	Collective/ community garden/ vacant land lease contract	Fruit tree planting	Green building; vertical farming	Organic-healthy food; reuse; training	Food market/ silo/ transport/ hygiene	Green/ farmers' market/ shop/ restaurant	Producer – customer relations (e.g. CSA/ PGS)	Pro-poor food distribution; local seeds; food diversity
City Planning Act 1975	✓									
Land Development Act 1982/2008	✓	✓								
Building Control Act 1992/2015					✓					
Comprehensive Plan 2013	✓		✓				✓			
Environmental Quality Management Plan 2012–16			✓	✓	✓					
Green Space Action Plan 2009				✓	✓					
Global Warming Reduction Action Plan 2013–18				✓	✓					
Bangkok 2020	✓		✓	✓	✓					
BMA strategic plan	✓	✓		✓	✓	✓	✓			
DAOs' strategic plans			✓	✓	✓	✓	✓	✓		✓
Large food corporations' business plans							✓			
Strategies of social enterprises					✓	✓		✓	✓	
Scenario 2033 of NGOs			✓	✓	✓	✓		✓	✓	✓

(Continued)

Table 2.1 (Continued)

| Planning tools | To promote | | | | | | | | | |
	Peri-urban farming	Agri-cultural infra-structure	Collective/community garden/vacant land lease contract	Fruit tree planting	Green building; vertical farming	Organic-healthy food; reuse; training	Food market/silo/transport/hygiene	Green/farmers' market/shop/restaurant	Producer–customer relations (e.g. CSA/PGS)	Pro-poor food distribution; local seeds; food diversity
Communi-ty/neigh-bourhood plans			✓	✓	✓	✓			✓	

2.2.4. Informal foods vendors – a lack of long-range planning

Lastly, Bangkok food systems are also characterised by the daily practices of street food venders and mobile markets. Their everyday planning has no specific patterns or particular instruments, but plays a role in promoting food diversity and making Bangkok a lively city with an abundance of food.

2.3. The city farm plan – a collaborative effort

While all the food actors have specific agendas, there are planning inter-relations between the various actors. For example, the public agencies and food corporations develop shared visions to achieve their mutual benefits. Although the corporations have influence upon urban food-related plans, they also adjust their plans to fit the changing state-led plans and regulations. Civil society organisations interact with corporations and the public agencies. They critique large corporations that monop-olise the food regime, and they also develop links with public agencies. They implement state-led planning, rather than fight it, and learn to work and share resources with social enterprises. Government regulates and facilitates street food venders and mobile markets, recognising that they create much of the identity of Bangkok. Without them, there would not be the Bangkok that everyone knows. BMA, in particular, helps to facili-tate co-functions of formal and informal distribution activities. BMA, for example, bridges formal and informal food actors by negotiating the use of outer spaces of modern supermarkets by traditional food venders. As a consequence, customers who go to the mall can choose whether to go inside the mall for the services of the formal distribution system or to stay outside for the services of the informal one.

In addition to this organisational interaction, the City Farm Programme has become a meeting point for all the actors and their different planning practices. Public agencies, experts, some corporations, civil society and the informal sector have come together to plan the ideal food system to serve Bangkok and ensure its sustainability. The concept of sustainability proved controversial, having different interpretations, but this collaborative process helped to define a meaningful way forward.

The City Farm Programme began in 2010 and was funded under the Food and Nutrition Programme of the National Health Promotion Foundation, part of the Prime Minister's Office. It has been co-managed by a multitude of civil society organisations with cooperation from the public and private sectors. With such characteristics this programme can be seen as an interaction plan. The emergence of the programme was a result of concern about urban food insecurity (the poor quality and increasing price of food) as well as the intention to implement the King's idea of low-input farming in an urban context. The programme has been granted seven million baht annually (about US$235 000). Some of this amount were used to support 50 collective/community gardens each year (35 000–50 000 baht or US$1170–1670 per garden) (see Figure 2.5). The rest is for organising training courses and alternative food markets,

Figure 2.5   Pinchareaun community garden supported by the City Farm Programme. (*Source*: Piyapong Boossabong)

providing inputs, sharing farming knowledge, promoting wide-ranging food initiatives, public campaigns, and fixed and operating costs of the programme (Mahasarakham University 2013).

Initiatives undertaken under the umbrella of the City Farm Programme have resulted in unexpected collaborations. A good example began when the Laksi DAO developed a rooftop garden and opened it to the public as a learning centre. This DAO also worked with various civil society organisations which played a key role in organising training courses on urban farming. Other DAOs, learning from this experience, developed their own rooftop garden and secured BMA support to organise training courses. However, the demand for training increased beyond the DAOs' capacity. So, social enterprises stepped in by proposing alternative city gardening training courses and the City Farm Programme agreed to help them start up.

As a result, there has been an expansion of rooftop garden installations throughout the city, on private, temple, school and even hospital buildings. As the demand for rooftop gardens grew, experts from Kasetsart University engaged with the programme and proposed the use of lightweight soil and food-growing plants so this programme would impose less structural stress on the host buildings. They also conducted research on the relationship between the design of rooftop gardens and energy efficiency.

In parallel with the growing number of individual-based farms, civil society organisations, led by the Sustainable Agriculture Foundation, have worked to promote community gardens in the city. As part of the City Farm Programme, civil societies, facilitated by local DAOs, encouraged a community committee within their jurisdiction to participate in the programme. For example, the Slum Dwellers Network and the Informal Labour Network (as civil society organisations) helped to introduce the programme to the informal sector.

Similarly, the Working Group on Food for Change, another civil society organisation, led the organisation of local seeds donations from rural and peri-urban farmers to urban communities and groups aiming to develop collective gardens. When some community leaders required special know-how, the programme managers asked DAOs and social enterprises to organise training courses for them for free. As a result, many collective gardens have appeared in Bangkok and their networks have been created so they can learn from each other (Boossabong 2012).

Food production also benefited from the promotion of marketing opportunities. Apart from sharing and selling products to neighbours, the Green Market Network, as a network of social enterprises, played a key role in developing alternative markets, such as green markets,

green fairs and direct food delivery from producers to customers. Some green restaurants, particularly ones selling vegetarian foods and promoting local food systems, also agreed to buy products from these urban farmers.

From these examples, it can be seen that there is an articulation between public agencies, experts, social enterprises, civil society and the informal sector in planning food systems at different entry points and different scales. Their articulation helps in developing multiple food chains encompassing various ways of growing food to many food distribution initiatives that range from community scale to the wider scale of the city region.

2.4. Concluding remarks

Through different planning practices, different impacts are made and they either complement each other or bring about conflict or confusion. The intended impact of the aforementioned planning practices was to improve the food system of Bangkok and to increase food security and sustainability. Other objectives were to augment public infrastructure development with the investment of agribusiness and to complement the modern food trade system with street food vendors and mobile markets that can guarantee that the poor and marginalised will be able to access food.

The key lesson learned from Bangkok is that food systems are too complex to be covered by a single all-inclusive plan that attempts to address the multiple scales and mixes of formal and informal activities and that has been developed by multiple stakeholders. The best approach we discovered was to integrate and facilitate an articulation of multi-scalar, sectoral, spatial and strategic planning practices between the various food actors. This layering of plans allows us to understand how food systems really work in fragmented and pluralist societies. Such an approach also avoids the pitfalls of large-scale collaboration and consensus building, which is both difficult to do and can conceal structural injustice and embedded conflicts. Our experience offers an example of integrating food into urban planning networks in which spaces are opened up for everyone to participate in creating food systems.

We have also learned that the encouragement of urban farming is an integral part of food planning. Many Bangkok residents, particularly the poor, have moved from rural areas to live in the city and have farming skills. For many, farming not only provides food; it also heals their feelings of homesickness and opens a window of opportunity.

Moreover, civil society organisations cannot plan to create more sustainable food chains without the cooperation of social enterprises and their corporate social responsibility plans. On the other hand, conflict between different planning practices can arise from the different goals of large-scale agribusiness and civil society organisations. Whereas the former aims to control food systems, the latter dream of creating just food systems in which ordinary people are empowered with self-determination.

To cope with conflicts of interests between the different food actors, government believes that growth and sustainability can be achieved together. While large food corporations operate to maximise their profit and alternative forces seek gradual reform, government supports both sides by having two faces; one to promote food actors who advocate for more sustainable, local and fair food systems, and another to protect agribusinesses as they drive macro-economic growth.

Thus, the food governance structure includes various food sectors by which government, at the centre, allows different actors to contribute to the food system in their own ways. Two different approaches still battle over the way towards more or less sustainable, local and fair food systems. Although large food corporations seem to be the evil, their existence and power stimulate the collaboration of alternative food actors, who realise that they need to work together to be stronger in bargaining with the food corporations.

The activity of local government, civil society organisations and social enterprises responds better to such social values by enabling city dwellers' increasing concern with sustainable, local and fair food systems to influence the strategic changes of agribusinesses. Besides that, when food exports from Thailand suffered a loss of US$330 million over four years as a result of chemical contamination found by tests (Thailand Foundation for Customers 2012), the central government started to force large food corporations to improve their supply chains so they would be more organic. This is a good sign of moving forward in a better way and may enable the interests of agribusinesses and civil society organisations to meet at some point along the way.

Finally, it should be noted that Bangkok's efforts to integrate food into urban planning was greatly facilitated by the support of the late Ninth King of Thailand, who was the country's symbolic and spiritual leader. As he was respected as the father of the country, his speeches promoting growing food in developed areas using low-input methods, his support for self-reliance and his encouragement of urban farming in Jitlada Garden[8] (located in inner Bangkok) were a positive force that

stimulated many urban dwellers to follow his example and grow food in the city. Almost all sectors in the country, whether they agreed with his ideas or not, did not reject them and still refer to his speeches and practice to legitimise their plans and actions. For example, recently, the Agriculture and Cooperative Bank announced a programme to give credit to part-time urban farmers who intend to borrow money to follow the Ninth King's path.

Notes

1. The estimated figure comes from a consideration of housing. Most of these people (79 per cent) live in rented lands, rooms and houses, while the rest (21 per cent) enter the lands of others without permission (trespassing on the land).
2. For those who are members of community-supported agriculture (CSA) programmes.
3. This chapter differentiates regional and local governments by considering their scales – not by their legal status in Thailand.
4. The contracts mostly agree upon a lease of 3–5 years, after which the owners can ask for the return of their lands with four months' notice (J. Tongput, personal communication, 24 April 2013).
5. Roughly 158 acres
6. In the farming training business, the number of farming trainees in 2013 was roughly 1000; this number has been continuously increasing (Health Promotion Foundation 2013).
7. However, it is different from other strategic plans in that it discusses risk analyses and possibilities in the future without making specific recommendations.
8. Jitlada Garden is a city farm that covers 100 rais (about 16 hectares) inside the territory of the Dusit Palace located in the inner city of Bangkok. The farm was supervised by the King and aims to experiment in farming technologies and practices. It has rice fields, a dairy farm, horticulture and aquaculture.

References

BioThai. 2013. *Thailand Desires Food and Agricultural System 2033*. Nontaburee: Food Security Programme.

BMA. 2013. 'Bangkok Metropolitan Strategic Planning 2013–2016'. Last modified 28 April. http://203.155.220.230/bmainfo/docs/plans/1plan%20development%2012%20year%20time%202%20(%202556–2559).pdf

Boossabong, Piyapong. 2012. *Growing City for Life: Approaches and Practices in Urban Agriculture*. Nontaburee: Sustainable Agriculture Foundation.

Boossabong, Piyapong. 2017. 'Food and Floods in the City: Lessons from Collaborative Governance within Policy Networks on Urban Agriculture in Bangkok' in *Environmental Justice and Urban Resilience in the Global South*, edited by Adriana Allen, Liza Griffin and Cassidy Johnson, 215–30. London: Palgrave Macmillan.

Bunyapravitra, Thapana. 2015. 'The Role of Urban Planning in Food Conservation and Food Production Development in Thailand'. Last modified January 8. http://www.thaicityfarm.com/autopagev4/show_page.php

City Farm Program. 2014. *Progress Report of City Farm Program*. Bangkok.

Community Organisations Development Institute. 2008. *A Survey of Crowded Communities in Bangkok in 2008*. Bangkok: Ministry of Social Development and Human Security.

Department of City Planning. 2013. *Bangkok's Comprehensive Plan 2013*. Bangkok: BMA.

Department of Public Works and Town & Country Planning. 2016a. 'Building Control Act'. Last modified 28 April. http://www.dpt.go.th/krabi/main/images/stories/file_pdf/control%20 a%20building 2522.pdf

Department of Public Works and Town & Country Planning. 2016b. 'City Planning Act'. Last modified 28 April. http://library2.parliament.go.th/giventake/content_nla2557/law 86–080958-76.pdf

Environment Department. 2009. *Bangkok Green Space Action Plan 2009*. Bangkok: BMA.

Environment Department. 2012. *Bangkok Environmental Quality Management Plan 2012–2016*. Bangkok: BMA.

Environment Department. 2013. *Bangkok Global Warming Reduction Action Plan 2013–2018*. Bangkok: BMA.

Food Intelligence Centre Thailand. 2017. *Employment Trends in Agribusiness in the Future*. Bangkok: Office of Industrial Economics.

Health Promotion Foundation. 2013. 'Expanding City Farms for More Safe Food'. Last modified 15 September. http://www.thaihealth.or.th/content/16275.html

Klongtoei District Administration Office. 2015. 'Klongtoei Operational Plan 2015'. Last modified 29 April. http://www.bangkok.go.th/khlongtoei/page/sub/6247

Laksi District Administration Office. 2015. 'Laksi Operational Plan 2015'. Last modified 29 April. http://www.bangkok.go.th/laksi/page/sub/4931

Land Development Department. 2016. 'Land Development Act'. Last modified 29 April. http://www.ldd.go.th/ACT/all.pdf

Leaunjumroon, Vitoon. 2011. *Agricultural Reform for Food Security: An Analysis and Policy Responses*. Bangkok: BioThai.

Mahasarakham University. 2013. *An Evaluation of the City Farm Programme 2010–2012*. Bangkok: National Health Promotion Foundation.

National Economic and Social Development Board. 1961. *National Development Plan 1961–1966*. Bangkok: Prime Minister's Office.

Office of Agricultural Economics. 2016. *Agricultural Statistics of Thailand*. Bangkok: Ministry of Agriculture and Cooperatives.

Policy and Planning Division. 2008. *Street Networks and Special Lanes in Bangkok*. Bangkok: BMA.

Policy and Planning Division. 2015. *Bangkok 2020*. Bangkok: BMA.

Policy and Planning Division. 2016. *Agriculture in Bangkok*. Bangkok: BMA.

Pornchaleumpong, P. and Rattanapanon, N. 2015. *Distribution Center in Thailand*. Bangkok: Food Network Solution.

Thai Climate Justice. 2012. 'Comparing Commercial and Green Spaces in Bangkok'. Last modified 30 May. http://www.thaiclimatejustice.org

Thai Seed Trading Association. 2011. 'Hybrid Seeds in Thailand'. Last modified 30 May. http://www.thasta.com/

Thailand Foundation for Customers. 2012. *The Survey of Chemical Contamination in Vegetables Sold in Supermarkets around Bangkok*. Bangkok.

Working Group on Food for Change. 2012. *Bangkok Food Mapping Survey*. Bangkok.

3

Edible Providence
Integrating local food into urban planning

Katherine Brown and Sheila Deming Brush

Since 2003, Providence, Rhode Island, a small United States city, has successfully integrated food concerns into urban planning and policy implementation. As a result Providence has already seen a marked increase in local production opportunities, distribution outlets, food waste composting and food security initiatives and is poised to make significant additional advances in the coming years. Figure 3.1 illustrates the bounty of one of Providence's many productive community gardens.

This chapter studies the confluence of factors that drove the inclusion of food in urban planning and policy implementation. How did food advocates take advantage of the Planning Department's increased emphasis on citizen participation to promote food system thinking within city government? What roles did supportive city planners and elected officials play in facilitating this change? What conditions within city government and within the NGO community fostered the productive collaboration between community interests and municipal decision-makers? By addressing these specific questions as it narrates the work of the last 15 years, the chapter offers insights into the driving forces behind Providence's food planning and policy development to date and suggests both the city's potential for additional progress and the challenges that must still be addressed.

3.1. The growth of Providence

On the eastern seaboard 95 km south of Boston, Providence is the capital and largest city in the nation's smallest but second most densely

Figure 3.1   Somerset Garden, Providence. Once a trash-strewn vacant lot, the Southside Community Land Trust's 0.2-hectare Somerset Garden is now a highly productive source of food for neighbourhood families. (*Source*: Lucas Foglia)

populated state. In 1636, Narragansett Indians granted English colonists land use rights to establish Providence on the eastern bank of the Providence River at the head of Narragansett Bay. From that time onwards the city's physical and economic development benefited from its natural harbour and a river system that provided access to resources in the hinterlands and a powerful energy source to drive the city's industrial development.

Through the early 1800s, Providence grew from rural hamlet to prosperous seaport to early industrial and financial centre and overland transportation hub. During the 1800s, the city experienced a period of

rapid industrial expansion, and the availability of work in the quickly expanding factories attracted waves of immigrants, first from England, Scotland and English- and French-speaking Canada, and later from Ireland and Italy. The city's population doubled between 1865 and 1880 and doubled again between 1880 and 1910. By 1900, Providence was the twentieth-largest American city. It reached a population peak of 250 000 in 1940.

Unfortunately the growth of the nineteenth and early twentieth century did not continue. Providence's industrial base eroded steadily after World War II, the population shrank to a low of 156 000 in 1980, and the city entered a period of urban decline. Like other American 'rust belt' cities, Providence was faced with dire need for both physical redevelopment and economic repositioning. Although the city's downtown physical revitalisation in the 1980s and 1990s combined historic restoration with major redesign and new development, this physical revitalisation was slow to attract new business. Only now is Providence beginning to see significant new economic growth.

However, the city is not without multiple assets, including historic and walkable neighbourhoods, renowned universities, regional health care centres, an increasingly vibrant arts and cultural scene and a port that serves as a regional distribution point for fuel, salt and raw materials. The city has continued to attract new immigrant populations, who bring energy and entrepreneurial spirit. Of Providence's current 179 000 residents, nearly half are Hispanic/Latino, Asian or African.[1] And, paradoxically, in an otherwise built-out city, abandoned industrial buildings and blighted housing stock opened up acres of vacant land – some of which provided an essential ingredient for subsequent food sector development.

3.2. Urban planning up to 2000

Providence's original colonists laid out narrow house lots along the eastern bank of the Providence River and used land on the west side of the river as common ground for raising crops and grazing animals. Through the early 1800s, physical growth continued to centre on the area along the river. Farms ringed the built-up part of town and supplied produce and meat to those in the town centre. As manufacturing boomed in the 1800s, factory expansion and housing construction rapidly consumed what had once been open land within the city limits.

Increased demand for public services and recognition of problems from unplanned growth led elected officials and civic leaders to take steps to begin to guide the city's ongoing development. In 1901, the City Board of Park Commissioners was created to ensure that open space would be available for the thickly settled city population. In 1913, the City Plan Commission was organised and, in 1923, the city adopted its first zoning ordinance.

During the 1940s, the City Plan Commission was reorganised and provided with professional staff, and the Providence Redevelopment Authority was created. Between 1946 and 1953, the City Plan Commission developed a city master plan, published as a series of separate reports. A second master plan was produced in 1964 and updated in the 1980s. In addition to these master plans, the city produced a number of separate plans relating to neighbourhoods and to the downtown centre.

In 1988, the Rhode Island General Assembly passed the State Comprehensive Planning and Land Use Act. This legislation required municipalities to develop a local comprehensive plan, mandated specific content for local comprehensive plans, and required each municipality to bring its zoning ordinance into consistency with its local comprehensive plan. Providence's first local comprehensive plan, adopted in 1993, guided the city's development for the next 15 years.

The state legislation did not require, nor did the city's 1993 local comprehensive plan include, any discussion of food, but this is not surprising. As the American Planning Association (APA) stated in its *Policy Guide on Community and Regional Food Planning*, adopted in 2007, 'planners have paid less attention to food issues when compared with long-standing planning topics such as economic development, transportation, the environment, and housing'.[2] The APA suggested several reasons behind the lack of attention to food issues:

1. a view that the food system – representing the flow of products from production, through processing, distribution, consumption, and the management of wastes, and associated processes – only indirectly touches on the built environment, a principal focus of planning's interest;
2. a sense that the food system isn't broken, so why fix it; and
3. a perception that the food system meets neither of two important conditions under which planners act – i.e., dealing with public goods like air and water; and planning for services and facilities in which the private sector is unwilling to invest, such as public transit, sewers, highways, and parks.[3]

From 1945 through 1992, Rhode Island farms and land in farms had decreased by about 80 per cent, and the remaining farmland was under strong development pressure. Providence, and Rhode Island as a whole, was part of the industrial food system. Providence imported virtually all food from outside.

Food production and food waste composting within the city were limited to the occasional backyard gardener, 12 community gardens and a 1–1.5-hectare market farm. Providence's once active food warehousing and market district had virtually disappeared. Until 2002, there was only one farmers' market in Providence where Rhode Island farmers sold directly to customers. Beyond recognition that some of Rhode Island's restaurants were gaining regional attention, state and local officials did not view food production, processing and distribution as economic drivers. Nor were rising food insecurity and diet-related health concerns widely understood.

Beginning around 2003, however, a number of factors combined to draw city government attention to the importance of providing increased opportunities for community gardening and urban agriculture. This ultimately led to the inclusion of broader food system considerations in city planning and to the adoption of city policies supportive of local food initiatives.

3.3. Contributing factors

3.3.1. NGO and citizen capacity to influence city planning efforts

In the early 2000s, Providence witnessed a nascent groundswell of community support for the local food system, which reflected the increasing public interest in local food in many cities across the US and in other countries. Supporters in Providence included food growers, many of whom were recent immigrants who brought their agricultural know-how from Asia, Africa and the Caribbean; young adults who embraced the local food movement and urban gardening; and environmentalists whose sustainability goals overlapped with urban agriculture.

This upsurge in interest was inspired and urged on by the work of Providence's earliest food-related NGO, the Southside Community Land Trust (SCLT). Founded in 1981, SCLT was the first and remains the nation's only community land trust (CLT) that is uniquely dedicated to urban agriculture. As Rosenberg and colleagues relate in 'Beyond Housing: Urban Agriculture and Commercial Development by Community Land Trusts', CLTs in the United States exist in many forms with the common purpose of holding land in order to address a range of community needs. Most CLTs have focused on affordable homeownership.[4] SCLT's nearly

four-decade-long dedication to urban agriculture has been a notable exception until recently, when a number of other CLTs expanded their goals to include agriculture.

SCLT's unique focus on urban agriculture was shaped by the conditions in Providence: the availability of vacant lots in residential neighbourhoods, and a large immigrant population that lacked access to culturally appropriate food and often already possessed the skills to grow food. Responding to the possibility of revitalising blighted neighbourhoods and providing opportunities for residents to grow the foods to which they were accustomed, by 2003 SCLT had already established 10 community gardens and one 0.3-hectare market farm inside Providence and managed a 20-hectare farm just outside the city limits.

Concerns about gaps in the local food system also led to the establishment of several additional NGOs that complemented SCLT's agriculture programmes, and by 2003 Providence's NGO community had developed the organisational capacity necessary to mobilise community constituencies and engage with city government.

In keeping with its mission of creating community food systems where locally produced, affordable and healthy food would be available to all in 2004, SCLT took the lead in advocating for Providence's local food system when it launched the Providence Urban Agriculture Task Force (UATF). SCLT's leadership brought to the table three elements: on-the-ground evidence of the benefits of urban agriculture with their gardens and farms, a network of growers who provided a ready constituency of support, and a recognition of the importance of municipal policy change if the food system was to make significant advances.

SCLT's goal for the UATF was to coalesce NGO and community interests to ensure city residents had access to affordable, fresh, locally grown and culturally appropriate food. In keeping with SCLT's system-wide perspective and the priorities of their funding source, the US Department of Agriculture (USDA) Food Project grant programme,[5] UATF members organised around a food system model, seeking long-term citywide systemic changes. Interpreting 'urban agriculture' broadly, they collaborated in identifying policies and projects to increase the amount of food raised in Providence and surrounding municipalities; to facilitate healthy food access, especially for low-income consumers; to integrate food with housing and community development; to compost food waste; and to negotiate farm-to-school purchasing agreements between the Providence School Department and Rhode Island farmers.

UATF's 40 members included farmers, gardeners, NGOs, food and health professionals, environmentalists and city and state staff and

Table 3.1 Urban Agriculture Task Force NGOs

Members	Founded	Description
Southside Community Land Trust	1981	Converts blighted land into community gardens/farms, education, community-building, advocacy. http://www.southsideclt.org
FarmFresh RI	2004	Fosters farm viability and urban consumers' access to farm-raised goods: farmers' markets, online distribution service, food access. http://www.farmfreshri.org
KidsFirst	1989	Pioneered Rhode Island's farm-to-school programme. http://ridance.com/kidsfirst.html
Hmong United	1978	Supports the Hmong community. http://huari.org
African Alliance of Rhode Island	2004	Assists newcomers: resettlement, gardens/farms, farmers' market booths. http://www.africanallianceri.org
Rhode Island Food Bank	1982	Coordinates food deliveries to emergency food sites statewide. http://rifoodbank.org
Elmwood Foundation	1975	Community development corporation (CDC): affordable housing, youth garden. http://www.elmwoodfoundation.org
West Elmwood Housing Development Corporation	1970s	CDC: affordable housing, Sankofa Urban Agriculture Village. http://www.westelmwood.org
Olneyville Housing	1988	CDC: affordable housing, community gardens, edible landscaping. http://www.oneneighborhoodbuilders.org
Habitat for Humanity	1976	CDC: affordable housing, backyard gardens. http://www.habitatprov.org/site/index.php
Environment Council of Rhode Island	1972	Environmental protection advocacy, compost education/advocacy. http://www.environmentcouncilri.org
Groundworks Providence	1999	Environmental restoration, community gardens/greenhouse. http://groundworkprovidence.org
Environmental Justice League of Rhode Island	2007	Environmental justice issues, healthy corner store initiative. http://ejlri.org

Source: Katherine Brown and Sheila Brush.

policy-makers. The members' diverse individual agendas included public health and nutrition, food security, housing and community development, environmental protection, youth betterment, anti-poverty and racism, immigrant and refugee resettlement, farm viability and economic development. Food provided their common ground. Table 3.1 lists key NGOs participating in UATF, illustrating the breadth of interests and organisational capacity that were mobilised.

3.3.2. City support of citizen participation in planning

In 2003, Providence's Department of Planning and Development (Planning Department) began to map out the process for creating a new local comprehensive plan. Whereas previous plans had been developed using a top-down approach, this time neighbourhood associations and community residents called for a planning process that incorporated input from citizens across the city. In response, the Planning Department announced that its plan development process would include a citywide charrette in the autumn of 2006, after which an interim local comprehensive plan would be adopted. The process continued with a series of neighbourhood charrettes in 2007–9, and culminated in neighbourhood plans and a final local comprehensive plan.

The Planning Department's emphasis on public engagement provided an ideal opportunity for UATF members to garner municipal support for the policy changes they were advocating. They focused their efforts on incorporating language into the neighbourhood plans and the comprehensive plan which would increase food production in Providence by enabling the development of new community gardens and market farms on city-owned property.

One of the UATF's first steps was to invite Mayor David Cicilline to visit SCLT's City Farm and speak with UATF members. Cicilline remembers his visit as a turning point in his own understanding of the value of growing food in the city:

> At City Farm, seeing Dominican, Laotian, Haitian, and white interns working together, I understood immediately how powerful food gardens and farms in the city can be. These youth were learning environmental stewardship, growing food for their families, and improving blighted lots. I was impressed to see how much food could be grown in a small space. I remember thinking here's a win–win model we can use all over the city.[6]

Other UATF efforts included publishing *Urban Agriculture in Providence: Growing Our Community by Growing Good Food*, which made the case for including urban agriculture in the new comprehensive plan;[7] issuing a white paper for planning professionals entitled *Planning for Appropriately Scaled Agriculture in Providence*;[8] and proposing for the Planning Department's consideration draft language in favour of increasing food production within the city.

UATF also spread word about the Planning Department's charrettes among food advocates and helped empower non-English-speaking growers to present their interests at those public charrettes. This reinforced the Mayor's and Planning Department's growing recognition that community gardens and other local food initiatives were a priority for many residents. As David Everett, one of the city's planners who staffed the public charrettes remembers, 'Many at the City level didn't acknowledge urban farmers as much more than a fringe element, and even I came to realize the network was larger than I'd imagined.'[9]

Garry Bliss, then director of community development, summed up the effectiveness of the UATF's engagement with the city's planning process as follows:

> What the pro-urban ag folks did is a textbook example of effective engagement with municipal government. Their outreach helped policy makers and staff understand what urban ag could do. They offered successful on-the-ground examples so urban agriculture was not an abstraction. Their efforts complemented the government's process.[10]

3.3.3. Consistent leadership vision

Three different mayors have led Providence since 2003. David Cicilline (now US Congressman Cicilline) governed from 2003 through 2010; Angel Taveras from 2011 through 2014; and Jorge Elorza has served as mayor since the beginning of 2015. There has also been turnover in the City Council, which is responsible for legislative actions. These changes in leadership notwithstanding, once the initial commitment to addressing food issues was established, subsequent administrations and councils continued the city's food initiative momentum and followed a trajectory that moved from a focus on local food production at a neighbourhood level to a systems-level perspective. The mayors not only continued to

build on the goals, organisational changes and programmatic strategies initiated by their predecessors, but in many cases retained key personnel.

During this period, US cities, and mayors in particular, were taking a lead on climate change and sustainability issues. Providence's mayors and several council members were among those who committed to work on these critical issues. Not only did sustainability and climate change provide a larger policy umbrella under which food system issues could be treated, but food issues were often easier to discuss with the public than more complex subjects such as climate change and alternative energy.

In 2008, Mayor Cicilline issued *Greenprint Providence*, a report summarising the city's vision to 'reduce global warming, pollution and to position Providence as a leader in the rapidly growing green economy'. The report's section on 'Open Space' stated, 'community gardens and urban agriculture build community, foster cultural identity and connections, engage residents in the stewardship of land, and provide affordable produce'.[11]

3.3.4. New approach to City Hall structure

During this period, there was recognition within City Hall that complex issues such as environmental sustainability could most effectively be addressed through the involvement and collaboration of multiple departments. Budget limitations and a sharp decrease in federal support required the city also to partner with the private sector in order to accomplish its goals. These needs led to creative office restructuring. Two new offices – Sustainability and Healthy Communities – created during this period related directly to the city's commitment to food issues.

In 2008, the City Council passed an ordinance that established the Environmental Sustainability Task Force and created the position of sustainability director. The ordinance responded to growing concern about sustainability and signaled the city's increased readiness to invite ongoing NGO and academic participation in planning and policy-making. It directed the Task Force to work with the Office of Sustainability, the Mayor, the City Council and other city departments to coordinate and provide public accountability, transparency and accessibility regarding the city's environmental agenda and to propose innovative, achievable environmental initiatives.

Former City Council member Seth Yurdin, who introduced the ordinance, states that it illustrated the growing awareness within city government that a city the size of Providence did not have the resources to bring on staff or consultants to tackle increasingly complex issues like

environmental sustainability. Instead, the city would need to tap into private sources of knowledge and expertise.[12] The Task Force enabled city government to bring together multiple interests and experts' perspectives under the umbrella of sustainability.

From the first, local food system advocates have been represented on the Environmental Sustainability Task Force, ensuring that food issues are brought to the city's attention. As former Task Force co-chair and Mayor Elorza's current chief of staff, Nicole Pollock recalls, 'Food has always been a big piece of environmental sustainability and Task Force members have consistently articulated it as a critical topic area for the City to address.'[13]

In 2012, Mayor Taveras established by executive order the Healthy Communities Office. Healthy Communities is charged with soliciting community input, establishing creative partnership across city departments and with the city's NGOs and leveraging funds to create healthier outcomes for city residents. Its responsibilities include food system changes to improve nutrition and increase access to healthy foods. Like the Sustainability Office, Healthy Communities demonstrates the city's commitment to innovative structures within government to address system-wide responses to complex problems. As Peter Asen, former director of the Healthy Communities Office and Director of Partnerships and Development for Mayor Elorza observes:

> There was a general recognition that the City could and should look beyond its traditional core functions like picking up trash, fixing roads, running schools, etc. Sustainability and Healthy Communities are part of a trend in Providence of seeing the role of government less narrowly to include broader issues of well-being.[14]

3.4. City planning and policy documents supportive of local food

3.4.1. Providence's comprehensive plan

As mandated by state law, Providence's local comprehensive plan and the Zoning Ordinance are formally adopted by the City Council and guide zoning and development decisions and city policies. As such they are key documents for establishing the city's planning and funding priorities. In 2007, following the active engagement of food system advocates in public planning charrettes, the city published *Providence Tomorrow: The*

Interim Comprehensive Plan and, between 2009 and 2010, it published a series of neighbourhood plans to summarise the findings of the Planning Department's neighbourhood charrettes and to prioritise recommended actions. Both the Interim Comprehensive Plan and most of the neighbourhood plans discussed the importance of providing community gardens and farming opportunities.

Providence Tomorrow: The Final Comprehensive Plan, adopted in 2014, built on the foundational work contained in the Interim Comprehensive Plan and the series of neighbourhood plans. Developed in-house, the Final Comprehensive Plan provides even more robust treatment of food system objectives and strategies relating to various components of the food system. Multiple comprehensive plan elements incorporate strategies to promote food production in the city, to include gardens and farms in community revitalisation efforts and to use food businesses to build the city's economy.

The plan's Sustainability Element includes strategies to:

E. Establish guidelines and amend regulations as necessary to promote appropriately-scaled, hand-tended agriculture, including community gardens as a temporary or long-term use of surplus or temporarily vacant City property and Rhode Island Department of Transportation (RIDOT) property, providing neighborhood access to healthy, affordable foodstuffs and promoting stewardship and remediation of land …

H. Establish a goal that every Providence resident live within a ten-minute walk of a community garden.

I. Promote CSA (community-supported agriculture) co-ops and the health benefits of local produce.

J. Investigate innovative solutions to provide accessible and affordable water service for community gardening as needed.

K. Support 'vertical farming' whereby existing buildings and other structures can be used for growing.[15]

The Sustainability Element also calls for 'maintaining and supporting existing and proposed recycling and composting programmes, supporting the establishment of a sustainable regional or municipal composting facility, and amending regulations as necessary, to support composting programs'.[16]

The Business and Jobs Element recognises urban agriculture as part of neighbourhood economic development and includes a strategy

of identifying and preserving 'areas suitable for urban agriculture'. Its strategies for neighbourhood economic development include, 'Using a variety of public and private funding sources, [to] strengthen financial and technical assistance programs that support small business and neighborhood revitalization, such as Neighborhood Markets'. Other strategies include 'Support farmers' markets to supply locally-grown food to residents of the city' and 'Support the creation of a citywide marketplace for locally-produced food and crafts'.[17] Recognising further 'Providence's role as the economic center of the state', the Business and Jobs Element presents a strategy to 'Support local agriculture through farm-to-school and farm-to-government programs that link local farmers to schools and encourage government purchasing of local produce'.[18]

The Comprehensive Plan's People and Public Spaces Element includes five specific strategies relating to community gardening:

A. Work with residents and community groups to identify viable community garden sites.
B. Open at least one community garden per year in a public park.
C. Expand community gardening opportunities on under-utilized park land.
D. Investigate ways to identify and match potential park-owned garden sites with growers.
E. Establish a goal that every Providence resident live within a ten-minute walk of a community garden.[19]

Finally, the comprehensive plan's Land Use Element calls for identifying 'city and/or state-owned open spaces best suited for urban agriculture', 'amending regulations as necessary to facilitate urban agriculture' and 'amending regulations as necessary to promote a system of farmers' markets throughout the city.'[20]

3.4.2. Zoning Ordinance

The City's new Zoning Ordinance, adopted in 2014–15, permits plant agriculture by right in 16 of the city's 20 zoning districts and permits mobile food sales (with a temporary use permit) in 14 districts, and farmers' markets (with a temporary use permit) in 17 districts. Use standards are provided in all cases. Apiaries, aquaculture/aquaponic facilities,

chicken coops and coldframe structures are permitted as accessory structures in all districts unless specifically prohibited by the ordinance. The definitions section also notes that 'light industrial uses' include aquaculture/aquaponic facilities.

3.4.3. Providence's Consolidated Plan

The City also referenced community gardens in another essential planning document – the Consolidated Plan. In order to receive certain federal funds, the city is required to prepare a Consolidated Plan, in which it sets forth its priorities for housing and community development. Providence's 2005 and 2010 Consolidated Plans identified community gardens as a community development strategy, and thus facilitated the distribution of federal funding to promote community gardens.

3.4.4. Sustainable Providence Food Plan

The 2014 *Sustainable Providence* policy document includes 'The Sustainable Providence Food Plan'. The Food Plan is not a planning document per se and does not have the force of law. However, it deserves mention in this chapter because of its strong expression of the administration's commitment to a strengthened food system and the metrics it provides to measure progress.

The Food Plan was developed via a series of open meetings with community partners. Ellen Cynar, Director of the Healthy Communities Office, acknowledges the conceptual influence of the Rhode Island Food Policy Council. By 2014, the Food Policy Council was directing attention across the state to all components of the local food system.[21] 'Many of the community partners were involved with the Food Policy Council so our Food Plan readily adopted the four clear buckets of a food system.'[22]

Providence's Food Plan sets goals for production, processing, distribution and consumption and incorporates equity and environmental considerations. It states,

> Providence is part of a local and regional food system and has a critical role to play in ensuring that this system: A) Provides every Providence resident with access to safe, affordable, nutritious, and culturally appropriate food; B) Cultivates a healthy environment in Providence by striving for zero waste, adopting ecologically sound and sustainable practices, and

ensuring healthy, fair, and just working conditions and wages; C) Contributes to the state and city's economy by supporting long-term economic development opportunities in the food sector.[23]

3.4.5. Economic Development Cluster Strategy

One final document should be mentioned. In November 2015, the Department of Economic Development released the City of Providence's Economic Development Cluster Strategy, which identified the food cluster as one of the areas on which Providence's economic development efforts should concentrate. Referring to the Food Plan and the Economic Development Cluster Strategy, Planning Deputy Director Robert Azar stated, 'While these aren't planning documents like a comprehensive plan, I foresee us incorporating elements of both documents into the next iteration of the comp plan.'[24]

The Economic Development Cluster Strategy report notes,

> There is a concentration and growth in the entire regional food-related supply chain from farms to food processing to food sales and more. The state as a whole and the city in particular has opportunities to realize additional economic benefit from this cluster as national trends towards locally sourced products and global food security trends drive local opportunities.[25]

The report recommends feasibility research for a co-packing facility with refrigerated distribution space and space for food manufacturing, processing and sales businesses; improved services, incentives, programmes and zoning to support food-based businesses; workforce training; and outreach to private equity firms, highlighting food as a unique opportunity.

Since the report's release, the city has begun to develop specific proposals to implement the report's recommendations, including strategic direct investments through the Providence Business Loan Fund in Farm Fresh RI for its new food and agriculture campus; transferred property and provided brownfield cleanup support through the Providence Redevelopment Agency for the Urban Greens Food Co-op; supported the creation of the Pilot Works, a new food incubator; and made direct workforce training development and Tax Increment Financing fund investments in Gotham Greens, an organic

Table 3.2   Planning documents and policies

Year	Planning and policy documents
2003	Board of Parks approves community gardens in parks
2005	Consolidated Plan
2007	Providence Tomorrow: Interim Comprehensive Plan
2008	Greenprint Providence
2010	Consolidated Plan
2010	Chicken ordinance
2014	Providence Tomorrow: Final Comprehensive Plan
2014	Sustainable Providence Food Plan
2014	City of Providence Zoning Ordinance (Chapter 2014–39 No. 513, effective 24 December 2014)
2015	Economic Development Cluster Strategy

Source: Katherine Brown and Sheila Brush.

greenhouse company. Table 3.2 lists in chronological order the policies described above.

3.5. Examples of city–NGO collaboration to achieve food goals

3.5.1. Community gardens in public parks

Under Mayor Cicilline's administration the Board of Parks Commissioners approved language that permitted community gardens in city-owned parks. This enabled the Parks Department to work with neighbours and NGOs to establish community gardens in city parks. Retired parks superintendent Robert McMahon explains the influence of public input for this decision:

> There was neighborhood push-back when community gardens were first suggested for the Parks Master Plan in the 1990s – worries about rats in the compost and dealing with gardeners' squabbles. But in 2004, when the first neighborhood requested a community garden and a councilman gave us money, it turned out to be a great way to bring new people to the park. Success breeds success and soon neighbors were asking for community gardens in other parks.[26]

The Parks Department's model is to provide a community garden in a public park only when the neighbouring community requests the garden. The Parks Department covers capital costs for fencing, garden beds and water lines, and assumes ongoing responsibility for water, repairs and compost. Neighbours must commit to helping with the initial garden build-out and to taking responsibility for ongoing garden management. NGOs support this effort by mobilising neighbours and providing community education, collaborating on grant applications for funding, and partnering with the Parks Department on community events. By 2018, the Parks Department had responded to neighbourhood requests to install 12 community gardens and one fruit orchard.

3.5.2. Lots of Hope

Launched in 2012, Lots of Hope is a collaboration between the Sustainability and Healthy Communities Offices, the Planning Department and food advocates. Whereas community gardens make it possible for city residents to grow food for their own families or to sell, with Lots of Hope the city and partnering NGOs offer people larger plots with the explicit opportunity to grow food to sell. The initiative seeks 'to institutionalize urban agriculture and position the City as an urban agriculture advocate to help farmers navigate … bureaucratic challenges associated with acquiring land'.[27] The programme aligns with the city's goal of creating a community food system where locally produced, healthy and affordable food is accessible to everyone.

Using the Planning Department's inventory of city-owned vacant lots, the Lots of Hope project team used lot size, orientation to the sun, tree canopy coverage and other factors to identify lots appropriate for urban agriculture. The project has created four urban farms to date, leasing land and greenhouse space to market growers and community gardeners with limited resources. Lots of Hope received a direct budget investment for financial year 2018, signaling the city's ongoing commitment to the programme.

3.6. Conclusion

Since 2003, Providence has made significant strides not only in integrating food into urban planning and policy but also in implementation. Local food initiatives provide cost-effective, tangible ways for the city to respond to the expressed needs of an engaged and diverse constituency

of residents and NGOs. Throughout Providence, vacant lots and parks have been transformed into 52 community gardens and 18 market farms; residents now have access to fresh food at nine farmers' markets, groceries, school lunchrooms and restaurants; and 5000 tonnes of food waste have been composted on a regular basis by the Compost Plant, a new enterprise established in 2014.[28] Table 3.3 and Figure 3.2 document this progress.

The speed with which the city has integrated food into urban planning and the direction that food policy has taken in Providence owe to several factors. The city's community-inclusive planning process first provided the opportunity for well-organised NGOs and community advocates to draw attention to the positive revitalisation, environmental and social impacts that community gardens and market farms had already started to have on urban neighbourhoods. Once the initial commitment to addressing food issues was established, successive mayoral administrations and councils continued the city's food initiative momentum. Municipal consistency of vision can be seen in planning and policy documents, most notably the current local comprehensive plan – *Providence Tomorrow* – and the city's Zoning Ordinance. The comprehensive plan and the Zoning Ordinance established the foundation that the city needed to launch its work.

Finally, in order to understand fully the approach that Providence is using to address food issues, it is important to note that several city offices and departments besides the Planning Department play important roles. The Sustainability and Healthy Communities Offices were created to enable the city to better address complex systemic issues and to encourage

Table 3.3 Local food metrics

Providence metrics	2003	2018	% increase
Community gardens	12	52	333
Community beds	195	1480	659
Market farms	2	18	800
Tonnes of food waste diverted from landfill for compost	1	5000	–
Farmers' markets	2	9	350
Percentage of Providence school district food purchases that are locally sourced	0	30	3000

Source: Katherine Brown and Sheila Brush.
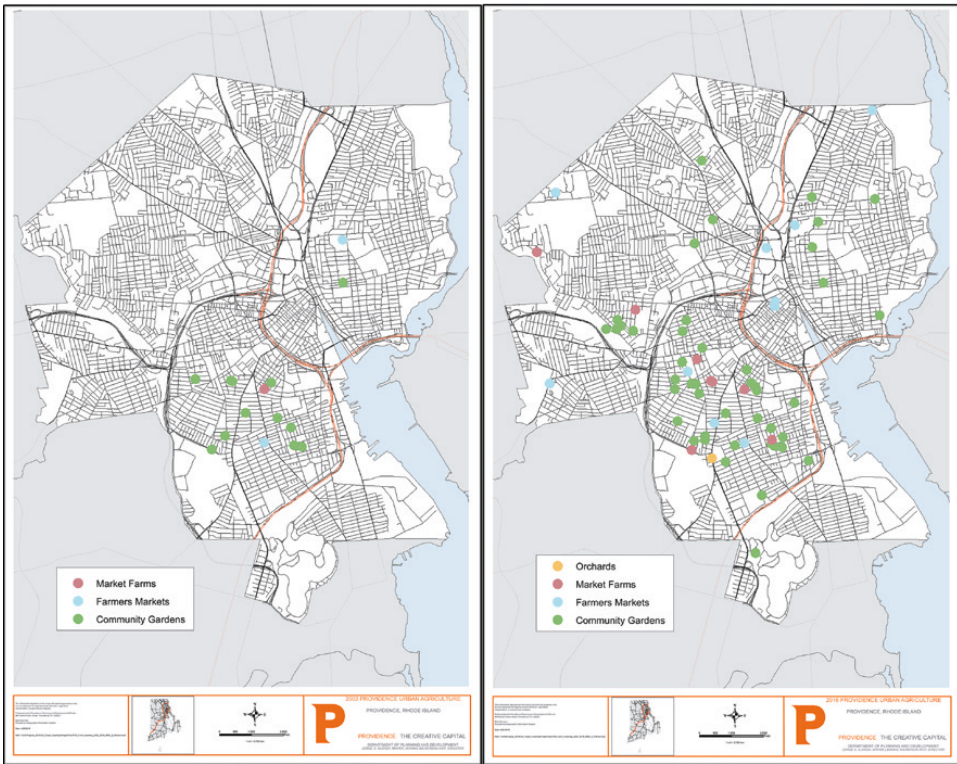
Figure 3.2 Community gardens and farmers' markets in Providence, 2003 and 2016. (*Source*: Providence Planning and Development GIS Lab)

the private sector to contribute expertise and resources to city initiatives. Their work relating to food includes policy documents that, though not planning documents per se, are important because they expand public–private collaboration, provide policy guidance and recommend specific implementation strategies and progress indicators. The Department of Economic Development's focus on the food sector highlights opportunities to significantly expand food-based businesses in the city. Thus, coordinated effort by the Planning Department and other offices enables the city to work comprehensively to strengthen Providence's food system components – from production to processing to distribution to access to food waste reuse – and to address food system issues at a systemic level.

Additional planning work will be essential to advance new strategies and recommendations. The commitment of elected officials, the planning work of the past 15 years and effective collaborative processes

between city staff and private sector interests have created a strong foundation for future urban planning initiatives.

3.7. Neighbourhood case study: the West End and the Sankofa Initiative

The West End neighbourhood vividly encapsulates many of the city's recent changes relating to food as a force for community and economic development.

The West End is Providence's largest and most densely populated neighbourhood, with 22 343 people per square mile. Seventy-five per cent of West End residents are Hispanic, Black or Asian.[29] Forty-five per cent are foreign born.[30]

The West End's historic housing stock ranges from Victorian mansions to triple-decker working-class homes. After decades of decline, recent community redevelopment efforts have returned much of the neighbourhood's housing to relatively good condition. Small shopfront businesses line the neighbourhood's commercial streets, but the West End is by no means economically flourishing. The median household income is US$33 878,[31] with an unemployment rate of 9.7 per cent; 41.4 per cent of West End residents have vehicle access and 33 per cent receive federal food assistance (SNAP).[32]

By the 1980s, most of the neighbourhood's manufacturing companies had closed, leaving many acres of abandoned and polluted land where factories once stood. The Planning Department's re-zoning of this land to mixed use in the late 1990s enabled the West Elmwood Housing Development Corporation (WEHDC) and others to begin the steady process of revisioning this neglected part of the West End for new housing and other purposes.

Since the early 2000s, the WEHDC and others have recognised food as a driver of neighbourhood betterment. Southside Community Land Trust had already created five community gardens in the West End in the 1990s. After 2003, food production increased with the addition of nine new community gardens established by SCLT, WEHDC and other NGOs. New market farms (one of them part of the city's Lots of Hope programme) now sell produce to local restaurants. In 2013, Cluck!, a farm and garden supply business, opened in the West End to serve Providence's urban food growers.

The neighbourhood includes 41 corner markets, a pavement tropical fruit stand business and Farm Fresh RI's Armory Parade Street Farmers Market. Nonetheless, food access remains a problem for residents –

particularly access to fresh and culturally desirable produce. Furthermore, food insecurity continues to plague the West End. Many families report they are not able to afford a balanced diet. The West End's nine food pantries, three congregate meal sites and homeless shelter routinely operate at full capacity.

In 2011, the WEHDC launched its Sankofa Initiative to 'foster the cultivation of land, lives and community'.[33] In 2014, the WEHDC established the Sankofa World Market as an outdoor venue for neighbourhood residents to sell and buy locally produced food along with value-added food products and artisan wares. In 2015, WEHDC documented the neighbourhood's food access and security challenges in a comprehensive Sankofa Food Assessment with the Rhode Island Department of Health. In 2016, the Sankofa Initiative augmented its existing gardens with the cultivation of an additional 1500 m^2 of land for community gardens and market farms next to WEHDC's 50-unit, US$15 million low-income Sankofa Apartments. The project will include a community kitchen, a greenhouse and other season extension infrastructure (to expand the growing season for urban farmers) as well as composting and food storage facilities. The Sankofa Initiative will 'create new opportunities for West End residents to grow, market and sell local and culturally appropriate foods, value-added food products and other artisan wares and to create increased opportunities for meaningful connections among residents'.[34]

Notes

1. US Census. (2015) *State and County Quick Facts, Providence*. http://quickfacts.census.gov/qfd/states/44/4459000.html
2. APA, 'APA Policy Guide on Community and Regional Food Planning', last modified 11 May 2007, https://www.planning.org/policy/guides/adopted/food.htm
3. APA, 'APA Policy Guide on Community and Regional Food Planning'.
4. Greg Rosenberg and Jeffrey Yuen, 'Beyond Housing: Urban Agriculture and Commercial Development by Community Land Trusts', Lincoln Institute of Land Policy Working Paper, 2012, 1, https://community-wealth.org/sites/clone.community-wealth.org/files/downloads/paper-rosenburg-yuen.pdf
5. Started in 1996, the United States Department of Agriculture's Community Food Projects Competitive Grant Program (CFPCGP) funds community-based multi-sector collaborations to fight food insecurity by strengthening the self-sufficiency of low-income communities to meet their food needs. Community Food Projects take a whole food system perspective to develop long-term, system-wide solutions. https://nifa.usda.gov/program/community-food-projects-competitive-grant-program-cfpcgp
6. David Cicilline (US congressman and former mayor of Providence), interviewed by Katherine Brown and Sheila Brush, Providence, 30 December 2015.
7. Urban Agriculture Task Force, 'Urban Agriculture in Providence: Growing our Community by Growing Good Food', Providence Urban Agriculture Task Force, 2005, http://www.dem.ri.gov/programs/bnatres/agricult/pdf/urbanag.pdf

8. Benjamin Morton, 'Planning for Appropriately Scaled Agriculture in Providence', Providence Urban Agriculture Policy Task Force White Paper, 2006, http://community-wealth.org/sites/clone.community-wealth.org/files/downloads/paper-morton.pdf

9. David Everett (Providence Planning Department), interviewed by Katherine Brown and Sheila Brush, Providence, 21 December 2015.

10. Garry Bliss (former director of community development, City of Providence), interviewed by Katherine Brown and Sheila Brush, Providence, 14 January 2016.

11. City of Providence, *Greenprint Providence* (Providence, 2008), 20, http://www.gcpvd.org/images/reports/2008–10-greenprint.pdf

12. Seth Yurdin (Providence City Councilman), interviewed by Katherine Brown and Sheila Brush, Providence, 11 January 2016.

13. Nicole Pollock (Chief of Staff to Providence Mayor Jorge Elorza), interviewed by Katherine Brown and Sheila Brush, Providence, 8 January 2016.

14. Peter Asen (former director of the Providence Healthy Communities Office and Director of Partnerships and Development for Mayor Jorge Elorza), interviewed by Katherine Brown and Sheila Brush, 8 January 2016.

15. City of Providence, *Providence Tomorrow: The Comprehensive Plan* (Providence, 2014), 32, https://www.providenceri.gov/wpcontent/uploads/2017/05/PlanningProvidenceTomorrowFinal_November2014.pdf

16. City of Providence, *Providence Tomorrow*, 34.

17. City of Providence, *Providence Tomorrow*, 54.

18. City of Providence, *Providence Tomorrow*, 55.

19. City of Providence, *Providence Tomorrow*, 93.

20. City of Providence, *Providence Tomorrow*, 126, 129.

21. Founded in 2011, the Rhode Island Food Policy Council is a non-governmental, statewide collaboration of stakeholders from all food system sectors. It creates partnerships, develops policies and advocates for improvements to expand the food system's capacity and ensure that it is accessible, equitable and sustainable. http://rifoodcouncil.org

22. Ellen Cynar (Director, Healthy Communities Office, City of Providence), interviewed by Katherine Brown by phone, 10 January 2016.

23. City of Providence Office of Sustainability, *Sustainable Providence* (Providence, 2014), 23–29.

24. Robert Azar (Deputy Director of Planning and Development, City of Providence), email correspondence, 27 April 2016.

25. Fourth Economy, *City of Providence RI Economic Development Cluster Strategy* (Providence: City of Providence, 2015), 56, http://council.providenceri.com/efile/224

26. Robert McMahon (former superintendent of parks, City of Providence), interviewed by Katherine Brown and Sheila Brush, Providence, 14 January 2016.

27. Healthy Communities Office City of Providence, *Lots of Hope. An Urban Agriculture Assessment with the City of Providence* (Providence: City of Providence, 2014), 6, https://www.providenceri.com/efile/5537

28. http://www.compostplant.com/

29. City-Data.com, 'West End Neighborhood in Providence, Rhode Island (RI), 02907, 02909 Detailed Profile', accessed 30 January 2018, http://www.city-data.com/neighborhood/West-End-Providence-RI.html

30. City-Data.com, 'West End Neighborhood in Providence'.

31. City-Data.com, 'West End Neighborhood in Providence'.

32. Sankofa Initiative, *Sankofa West End Community Food Security Assessment* (Providence: WEHDC, 2015), 11.

33. Sankofa Initiative, *Sankofa West End Community Food Security Assessment*, 5.

34. Sankofa Initiative, *Sankofa West End Community Food Security Assessment*, 7.

4

Connecting food systems and urban planning
The experience of Portland, Oregon

Nunzia Borrelli

The main aim of this chapter is to analyse how food systems can be integrated into urban and spatial planning in a more efficient way, using the city of Portland in Oregon as a case study.

Portland is often cited as an example of a city with strong land use planning controls. This is largely the result of state-wide land conservation policies adopted in 1973 under Governor Tom McCall which strongly aim to preserve the peri-urban and rural area, as well as food production, around the city.

Over the last few years Portland has been cited for its strong attention to food systems and food planning. The City of Portland has recently updated the city's 1980 plan and the 1988 Central City Plan in a document called the Comprehensive Portland Plan. In order to develop such a plan, a wide examination of food issues was developed in a document called the Portland Plan Food System. This document aims to stimulate a public debate on food as a planning issue to 'allow fuller consideration of policy choices and investment priorities'.[1]

Along with the Portland Plan Food System, Multnomah County (the county where Portland is located) has also developed a plan. The Multnomah plan identifies the key issues and aims to 'reinforce local food by increasing viable local options in the food system; improve healthy eating by making healthy choices an easier option for all; promote social equity by building systemic justice, health, and food security; increase the economic vitality by promoting a thriving local economy'.[2]

Moreover, Portland's interest in the topic of food is also shown in the Climate Action Plan (CAP) (2015), developed by the city and the county, which contains a chapter on 'Food and Agriculture' and states that 'the total carbon footprint of the food system may be larger than passenger transportation'.[3] The city and the county have developed the CAP together and they have paid good attention to urban–rural linkages.

The main aim of this chapter is to identify how food-related issues were incorporated into the territorial planning of Portland City. A number of official documents were read, statistical data were collected (by census) and 36 semi-structured interviews with professionals and stakeholders were carried out during fieldwork in August–September 2014.

4.1. Portland: a brief introduction

Portland is the largest city in the US state of Oregon and the seat of Multnomah County. The city covers 376 km² and had an estimated population of 619 360 in 2014. According to the 2014 census, 2 348 247 people lived in the larger Portland metropolitan statistical area (MSA), which spans portions of the states of Oregon and Washington (Portland Portland–Vancouver–Hillsboro, OR–WA MSA). The MSA includes Clackamas, Columbia, Multnomah, Washington and Yamhill Counties in Oregon, and Clark and Skamania Counties in Washington

From an economic and industrial perspective, Portland is focusing its resources on enhancing the competitiveness of businesses in four areas of industry: clean tech and sustainable industries (CTSI), activewear, software, and advanced manufacturing. At the same time, it is working towards developing a sustainable economy and neighbourhood vitality.[4]

Three elements currently make the city of Portland so appealing. The first is the low price of real estate, which helps to keep down property tax. The second is the city's interest in environmental policies. Portland is the leading United States city in terms of green buildings and the use of bicycles for transportation.[5] The third is the low cost of living. Portland's cost of living has an index value of 15.2 compared with 32.3 in Los Angeles and 66.5 in San Francisco.[6] Portland has maintained a relatively low cost of living in spite of the focus on sustainability issues. These elements mean that Portland has advantages over other West Coast American cities.

4.2. The regional context

Portland is located 110 km east of the Pacific Ocean at the northern end of Oregon's most populated region, the Willamette Valley. Downtown Portland straddles the banks of the Willamette River, which flows north through the centre of the city, thereby creating the east and west neighbourhoods of the city.[7] Less than 16 km from downtown the Willamette River flows into the Columbia River, the fourth-largest river in the United States and part of the boundary between Oregon and Washington.

The climate is characterised by warm, dry summers and cool, rainy winters. The precipitation pattern involves little rainfall during the summer months and more than half of annual precipitation falls between November and February. The presence of volcanoes, the mild climate and the rain in winter make the land very fertile and suitable for various types of cultivation.

The Willamette Valley is characterised by extensive farming. Some of the main products are apples and other fruits, livestock, dairy, potatoes and mint. Oregon is also one of the four major regions in the world for the cultivation of hazelnuts: it grows 95 per cent of total US production. There were approximately 38 600 active farms in 2008, and this number has changed little in recent years.[8] The number of hectares dedicated to cultivation also is stable, about 6.6 million, accounting for 26.7 per cent of the total area of Oregon. The agricultural sector provides work to over 454 000 people in Oregon, but the unemployment rate is higher than in the non-agricultural sector, standing at 12.3 per cent.[9] The average income per capita of those employed in the agricultural sector was US$30 237 in 2008, while the average overall employment earnings stood at US$34 704.[10] Also significant are the data on organic farming (organic agriculture). The total number of hectares devoted to such crops nearly doubled in three years, from 23 323 in 2006 to 52 870 at the end of 2008.[11]

4.3. Controlling urban sprawl and protecting agricultural land: the spatial planning system in Portland

Portland is recognised in literature on spatial planning and urban and regional studies both for having developed an excellent territorial planning system (Seltzer and Carbonell 2011) and for having taken very seriously the laws of Oregon regarding the 'urban growth boundary'. Such laws define the limits of city development and clearly set the boundaries between urban and rural areas.

Portland's strong land use planning controls are, in part, derived from land conservation policies adopted in 1973, when the Oregon Governor (Tom McCall) 'convinced the Oregon Legislature to adopt the nation's first set of state-wide land use planning laws'.[12] With a coalition of farmers and environmentalists, McCall persuaded the Legislature that the 'state's natural beauty and easy access to nature would be lost in a rising tide of urban sprawl'.[13] In this legislation, urban sprawl was seen as an enemy of the environment, and therefore as a process to be controlled. The law also created the Land Conservation and Development Commission and the Department of Land Conservation and Development.

In 1978, an agency named 'Metro' (see Box 4.1) was established to carry out the mandate of the state law in the Portland metropolitan area, which encompasses three Oregon counties: Clackamas, Multnomah and Washington, including the City of Portland. Part of its responsibility was to regulate the existing and future borders of the City of Portland, including the extent of the transport system. To do this the agency established

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Box 4.1. Definition of Metro

'Metro is a public agency that works with communities, businesses and residents in the Portland metropolitan area … Metro serves more than 1.5 million people in Clackamas, Multnomah, and Washington counties. The agency's boundary encompasses Portland, Oregon and 24 other cities – from the Columbia River in the north to the bend of the Willamette River near Wilsonville, and from the foothills of the Coast Range near Forest Grove to the banks of the Sandy River at Troutdale … The Metro Council consists of a president, elected region-wide, and six councillors who are elected by district every four years in nonpartisan races. The Metro Auditor, elected region-wide, is responsible for oversight of Metro's annual financial statements and for conducting performance audits. The council appoints a chief operating officer to carry out council policies and manage Metro operations. The chief operating officer oversees a diverse workforce of more than 1,600 employees including park rangers, economists, teachers, scientists, designers, planners, animal keepers, stagehands and cartographers. Hundreds of volunteers lend a hand at Metro's parks, cemeteries, natural areas, offices and visitor venue … As the only directly-elected regional government in the United States, Metro has helped shape the political, economic, social and built landscape of the Portland metropolitan area since 1979. Working with communities, businesses and leaders across 25 cities and 3 counties, Metro addresses issues related to land use, transportation, garbage and recycling, parks and nature, economic development and cultural amenities.'[14]

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the Urban Growth Boundary (UGB) to define the outer edges of the urbanised area. The state law requires Metro to assess, on a six-yearly basis, the need to expand the boundary to accommodate the next 20 years of anticipated housing and job growth. 'Since 1979, the Metro Council has expanded it by around 13 000 hectares. In November 2015, the Metro Council unanimously decided for the first time not to expand the growth boundary' (Metro 2015).

There has been much debate concerning the effects of the UGB in the Portland Metro Region and whether it has actually stopped urban sprawl and preserved farmlands (Jun 2004). Several studies have demonstrated contradictory findings about the effects of UGBs on urban development. For example, some argue that Portland's UGB has helped to curb urban sprawl (Kline and Alig 1999), whereas others claim that Portland's processes of suburbanisation are no more preferable than those of other metropolitan areas (Cox 2001).

In any case, the containment of sprawl is extremely relevant to the production of local food, since it helps to preserve rural areas and contributes to the densification of sustainable urban growth. In addition to defining the UGB, new policies were introduced regarding sustainable mobility, environment safeguarding, local community empowerment and the food system.

4.4. Food and spatial planning tools in the City of Portland

The analysis of food planning in Portland needs to be investigated on at least two levels: the first concerns how food gets into the planning tools at an urban, metropolitan and county scale. The second level concerns the urban food policies themselves. Such policies in the City of Portland depend on the Food Sustainable Program and tackle issues relating to the evaluation of local production and access to local food.

With respect to how food is embedded in territorial planning tools, it is interesting to focus attention on four territorial planning instruments: namely, the Portland Plan Food System report, which is preparatory for the Portland Comprehensive Plan, Multnomah Food Action Plan, the CAP and the Portland Peak Oil Task Force final report.

The Portland Plan Food System report was produced by the City of Portland. It aims to inform the Portland Plan process. It includes a summary of what is currently known about Portland's food system, a review of how other municipalities are approaching food systems and other ideas on the topic of food policy. The main aim of this report is to provide
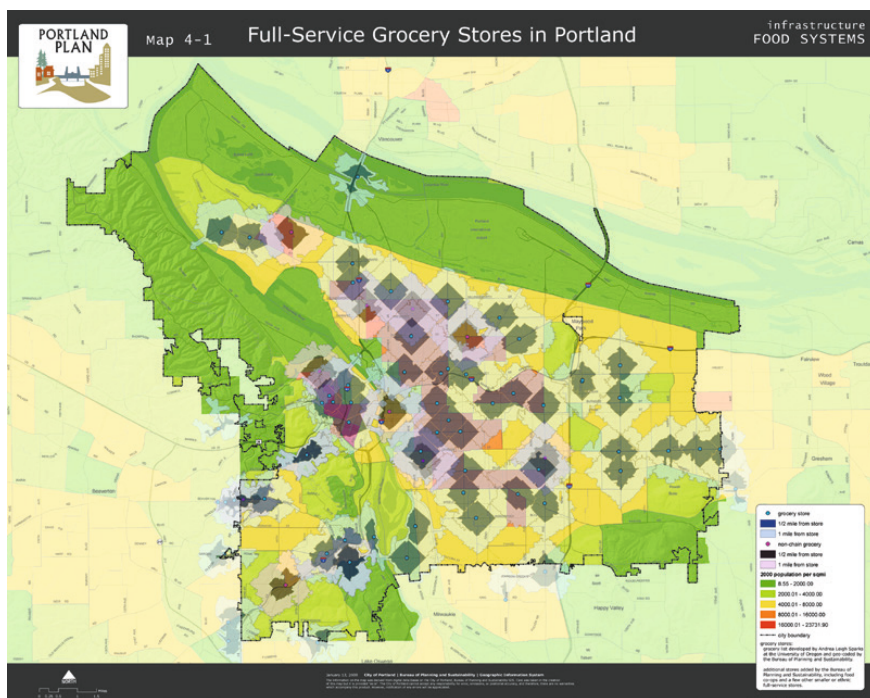
Figure 4.1   Grocery store location in the city of Portland.
(*Source*: Portland Plan Food System. http://www.portlandonline.com/
portlandplan/index.cfm?a=346105&c=51427)

background research to support the Portland Plan process and the policy
choices made. The maps elaborated in the report concern the location
of community gardens, restaurants, grocery stores. Figure 4.1 shows an
example of such a map.[15]

The Multnomah Food Action Plan is a strategy that should last 15
years. Such a strategy or vision defines clear goals and collaborative actions
that should produce some good results. The main aim is to achieve a healthy
local food system. In order to reach such goals the plan underlines the impor-
tance of accelerating education, empowerment, planning integration, and
investment in the food system. In other words, it affirms the need to nurture
a culture that values and is dedicated to sustainable food system outcomes.
The need to work on the culture is particularly evident when one seeks to
change habits in the consumption of local food or low-carbon food; also evi-
dent is the need to improve food access. It is important to clarify that it is fun-
damental to modify the planning culture so that it places more importance
on access in different parts of the city and the county (see Figure 4.2).[16]

Legend:
- Good access
- Distant from a grocery store (center of block group to nearest grocery = 1 mile or more)
- Convenience store concentration (8 or more convenience stores within a half-mile radius)
- Poor access

Food Access

Sources: 2000 U.S. Census, SF3, InfoUSA, Metro Regional Land Information System (RLIS), ESRI Street Maps USA

Figure 4.2 Grocery store accessibility in Metro regional area. (*Source*: Multnomah Food Action Plan. https://multco.us/multfood)

The CAP was produced by the City of Portland and Multnomah County. In 1993, Portland was the first city in the United States to create a local action plan for cutting carbon emissions. Since then, the City of Portland and Multnomah County have collaborated to produce updated climate plans that help guide the design and implementation of city and county efforts to reduce carbon emissions. Since 1990, total local carbon emissions have declined by 14 per cent while 75 000 more jobs have been added to the economy and the population has grown by 31 per cent.

In the CAP, the food system is presented as one of the areas in which to invest in order to tackle issues relating to the energy crisis. The main objective is to reduce the consumption of carbon-intensive foods and support a community-based food system. With this in mind, two main aims are defined. The first concerns the reduction of high-carbon food: lifecycle analysis has shown that beef, cheese and pork generate the most carbon emissions per ounce. Residents of Multnomah County can reduce the impact of food choices on climate change – and improve personal,

environmental and economic health – by choosing low-carbon foods (vegetables, fruits, legumes, cereals).

The second aim concerns local food or the community-based food system. Although eating locally produced food has a smaller impact than choosing low-carbon food, the consumption of local food can reduce transportation emissions, strengthen the local economy, help preserve the region's agricultural land base and support a community-based food system that can reshape people's relationship with food.[17]

The last document to be taken into consideration is the Portland Peak Oil Task Force's final report. This report declares 'a constrained energy future calls for a less energy-intensive food supply, with crops grown locally, processed less, processed locally and shipped over shorter distances'.[18] In spatial planning the new low-carbon prospect calls for the reconfiguration of energy and matter flows, especially between urban and rural domains. In this framework, research on food systems has increased considerably in the urban and spatial planning literature. It is becoming clear that planners should begin to take into account questions about food self-reliance, farmland preservation and food distribution. The plans mentioned above, along with the law to control urban sprawl, aim to safeguard rural areas and as consequence to help better manage the activation of local food production.

4.5. Food policies and practices

Twelve years ago the City of Portland Bureau of Planning and Sustainability started a programme named the Sustainable Food Program. Interest in the development of the Sustainable Food Program is closely interconnected with the fertility of the Willamette Valley. This programme promotes several practices to improve knowledge of food initiatives. One was the development of a Sustainable Food Resource Database. This database contains all the information on initiatives and organisations linked to the production and consumption of sustainable food. Another practice was the development of the Urban Food Zoning code to classify everything about the production and distribution of local food (from community gardens to garden markets and farmers' markets). The classification aims, on a basic level, to identify the resources available in the territory, but more precisely to provide in-depth information on the production, consumption and distribution of food, which may in turn help to shape future interventions. The overall objective of these practices was to remove barriers to the production of local food and, especially, to define policies to improve local production.[19]

Another interesting initiative was the Portland FoodHub. The Portland FoodHub lists 500 restaurants, 230 schools and 1400 farmers, ranchers, fishermen and speciality producers. The FoodHub Ecotrust in Portland has received approximately US$250 000 to build an online platform that brings together producers, consumers and distributors of food. The objective of the FoodHub is to create a connection between producers, who in most cases reside in rural areas, and farmers' markets in the city. It seeks to overcome the urban–rural divide by using new technology.[20]

4.6. Some practices in the fields of food accessibility and local food production

There are many practices connected to food that have impacts on the spatial planning system. Some of them affect the accessibility, affordability and availability of food; others relate to local food production such as urban agriculture, community gardens and the ecoroof.

Affordability 'indicates the product of a seller's stated prices and the consumer's purchasing power' (Armstrong et al. 2009, 7). An example of an action implemented to deliver affordability is Food Stamps. Food Stamps provide food-purchasing assistance to low- and no-income people in the US. It is a federal aid programme, today known as the Supplemental Nutrition Assistance Program (SNAP). SNAP helps low-income households – who do not need to be destitute to qualify for assistance – to purchase food to meet their nutritional needs (see McClintock 2015; McClintock et al. 2016).[21]

Besides issues of affordability, problems of accessibility and availability are also important. Accessibility refers to the consumer's ability to physically travel to a food source and return with his or her purchases. Its primary determinants include geographic distance, transportation choices, and variations of urban form such as terrain and the quality of transportation infrastructure (Armstrong et al. 2009, 7). Availability, on the other hand, indicates the presence of an adequate variety of food types to meet the consumer's dietary requirements and personal preferences (Armstrong et al. 2009, 7).

Food carts offer a solution to problems of accessibility and availability. Food carts are mobile food units. They can be most efficient when coupled with food cart pods (Figure 4.3), 'which are surface lots with more than a few carts'.[22] Use of food carts can also develop the regional food economy. Multnomah County is working to establish more local food

Figure 4.3 Food cart in Portland. (*Source*: Nunzia Borrelli)

hubs (e.g. farmers' markets, food cart pods and an all-year-round major public market) and to increase demand for vendors of regional food. In Portland, over 500 food carts are available at any given time.[23] Another interesting issue relating to the availability, accessibility and affordability of food is the reduction of food deserts. A food desert is an area with little or no physical or economical access to foods needed to maintain a healthy diet (but often served by plenty of fast food restaurants).

Recently, a debate about why food carts are so common in Portland has taken place and many reasons are identified. First, the street 'vendors are not burdened by excessive bureaucracy or adherence to rules and formalities and business start-up costs are much lower compared to those in other U.S. cities' (Rogers and Roy 2010, 4). Second, food carts contribute to the development of the regional food economy and to new employment (above all for immigrants with low levels of education). Third, food carts make different kinds of food easily accessible and available at competitive prices. Moreover, the food sold in food carts is quality guaranteed because of the City of Portland regulations requiring the carts to be licensed and to pass a health inspection. Fourth, food carts can help to make a more vibrant neighbourhood. Research by a group of urban planning students from Portland State University (PSU) studied food carts and their role in enlivening public space (Kapell et al. 2008). A conclusion of this study was that 'food carts [provide] significant community benefits to neighbourhood livability by fostering social interactions, walkability, and by providing interim uses for vacant parcels' (Kapell et al. 2008, 4). This last point indicates a creative use of empty space, something planners tend to criticise, preferring buildings. Food carts may be considered an interim measure in their creative use of empty space, animating such spaces.

Notwithstanding everything considered above, some critical observations about food carts have been made. The definition of food carts is questioned, even whether in some cases they are really mobile: in many cases 'vehicles sitting in surface parking are always there and only pay lip service to the idea of mobility' (Rogers and Roy 2010). This observation is made primarily by restaurants that consider food carts to be 'unfair competitors'. In particular, local restaurants highlight that food carts are able to keep prices lower because they have less expenses while still enjoying services (electricity, water, etc.) in ways quite comparable to restaurants. Another critical point concerns their real capacity to contribute to the regional economy. Information collected by interviews in Portland demonstrated that, although Multnomah County is working to establish more local food hubs and to increase demand for vendors of regional food, the economy stimulated by these activities is not great. Many of those interviewed said that the presence of food carts was linked more to the need to use the large number of empty spaces in Portland than to making a real impact on the local economy. Also questioned is the capability of food carts to make neighbourhoods more vibrant. Some people interviewed thought Portland has already demonstrated it can activate public space and neighbourhoods, and so food carts don't make any difference.

Finally, the promotion of local farmers' markets is another strategy for making healthy, locally produced food more accessible. The intention in promoting them is also to promote the development of the local economy through food production, which is currently still quite weak. In Portland Metro Region there are 50 farmers' markets, seven of which are located in the City of Portland.[24] Moreover, there are four programmes for collecting surplus food: the Portland Fruit Tree Project; Urban Edibles; Urban Gleaners; and St Vincent de Paul (City of Portland 2009, 40).

The topic of urban agriculture is quite different, but it is also very interesting. Urban agriculture is the production of local food on eco-roofs and in community gardens.

A community garden is a place where a number of people, often neighbours, collectively garden a plot of land together. Community gardens can be a single large plot to which every member contributes and then all share in the harvest, or they can be split into multiple plots used by individuals and families. Activities relating to Portland's community gardens are managed by the City of Portland Community Garden Program, which is supported by a number of associations, the most notable being the Friends of Portland Community Gardens.[25] According to the coordinator of the Community Garden Program, there are 50 urban

Figure 4.4 Ecoroof in Portland. (*Source*: Nunzia Borrelli)

gardens in Portland, serving about 3000 people.[26] There are other gardens that other organisations operate, but there is no official number of *all* the community gardens in Portland.

The concept of the ecoroof takes the green roof idea a step further, adding the benefit of providing food as well as potentially creating opportunities for community building. Moreover, ecoroofs can decrease stormwater runoff, save energy and reduce pollution and erosion. In Portland, Ecoroof projects are managed by the City of Portland Environmental Services. There are currently 596 ecoroofs in Portland: 447 are built ecoroofs (extensive greenroofs and rooftop agriculture); 149 are built roof gardens (intensive greenroofs) (see Figure 4.4). The office in charge of ecoroof management is Environmental Services of Portland City, which provided these data.

4.7. Conclusions

Portland is a city at the forefront of the development and definition of food policy and food planning. The attention the City of Portland gives to these issues is clearly influenced by the fertility of the Willamette Valley, which calls for the development and implementation of practices that help protect the land, and by the regional growth planning system that aims to control urban sprawl and helps to encourage the development of food policy and food planning.

Portland started to deal with food policies and food planning in 2005, when the food sustainability programme was launched and a new office was opened in the Bureau of Planning and Sustainability.[27] The main aim of the programme was to embed food in all territorial planning tools; in order to fulfil this aim some problems, such as the management of community gardens, began to be regulated at urban level, while other issues, such as ones relating to the management of short supply chains, were managed at metropolitan level. Alongside the development of the food sustainability programme, interest in food policy has been growing; strategies to improve the use of local food products were developed and the quality of local food production was promoted. It is worth underlining that Portland has one of the highest numbers of slow food units among cities in the US.[28]

This case study allows us to draw some conclusions about the challenges and opportunities of connecting food systems and urban planning. There are at least three challenges/opportunities to be met. They relate to efforts to implement a spatial planning model that aims to be cross-sectoral/holistic, multi-level and place based.

Practitioners and academics involved in spatial planning have recognised for years the need to develop inter-sectoral and holistic strategies. Food planning needs, on one hand, to be considered in relation to the practicalities of local resources and climate, and, on the other hand, to recognise and react to other sectors. Food interacts, for instance, with health policies and transport policies. Because of these peculiarities, food planning lends itself to the implementation of inter-sectoral and holistic spatial planning models.

The second challenge/opportunity of food planning concerns efforts to problematise the relationships between the urban and rural environments and to adopt a multi-level approach. The diffusion of concepts such as city region, metropolitan city or metropolitan area highlights the fact that urban land use planning must give more importance to urban–rural relationships. In a territorial policy that is highly focused on the metropolitan scale and on urban–rural relationships, the added value provided by food planning becomes increasingly evident. Food planning can tackle some of the main problems of metropolitan planning: the regeneration of rural areas, the development of urban agriculture, and sustainable strategies for cities.

The last challenge/opportunity concerns the effort to make food planning place based, i.e. it tries to start from knowledge of place and from local actors' evaluation of local resources. Such an approach is likely to create problems, including the 'local trap' (Born and Purcell

2006). Local food is not always good and healthy. Food planning therefore requires us to recognise that the development of local food resources should not be uncritically celebrated.

Notes

1. See the Portland Plan Food System, 2010, accessed 31 January 2018, http://www.portlandonline.com/portlandplan/index.cfm?a=273154
2. See the Multnomah Food Report, 2010, accessed 31 January 2018, https://multco.us/multfood
3. See the Climate Action Plan, 2015, accessed 31 January 2018, https://www.portlandoregon.gov/bps/49989
4. See the Portland Development Commission report, 2014, accessed 31 January 2018, http://www.pdc.us/about-the-pdc/annual-report.aspx
5. On these aspects see also http://billmoyers.com/content/12-cities-leading-the-way-in-sustainability/
6. See the Portland Development Commission report, 2014, accessed 31 January 2018, http://www.pdc.us/about-the-pdc/annual-report.aspx
7. Burnside Street crosses the city from east to west, forming the five quadrants in which the city is divided. In the south of the city is the downtown area. The oldest parts, Chinatown, Old Town, 23rd Avenue and the Pearl District, are located in northwest.
8. US Department of Agriculture (USDA).
9. USDA.
10. USDA.
11. USDA.
12. On these aspects see http://pdxscholar.library.pdx.edu/oscdl_ugb/#, where you can find information about UBG.
13. On these aspects see also http://www.oregonmetro.gov/urban-growth-boundary, where you can find the UBG map.
14. http://www.oregonmetro.gov/
15. See the Portland Plan Food System: http://www.portlandonline.com/portlandplan/index.cfm?a=273154 (accessed 31 January 2018).
16. For other information see Multnomah County (2010).
17. For other information on CAP see https://www.portlandoregon.gov/bps/49989
18. For other information about the Portland Peak Oil Task Force see the final report: http://www.portlandoregon.gov/bps/article/126582
19. For more information about the Sustainable Food Program see https://www.portlandoregon.gov/bps/41480
20. For more information about the food hub see http://www.ecotrust.org/
21. Food banks are a natural partner in SNAP outreach because of their direct connection to food-insecure families in the community. The food bank does not provide SNAP benefits; however, the food bank does help food pantry participants sign up for SNAP through outreach programmes. By connecting eligible families with SNAP, food banks help provide food-insecure households with a consistent and stable means to purchase their own food.
22. http://www.leisure.com/trip-ideas/8145-3-of-the-most-hipster-things-you-can-do-in-portland
23. For more information see http://www.foodcartsportland.com/
24. http://www.portlandfarmersmarket.org/
25. https://portlandcommunitygardens.org/
26. https://portlandcommunitygardens.org/
27. In 2002 the Portland/Multnomah Food Policy Council was launched to serve as a citizen-based advisory board for the City of Portland and Multnomah County. It represented a broad spectrum of citizens and addressed policy issues in the regional food system. https://www.portlandoregon.gov/bps/42290
28. http://slowfoodportland.com/

References

Armstrong, K., Chapin, E., Chastain, A., Person, J., VanRheen, S. and White, S. 2009. 'Foodability: Visioning for Healthful Food Access in Portland', Portland State University Master of Urban and Regional Planning 55 Program, June. http://www.pdx.edu/sites/www.pdx.edu.usp/files/Foodability_Final_PDF.pdf

Born, B. and Purcell, M. 2006. 'Avoiding the Local Trap: Scale and Food Systems', *Journal of Planning Education and Research* 26(2): 195–207.

City of Portland. 2009. 'Portland Plan-Food System Report'. Accessed 11 June 2018. http://www.portlandonline.com/portlandplan/index.cfm?a=273154&c=51427

Cox, W. 2001. *American Dream Boundaries: Urban Containment and Its Consequences*. Atlanta: Georgia Public Policy Foundation.

Jun, M.-J. 2004. 'The Effects of Portland's Urban Growth Boundary on Urban Development Patterns and Commuting', *Urban Studies* 41(7): 1333–48.

Kapell, H., Katon, P., Koski, A., Li, J., Price, C. and Thalhammer, K. 2008. 'Food Cartology: Rethinking Urban Spaces as People Places'. Accessed 31 January 2018. https://pdxscholar.library.pdx.edu/usp_murp/42/

Kline, J.D. and Alig, R.J. 1999. 'Does Land Use Planning Slow the Conversion of Forest and Farmlands?', *Growth and Change* 30(1): 3–22.

McClintock, N. 2015. 'A Critical Physical Geography of Urban Soil Contamination', *Geoforum* 65: 69–85.

McClintock, N., Mahmoudi, D., Simpson, M. and Santos, J.P. 2016, 'Socio-spatial Differentiation in the Sustainable City: A Mixed-Methods Assessment of Residential Gardens in Metropolitan Portland, Oregon, USA', *Landscape and Urban Planning* 148: 1–16.

Metro. 2015. 'Growth Management Fact Sheet'. Accessed 31 January 2018. http://www.oregonmetro.gov/sites/default/files/Growth-management-factsheet-20160115.pdf

Multnomah County. 2010. 'Multnomah Food Report'. Accessed 31 January 2018. https://multco.us/multfood

Rogers, K. and Roy, K. 2010. 'Portland Food Carts: Catering to the Pedestrian', American Planning Association: Transportation Division. Accessed 11 June 2018. https://planning-org-uploaded-media.s3.amazonaws.com/legacy_resources/resources/ontheradar/food/pdf/TPDportlandfoodcarts.pdf

Seltzer, E. and Carbonell, A. (eds). 2011. *Regional Planning in America: Practice and Prospect*. Cambridge, MA: Lincoln Institute of Land Policy.

5

Urban agriculture in Lima metropolitan area
One (short) step forward, two steps backwards – the limits of urban food planning

Alain Santandreu

5.1. A mega-city with mega-urban problems

According to data from the 2007 National Census, 77 per cent of Peru's population live in cities, and just over half live in coastal regions (55 per cent). Metropolitan Lima, the capital, is the fifth-most-populated city in Latin America, having 43 districts, and is home to nearly a third of the country's 31 488 000 inhabitants (Instituto Nacional de Estadística e Informática [INEI] 2007).

Considered to be the second-largest city in the world which is located in a desert, receiving only 25–100 mm of rain per year, and with only 3.7 m² of green area per inhabitant, Metropolitan Lima faces severe environmental problems. The Rimac River is the main source of water for all uses, including for irrigating the 12 500 hectares dedicated to traditional peri-urban agriculture which still remain on the urban periphery.

From 1990 to 2004, rural-to-urban migration – spurred by internal armed conflicts – led to a nine-fold increase in Lima's population, bringing about an accelerated process of urbanisation which severely impacted on the traditionally agricultural areas surrounding the city. Just as the urban pressures from the waves of internal migration began to subside, the country embarked upon a decade-long economic boom (with gross domestic product [GDP] growth of six per cent on average between 2004 and 2014), sparking a new cycle of urban pressure, this time geared towards satisfying the housing needs of the growing middle
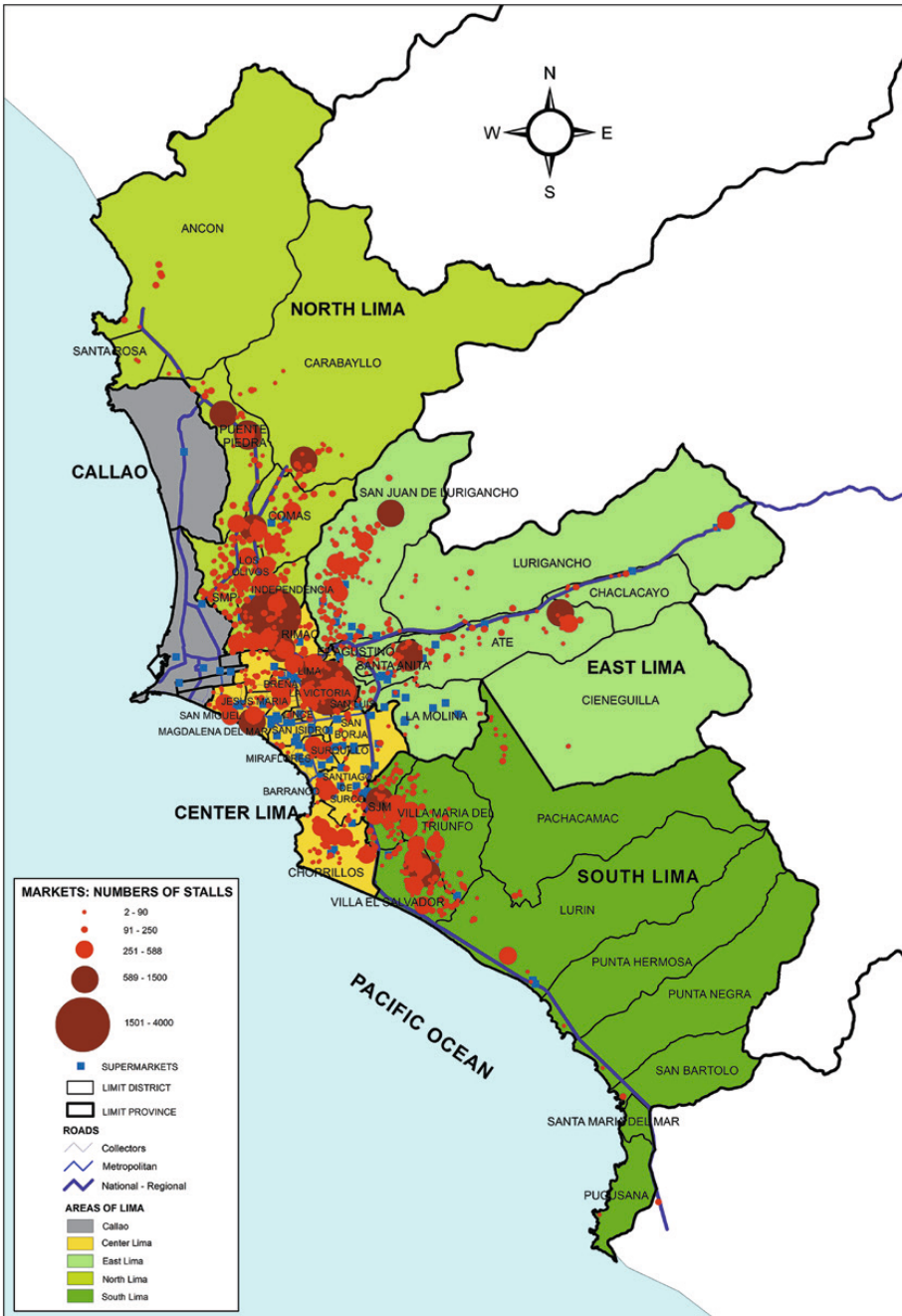
Figure 5.1 Location of popular markets and supermarkets according to the number of establishments. Many popular markets sell products from urban farms. (*Source*: FAO Proyecto NADHALI 2016–18)

class. The urban poverty rate in Lima fell from 44.6 per cent in 2004 to 11.6 per cent in 2014 (INEI 2015), and with the increase in average incomes there was a corresponding increase in the demand for food among the capital's burgeoning middle-class households (Pozo-Vergnes and Vorley 2015).

Another result of the increase in people's incomes can be seen in the changes that occurred in food distribution, which began to be concentrated in supermarkets and large retailers' outlets in place of traditional local farmers' markets, albeit with higher prices. Despite this, in Metropolitan Lima there are still some 1200 markets that meet the dietary needs of the poorest communities located in Lima's outskirts (see Figure 5.1) (Pozo-Vergnes and Vorley 2015).

Despite several attempts in recent years by the national government to improve food availability and access, a recent study revealed the strong impact that the increase in food prices had had on the caloric deficit of the poorest people, highlighting the fragility of food security policies (Zegarra 2010).

Recent studies, such as those provided by the NADHALI Project,[1] warn about food vulnerability in the Lima metropolitan area, showing that only 2.2 per cent of the food consumed is produced within its territory. The NADHALI Project is promoted by the Food and Agriculture Organisation (FAO) together with the Metropolitan Municipality of Lima and a broad group of actors from the public and private sectors, academia and civil society, organised in a multi-actor platform. Among its objectives, it seeks to support the authorities responsible for planning the food system as a key pillar of 'making cities and human settlements inclusive, safe, resilient and sustainable' and 'ending hunger and achieving food security and nutrition'.

Metropolitan Lima is a city of contrasts. A mega-city facing mega-problems in a multicultural and institutional context plagued by paradoxes and contradictions.

5.2. The challenges of urban governance

Since 2000, Peru has experienced a democratic era with free national elections every five years and changes in regional and municipal authorities every four years. As a result of the 2014 elections, the country has nine new municipal and regional administrations, including a new metropolitan mayor of Lima.

In spite of the democratic resurgence that followed a turbulent era of internal violence and authoritarian governments, Peru has the lowest presidential approval ratings of any country in the region, a Congress with the lowest measures of credibility and a population that is deeply distrustful of public institutions. Nearly half of the population does not believe that democracy is benefiting them in their daily lives, and more than two-thirds do not feel that they are represented by the President and the Congress (Latinobarómetro 2015).

Since the 1990s, there has existed a strong perception that political parties are in the midst of a crisis of representation. The Peruvian political system looks much like a 'party-free democracy', with party structures that lack national representation, and local parties with strong regionalist programmes (Levitsky and Cameron 2003).

Various studies concur that citizen participation and civil society are somewhat in retreat, after significant activity in the 1990s. One of the most important consequences of this is the limited capacity that grassroots organisations have today to raise and sustain issues and processes on the national political agenda.

The other side of this phenomenon are what some analysts call 'islands and archipelagos of technocratic efficiency', which, though able to generate some consensus in key areas of administration, do not always guarantee coordination, innovation, a strategic approach or the continuity of government initiatives as part of state policy (Tanaka 2015). In this context, the changeover of a municipal administration can mean the abandonment not only of approaches, political priorities and the prioritisation of certain issues, but also of actions and even the implementation of specific policies that have approved legal frameworks and committed budget lines in the Budget by Results.

The environmental, urban planning and urban agriculture policies promoted in Metropolitan Lima between 2011 and 2014 appear to have been victims of this particular form of governance, which is so characteristic of the country, demonstrating that institutional structures and the availability of budget resources are necessary but not sufficient conditions to keep a public policy in place.

5.3. Agriculture in Metropolitan Lima

Agriculture has always been a part of Lima. Maps and engravings show the presence of agricultural areas in the colonial walled city. Historically, traditional peri-urban agriculture was practised on small farms

in the peripheral districts to the north, south and east of the city and in the valleys of the Lurin and Chillon Rivers. Sixty per cent of the agricultural plots in Lima measure less than 1 hectare, and 43 per cent are less than 1000 m² (FAO 2014). This farming practice, typical of rural migrants who have made their way to Lima over time, sought commercial outlets through traditional channels (bodegas, municipal markets, stands and street vendors) and was seen not as urban agriculture but rather as part of 'the agriculture of the city', and therefore no specific policies were developed to support or regulate the type of production, the irrigation systems and the food supply and distribution mechanisms (Soto and Siura 2008). The use of untreated wastewater for irrigation constitutes a serious problem that severely impacts upon the health of consumers (Moscoso and Alfaro 2008; Moscoso 2011; CIP 2007). Various studies show that, despite the advances made in recent years, there remains a significant deficit in fruit and vegetable consumption, especially among the poorest communities (Instituto Nacional de Salud 2012; María Calderón et al. 2005). Moreover, urban pressures have threatened a large proportion of the agricultural areas, especially those located to the south of the city.

Beginning in 2000, various NGOs, universities, cooperation agencies and some district municipalities started to promote urban agriculture as an activity carried out both within the city limits as well as on the outskirts, offering more holistic solutions to some of the social, economic, nutritional and environmental problems of the poorest section of the population.

It is likely that the District Municipality of Villa María del Triunfo (VMT) was the first municipal government to institutionally promote urban agriculture. In 2001, with support from the Urban Management Program of UN-Habitat (UMP-LAC/UN-Habitat) and Promotion of Sustainable Development (IPES), urban agriculture was incorporated into the legal-regulatory framework and the municipal agenda as an anti-poverty strategy, with a small amount of funding to implement actions. In 2004, the Urban Agriculture Office was created within the Local Economic Development Department and, in 2006, Municipal Ordinance No. 021–2007-MVMT was passed, recognising urban agriculture as a legitimate and permanent activity in the district and as a strategy in the fight against poverty which contributes to local economic development.

Between 2004 and 2010, the RUAF Foundation and the IPES installed 145 family and community organic gardens, and organised 570 urban farmers in the district of Villa María del Triunfo (see Figure 5.2). With financing from the Peru Energy Network (REP), a programme was implemented to install community farms on the strip of utility easement

Figure 5.2   Urban garden, Machu Picchu, in Villa María del Triunfo district, Lima. (*Source*: Alain Santandreu)

land under the power transmission grid that crosses the district, and the La Molina National Agrarian University (UNAML) trained and developed the capacities of the urban farmers (Soto and Siura 2008; CIP 2006).

Between 2011 and 2014, the Municipal Urban Agriculture Program known as 'Chacrita Productiva' was operational, housed in the Office for Business Promotion, Consumer Defense and Urban Agriculture, which sought to encourage urban agriculture as a strategy to advance social inclusion, gender equity, job creation, food security, community participation, environmental protection and the combatting of poverty. The programme installed 39 organic allotment gardens (family, community and institutional) which benefited 1128 urban farmers. Unfortunately, this process has lost steam since the latest change in the municipal authorities in early 2015, although many of the urban farmers continue to grow crops on their own, independent of the municipality.

In 2003, the District Municipality of Lurigancho Chosica began to implement urban agriculture activities in the town of Santa Maria de Huachipa, with support from the Urban Harvest programme of the CIP (CIP/UA). These efforts helped to institutionalise urban agriculture as a strategy to combat poverty, generate income and increase the food

security of urban farming families. It encouraged the participation of women and older adults and helped to improve the environment and preserve agricultural areas threatened by urban population pressure. In 2005, the Urban Agriculture Office was created. An Urban Farming School strengthened the technical capacities of 800 farmers (70 per cent of whom were women) in the areas of ecological production, production systems in human settlements (for farmers without land), business administration and commercial management. The trained farmers in turn educated their neighbours. The programme worked with 21 community kitchens and supported the creation of three associations of producers. Regular farmers' markets were held and a roundtable was established with other municipal agencies which facilitated the coordination of support strategies and the formulation of new legal frameworks to facilitate urban agriculture. Together with the Nutritional Research Institute (IIN), pilot efforts were developed in 12 community kitchens to improve the nutritional status of children aged six months to three years through appropriate child nutrition practices and participatory classes on preparing nutritional recipes using farm products which could be prepared in homes and in the community kitchens. Nevertheless, and despite the progress made, municipal support in this area has waned in recent years with each successive turnover of the municipal authorities (CIP 2006; Soto and Siura 2008).

Other districts such as Villa El Salvador also have pioneering experiences in urban agriculture involving the production of forage, pigs and small animals (guinea pigs). Most recently, the District Municipality of Rimac has received support from the FAO to implement family farms.

5.4. The incorporation of urban agriculture into the municipal policies of Metropolitan Lima: one step forward!

In Peru, there is no overwhelming evidence that demonstrates that urban agriculture is a solution for supplying large quantities of food to cities, as is the case in Cuba, which has a national urban agriculture policy, Rosario (Argentina), Quito (Ecuador) and Teresinha and Curitiba (Brazil) (Ponce and Terrile 2011; Bracalenti et al. 2011; Santandreu et al. 2009; Rodriguez 2010; Ribelino and Paludo 2011; González et al. 2008; Santandreu and Merzthal 2010). Nevertheless, and despite the knowledge gaps that still exist, the documented results of urban

agriculture reveal how it makes significant contributions to a more sustainable urban environment, more equitable land use and more diverse and nutritional diet, as well as to social inclusion and increased self-esteem on the part of those who practise it (Soto and Siura 2008; FAO 2014; CIP 2006).

Acknowledging the complexity of the urban problems Lima faces and the multiple experiences developed in the city, Mayor Susana Villaran (2011–14), from the beginning of her term, incorporated urban agriculture as part of a strategic vision that attempted to establish the foundations of a new model of urban development in the capital (Municipalidad Metropolitana de Lima 2012b). Initially, the municipality linked urban agriculture to food security, environmental protection and income generation. Over time, its vision became broader as it recognised the activity as a permanent type of land use in urban plans. In her speech launching the Mi Huerta Program, Mayor Villaran emphasised the importance of producing food in the city: 'Cities grow and we have to practice urban agriculture as part of a project to ensure food security and nutrition for our city' (Municipalidad Metropolitana de Lima 2012a), highlighting its contributions especially to the diet of the poorest citizens.

In this context, and with a broad strategic vision, in September 2012 the Metropolitan Municipality of Lima approved Municipal Ordinance No. 1629, which defines urban agriculture and agricultural practice for the production of food and non-food plants and the raising of small livestock (in areas where this activity is permitted by zoning regulations and in compliance with animal health laws) with the intention of providing food products, animal feed and primary processing that are safe for the population of Lima. This concept includes the production of inputs (such as soil enhancers and bio-fertilisers to fertilise crops and control pests), the creation of local seed banks featuring the seeds of traditional plants, and germplasm banks operated in accordance with relevant regulations and the guidelines and standards issued by national authorities, and activities that add value to said products, including processing and commercialisation (Municipalidad Metropolitana de Lima 2012c).

According to the ordinance, urban farming can be carried out in a variety of intra-urban areas, including rooftops, terraces and backyards, home gardens, community and school farms, plots sponsored by public and private institutions, urban community gardens, agro-parks or farm parks and other vacant suburban areas that are ceded for use

through formal agreements with property owners to be used for urban agriculture activities, as well as non-buildable areas that need to be preserved. Also included are the traditionally agricultural peri-urban areas of the Chillon, Rimac and Lurin Valleys (Municipalidad Metropolitana de Lima 2012c).

Another important aspect is the recognition given to urban farmers, who are considered to be people engaged in urban agriculture, in order to improve their food security, generate personal, household or community incomes, improve their local environment and/or use their time in a creative and productive way (Municipalidad Metropolitana de Lima 2012c).

In order to make the policy operational, the Metropolitan Urban Agriculture Program was created, as a set of activities carried out by the Metropolitan Municipality of Lima within its territorial jurisdiction, in accordance with related national policies, to promote urban agriculture in the province of Lima. The programme included implementing and supporting productive areas (in school grounds, on communal property, in urban gardens, plots and private family gardens) using sustainable technologies; providing training and technical assistance for the urban farmers; connecting farmers to each other; direct marketing to consumers; formulating or supporting the formulation of planning and management tools for urban agriculture and district legal frameworks (ordinances and council resolutions, among others); raising awareness about and publicising the benefits of urban agriculture and the importance of local food production and consumption; and research and knowledge management. Especially excluded were activities relating to the use, handling, transportation or storage of pesticides or any chemical substance that could be toxic or hazardous to human health, animal health or the environment, in order to reduce public health risks and pesticide pollution.

Named 'Mi Huerta' (My Garden), from 2012 to 2014 the Urban Agriculture Program of the Metropolitan Municipality of Lima implemented two projects using resources from socioproductive public investment programmes, in the districts of Ate Vitarte, Comas, Cercado de Lima, Independencia, Santa Anita and San Martin de Porres, which created 77 000 m² of community, school and family plots, directly and indirectly benefiting more than 20 000 urban farmers and their families. In less than three years, the programme built the capacities of 5000 urban farmers, while forming six district networks and one metropolitan network as spaces where these farmers could associate and collaborate with each other. The participating families, community organisations

Figure 5.3 Urban farm promoted by Mi Huerta (My Garden) programme in Lima. (*Source*: Cecilía Delgado)

and schools received inputs, tools, training and technical assistance in growing their crops. Mi Huerta strengthened the capacities of the urban farmers through 50 *yachachiqs* (Quechua for 'trainers'), urban farmers with plots in various districts in Lima who supported the programme's technical team (see Figure 5.3).

As part of the overall vision that inspired the whole process, the municipality incorporated urban agriculture into three documents approved by the municipal administration of Mayor Susana Villaran which sought to link the activity with new public policies. The Metropolitan Environmental Policy, approved via Municipal Ordinance No. 1629 on 18 September 2012, incorporated urban agriculture into guidelines relating to watersheds, valleys and land use, acknowledging the importance of promoting ecologically friendly urban and peri-urban agriculture as a means of guaranteeing that traditional farming valleys are protected and valued. As part of its policy guidelines for green areas, it established a system of incentives to create green rooftops, walls, schools and homes and to create productive green areas through urban agriculture on available private and municipal property, in addition to other initiatives relating to the treatment and reuse of solid and liquid waste for urban farming.

The Metropolitan Environmental Agenda approved through Municipal Ordinance No. 1640 on 4 December 2012 also included urban agriculture among its specific objectives relating to protecting the urban valleys that provide environmental services to the city, and encouraged the conservation and increase of productive green areas through practising urban farming on sustainable urban plots (Municipalidad Metropolitana de Lima 2012d).

The Plan for Concerted Development (2012–15) approved on 19 February 2013 also incorporated urban agriculture in urban planning instruments, promoting a polycentric, connected and sustainable city that is redefining the use of its territories in harmony with the surrounding ecosystems and provides adequate services, while setting strategic goals including increasing the amount of green areas per capita, protecting 100 per cent of productive green areas and protecting and maintaining the agricultural valleys of the south. The Plan also promoted the incorporation of urban agriculture into green areas and urban public spaces as a strategy to improve the quality of life of the population of Lima province (Municipalidad Metropolitana de Lima 2012e).

Finally, the vision of sustainable urban development promoted by the municipality incorporated urban agriculture into the Metropolitan Urban Development Plan for Lima and Callao 2035 (PLAM), which was submitted for public comment in a process that was cut short by the current municipal administration, whose leaders appear to have another vision and other priorities for the city.

Although it is true that the vision of city and environmental and urban plans did incorporate urban agriculture into municipal policies, its place in the municipal organisational chart was never clear. In the new municipal organisational and functional regulations approved in 2013, urban agriculture falls under the Office for Natural Resources and Climate Change, which places it far from the objectives of food security, assigned to the Social Development Department, or from promoting value chains, which is the responsibility of the Business Development Department and its Office for Productive Development (Municipalidad Metropolitana de Lima 2013). In practice, the Mi Huerta programme was run by the Regional Government Program of Metropolitan Lima (created as an autonomous entity in 2003 to facilitate the process of decentralisation led by the national government), which did not facilitate its visibility and its connection with other municipal departments and policies (Municipalidad Metropolitana de Lima 2016).

Neither was there a clear linkage between urban agriculture and the food security and supply work being carried out by the municipal

government, despite the fact that Ordinance No. 1629 established, as part of its urban agriculture promotion mechanisms (Article 5), the need to coordinate efforts relating to commercialising products from urban agriculture with the Business Development Department, the Productive Development Office and the Regional Agrarian Office – 'promoting the competitive development of sustainable economic activities through production and commercial chains, organizing fairs' – and to coordinate with the Social Development Department in the areas of food and nutritional education aimed at urban farmers as well as promoting urban agriculture among the beneficiaries of municipal food and nutrition programmes. Only in 2014, when the Villaran administration was coming to an end, was an Organic Open market (Ecoferia) organised which allowed the Mi Huerta programme to sell its products; one example of the difficulties that intra-urban farmers must overcome in order to produce food on an ongoing basis.

In addition, the Metropolitan Municipality of Lima had to negotiate the implementation of Mi Huerta with 42 district mayors, since land use is a district responsibility. The administrative and political complexity of this challenge (most of the district mayors were not from the same political party as the Metropolitan Mayor) showed how difficult it is to construct urban governance in a city like Lima.

As a result, urban agriculture managed to get positioned on urban plans as a permanent activity and a novel land use, but was not able to move forward in coordination with other areas of municipal administration, despite the constant efforts of members of the Mi Huerta programme and the support provided by some deputy managers. This limited its impact as an innovative strategy for the production, sale and consumption of agricultural products linked to other strategies such as food security or urban food distribution.

5.5. The current situation of urban agriculture in the Metropolitan Municipality of Lima: two steps back …

The new municipal administration that took office on 1 January of 2015 radically changed the city's policy priorities. At the start of the second year of its term, there were no indications of any municipal interest in implementing urban agriculture as provided for in the Participatory Development Plan and the Municipal Environmental Plan. The removal from the municipal website of the link to the documentation on PLAM, which is in the process of public consultation, confirms

a new vision of development in which there appears to be no room for urban agriculture.

At the operational level, although the new budget maintained a budget line for urban agriculture activities during the first year of the administration, priorities then changed and the resources were shifted to finance irrigation activities in peri-urban areas, thus returning to the normal practice of supporting traditional crop production in peri-urban areas of the city. It is not possible to consult online or to receive any clear answers regarding the activities of the Mi Huerta programme. There appears to be no institutional memory from the previous administration. Neither is there evidence of complaints or public demonstrations on the part of urban farmers or the civil society organisations that were part of the urban agriculture networks created under the previous mayor.

This situation has led me to reflect on some of the lessons learned both from the process of implementing the urban agriculture policy and actions and from the impact of the change in administration on the continuity of municipal public policies.

5.5.1. The political recognition of urban agriculture as a social and economic activity and a permanent use of urban land: an advance in the strategic vision of the city

Without a doubt, for urban agriculture one of the main advances during the administration of Mayor Susana Villaran was the institutional recognition of the activity as a practice rooted in the history of the city and its incorporation into public discourse and municipal planning. The public support from municipal authorities and the new legal-regulatory frameworks approved during her term showed a clear political will to include urban agriculture as one important way to contribute to the city's sustainable development. For that administration, the Lima of the future included urban agriculture as an activity to be promoted and as a permanent use of urban land.

5.5.2. The incorporation of urban agriculture into the programmes, plans and policies of the city: a necessary but not sufficient step

Framework Ordinance No. 1629 recognised, for the first time in the history of the city, urban agriculture as a living activity. Its integration into the Metropolitan Environmental Policy, the Metropolitan Environmental Agenda and the Regional Participatory Development Plan (2012–15), which were approved between 2011 and 2014, and its later inclusion in

PLAM are evidence of significant progress in the understanding of the public managers, municipal technicians and urban planners who incorporated urban agriculture into their vision for the city's development. The implementation of Mi Huerta and the allocation of a budget line demonstrate the political and institutional interest that the municipality had in the activity. Nevertheless, the change of administration showed that advances in legal frameworks (and even a dedicated budget) do not guarantee the continuity of public policies. In a context of weak institutions and structures, the progress made does not appear to have been sufficient to motivate the new administration to continue with the activity.

5.5.3. The emphasis on intra-urban agriculture: farming in small spaces for many people

Despite the fact that the new legal framework and the planning instruments approved during the administration of Mayor Susana Villaran included intra-urban and peri-urban farming, in practice efforts were focused only on intra-urban production, involving a large number of people but occupying little space. As a result, production was geared more towards self-consumption rather than for sale, and the scale of production became a limitation in terms of supplying urban markets, including the Organic Open market.

5.5.4. The need to expand the vision of urban agriculture: towards a trans-sectoral vision of public policies

The advances made in mainstreaming urban agriculture within metropolitan environmental policies and into the city's vision for sustainable development were not reflected in the activity's positioning in the municipal organisational chart, or its coordination with other municipal departments. The strategic vision of those who championed the activity was not shared by all. As a result, the multiple contributions of urban agriculture were not made visible in a comprehensive manner; nor was sufficient progress made in creating new evidence that demonstrated its multiple contributions to the environment, health, food security, participation and social empowerment, among other areas. In practice, a sector-specific viewpoint dominated which did not help to broaden the urban agriculture political base among the middle managers and technical staff of the municipal government. The political conviction among the authorities did not necessarily translate into a technical-level conviction that would drive more integrated efforts among the various departments.

5.5.5. The challenge of connecting institutional advances with the expectations of urban farmers: planting gardens is not the same as promoting urban agriculture

The institutional recognition of the rich history of urban agriculture in Lima does not appear to have inspired an institutional and social process sufficiently powerful to guarantee its continuity under the new municipal administration. The push given by Mayor Susana Villaran to restoring the activity and to highlighting the role of farmers in Lima's agricultural valleys does not appear to have been sufficient to jump-start a process of organisation among intra-urban farmers. The promotion of organisational processes by institutions (whether municipalities, universities, NGOs or cooperation agencies) has some drawbacks when it comes to sustaining activities once the institutional energy dissipates. Although it is true that a lot of progress was made in a very short time (the entire process took place between 2012 and 2014), the networking model promoted by the municipality failed to energise a grassroots and political movement in which to anchor the urban agriculture efforts implemented by the municipality over those three years. As a result, the urban farmers of Lima, though more connected than before and with an enhanced sense of identity, did not manage to form themselves into a social movement that would express the transformational potential that urban agriculture had for their lives, the lives of their communities and the city as a whole.

5.5.6. The urgency of improving institutional governance in Metropolitan Lima: not everything that was done before is bad

The Metropolitan Municipality of Lima does not have a culture of governance that guarantees institutional continuity. Although some deeply rooted practices in Peruvian public administration have been overcome (for example, 10 or 15 years ago it was common to leave the new administration with zero institutional memory of the prior administration), the city remains far from attaining governance that guarantees the continuity of municipal policies. Other cities in Latin America, such as Quito and Rosario, show that it is possible to sustain policies and continue urban agriculture programmes despite political changes among municipal government leadership. But in Lima the change of mayor meant a wholesale abandonment of nearly all the most emblematic achievements of the previous administration (including urban agriculture). From any perspective, it seems necessary to construct a new form of understanding (and practising) municipal institutional governance in Lima.

5.5.7. The importance of seeing the city with 'urban agriculture lenses': the inclusion of multiple viewpoints in municipal planning processes

The experience from 2012 to 2014 teaches us that it is possible to see the city through the eyes of urban agriculture. Despite the uncertainty in the institutional future of urban agriculture, the urban farmers organised around their farms will continue to grow crops, motived by the same desires as always: to improve their diet, income and the urban socioenvironmental surroundings in which they live. Their daily labours, nearly invisible to the eyes of the current authorities, continue there, where they have always been, anchored in history and in a dispersed social web throughout the city. Empowering the social interactions of urban farmers, encouraging their social organisation around communities of practice united by common interest, is a task to be carried on by those of us who believe that Lima can be a more just, caring and sustainable city. Urban agriculture has much to contribute, both to people and to the social and environmental systems of the city. The advances (and even the setbacks) identified during these years show us that another city is possible. A new social movement, which sees the city with eyes of solidarity and sustainability, is lying dormant just under the surface, and it is our job to awaken it.

Note

1. Developing Sustainable Food Systems for Urban Areas: Piloting a Holistic Approach in Nairobi (Kenya), Dhaka (Bangladesh) and Lima (Peru).

References

Bracalenti, L., Logorio, L., Lattuca, A. and Terrile, R. 2011. 'Parques Huerta en Rosario, Argentina: Una Estrategia de Integración de La Agricultura Urbana y Periurbana en el Ordenamiento Territorial', in *Memorias AU: Experiencias de Agricultura Urbana y Periurbana en ALC*, Primera, 31–6. Santiago de Chile: FAO and IPES.

CIP. 2006. *Agricultura Urbana y Peri-urbana en Lima Metropolitana: Una Estrategia de Lucha Contra la Pobreza y la Inseguridad Alimentaria*. Lima.

CIP. 2007. 'Reservorio Para La Producción de Hortalizas Sanas Y Peces', Lima. http://cipotato.org/publications/pdf/003831.pdf

FAO. 2014. *Ciudades Más Verdes en América Latina y el Caribe*, edited by Graeme Thomas. Rome: Programa de las Naciones Unidas para la Alimentación y la Agricultura. http://www.fao.org/ag/agp/greenercities/es/CMVALC/downloads.html.

González, N., Castellanos, A., Price, J. and González, M. 2008. *Testimonios: Agricultura Urbana en Ciudad de la Habana*. Lima: IPES, ACTAF and OXFAM.

INEI. 2007. *Censo Nacional 2007*. Lima, 2007.

INEI. 2015. *Evolución de la Pobreza Monetaria Al 2007–2014*. Lima.

Instituto Nacional de Salud. 2012. *Sala Situacional Alimentaria y Nutricional. Consumo Alimentario*. Lima: Dirección Ejecutiva de Vigilancia Alimentaria y Nutricional.

Latinobarómetro. 2015. 'Informe 1995–2015', Santiago de Chile. http://www.latinobarometro.org/latNewsShowMore.jsp?evYEAR=2015&evMONTH=-1

Levitsky, S. and Cameron, M. 2003. 'Democracy without Parties? Political Parties and Regime Change in Fujimori's Peru', *Latin American Politics and Society* 45(3): 33. http://dev.wcfia.harvard.edu/sites/default/files/882__democracy-without.pdf

María Calderón, A., Carmen Moreno, P., Carlos Rojas, D. and Juan Barboza, C. del. 2005. 'Consumo de Alimentos Según Condición de Pobreza en Mujeres en Edad Fértil y Niños de 12 a 35 Meses de Edad', Revista Peruana de Medicina Experimental y Salud Publica 22(1) (2005): 19–25. http://www.bvsde.paho.org/texcom/nutricion/a04v22n1.pdf

Moscoso, J. 2011. 'Estudio de Opciones de Tratamiento y Reuso de Aguas Resuduales en Lima Metropolitana', Lima.

Moscoso, J. and Alfaro, T. 2008. *Panorama de Experiencias Tratamiento y Uso de Aguas Residuales en Lima Metropolitana y Callao*. Lima: Cuadernos de Agricultura Urbana.

Municipalidad Metropolitana de Lima. 2012a. 'Municipalidad de Lima Pone En Marcha Programa de Agricultura Urbana Mi Huerta'. https://youtu.be/BtxPmgBL65Y

Municipalidad Metropolitana de Lima. 2012b. Ordenanza N° 1628 que aprueba la Política Metropolitana del Ambiente.

Municipalidad Metropolitana de Lima. 2012c. Ordenanza N° 1629 de promoción de la agricultura urbana como estrategia de gestión ambiental, seguridad alimentaria, inclusión social y desarrollo económico local en la Provincia de Lima, Pub. L. No. 1629.

Municipalidad Metropolitana de Lima. 2012d. Ordenanza N° 1640 que aprueba la Agenda Ambiental Metropolitana 2012–2014, Pub. L. No. 1640.

Municipalidad Metropolitana de Lima. 2012e. 'Plan Regional de Desarrollo Concertado de Lima (2012–2025).' Lima: MML, IMP, 2012.

Municipalidad Metropolitana de Lima. 2013. Ordenanza N° 1751 que modifica el Reglamento de Organización y Funciones de la Municipalidad Metropolitana de Lima, Pub. L. No. 1751.

Municipalidad Metropolitana de Lima. 2016. 'Programa del Gobierno Regional de Lima Metropolitana'. http://www.munlima.gob.pe/programa-gobierno-regional-de-lima-metropolitana

Ponce, M. and Terrile, R. 2011. 'Un Análisis de Mercados en Rosario, Argentina', *Revista de Agricultura Urbana*, July. http://www.ruaf.org/publications/urban-agriculture-magazine-spanish

Pozo-Vergnes, E. and Vorley, B. 2015. *Global or Local Food Chains? In Senegal and Peru*. London: IIED.

Ribelino, E. and Paludo, L. 2011. 'Programa de Agricultura Urbana de Curitiba', in *Memorias AU: Experiencias de Agricultura Urbana y Periurbana en ALC*, 19–24. Santiago de Chile: FAO and IPES.

Rodriguez, A. 2010. 'Promoting Value Chains in Urban Agriculture for Local Development in Quito', *Urban Agriculture Magazine*, January.

Santandreu, A. and Merzthal, G. 2010. 'Agricultura Urbana e Sua Integração em Programas e Políticas Públicas: A Experiência do Brasil', in *Fome Zero Uma História Brasileira*, Volume 3, edited by Adriana Aranha, 157–68. Brasilia: Ministerio de Desenvolvimento Social e Combate a Fome. http://www.mds.gov.br/segurancaalimentar/publicacoes/livros/fome-zero-2013-uma-historia-brasileira-2013-volumes-1–2-e-3/fome-zero-2013-uma-historia-brasileira-2013-volumes-1–2-e-3

Santandreu, A., Gómez, A., Terrile, R. and Ponce, M. 2009. 'Agricultura Urbana en Montevideo y Rosario: ¿Una Respuesta a La Crisis o un Componente Estable Del Paisaje Urbano?', *Revista de Agricultura Urbana*, December. http://www.ruaf.org/publications/urban-agriculture-magazine-spanish

Soto, N. and Siura, S. 2008. *Panorama de Experiencias de Agricultura Urbana en Lima Metropolitana y Callao*. Lima: IPES, RUAF, MVCS and SWITCH.

Tanaka, M. 2015. *Presentación de Martin Tanaka Acerca del Contexto Político y de Gobernabilidad Democrática para el Desarrollo del Perú*. Lima: Casa de Naciones Unidas.

Zegarra, E. 2010. 'Diseño de Un Programa Estratégico Para La Seguridad Alimentaria', Lima, http://www.mef.gob.pe/contenidos/presu_publ/documentac/PE0021_Seguridad_alimentaria.pdf

6

Growing food connections through planning
Lessons from the United States

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In 2000, in a landmark article, scholars in the United States asked why
food, an essential ingredient of life, was a stranger to the field of urban
planning (Pothukuchi and Kaufman 2000). Since then much has changed
in how urban planning practice addresses the state of communities' food
systems. US cities, like many across the Global South and Global North,
are experimenting with public policies to create more just and environ-
mentally sustainable food systems (Rocha and Lessa 2009; Raja et al.
2017a; Morgan and Sonnino 2010; Morgan 2009). National surveys
report that members of the American Planning Association (APA), the
largest association of practising planners in the US, now view food as an
issue of high priority for the profession of planning, although few are
actually engaged in efforts to plan and strengthen food systems (Raja et
al. 2008; 2017b). Cities and regions are beginning to integrate food into
official plans (Hodgson 2012), and many communities are *implementing*
these plans – by enacting bylaws, operating programmes, building physi-
cal infrastructure and making public expenditures – that strengthen food
systems (Neuner et al. 2011). In short, food is fast becoming an integral
part of urban planning practice across the US.

Despite the growing recognition of food as an important public pri-
ority, the use of planning and policy to strengthen food systems is uneven
and contested across the US. Some cities, such as Baltimore, Maryland,
Minneapolis, Minnesota, Seattle, Washington, New York, New York,
Portland, Oregon and San Francisco, are leading the way in integrating

food systems into urban planning, while many other communities, including ones with fewer resources or restrictive political regimes, continue to struggle. In both types of communities, very little is known about the barriers that successful cities were able to overcome, or about the challenges that other communities continue to experience in integrating food into urban planning practice.

This chapter fills this gap in the literature by describing the national landscape of how food is being integrated (or not) into urban planning practice in the United States. Although some broad shared trends are visible, the emergence of food as a planning issue is largely rooted in local contexts. Indeed, the pathway by which food appears as a planning issue, we argue, must be driven by local considerations and address local struggles. Community-based *opportunities* should, we argue, inform community-relevant *innovations*. We illustrate this through two case studies drawn from communities we call *communities of innovation* (COIs) and *communities of opportunity* (COOs). The chapter offers cautionary lessons and recommendations for integrating food into urban planning practice.

6.1. Approach

The chapter draws on the findings of a five-year comprehensive national research project that seeks to integrate food into urban, regional and rural planning practice across the United States. The project, Growing Food Connections (GFC), directed by the lead author, aims to reduce food insecurity among low-resource residents and improve the viability of small and medium-sized farmers through planning.[1] The GFC project, which uses participatory action planning research, aims to achieve its strategies by building the capacity of local governments and community stakeholders to use planning and policy to *simultaneously* improve food access and agricultural viability.[2]

The GFC framework is premised on the idea that many local, regional and metropolitan (LRM) governments in the US are *already* strengthening food systems through planning in response to local challenges and opportunities, and many other communities are primed for change, and that these two groups of communities may be able to learn from the experiences of each other. We call these two types of communities COIs and COOs, respectively. Of course, communities that *innovate* have learned how to make the most of their *opportunity*. To that end, we view opportunity-to-innovation (OTI) as a theoretical continuum, where

communities continually evolve in their deployment of planning/policy. The OTI continuum is multi-scalar, and can be understood and applied at the neighbourhood level within a city region, across city regions within a country (as we did in the United States), or across the globe. In the United States, GFC identified a cluster of COI and COO counties, where the team conducted research and capacity-building. Below we describe how COO and COI counties were selected, and in the findings section we report key lessons and challenges experienced in strengthening food systems through planning.

Communities of innovation are communities (cities and counties) where local governments have led or played a significant role in strengthening small and medium-sized agriculture[3] *and* improving food access for low-resource consumers through the use of public policy and planning.[4] From about 300 communities across the United States, the GFC team selected about a dozen COIs that were using innovative strategies to strengthen food systems; in this chapter we report the experience of two of these COIs: Seattle, Washington and Minneapolis, Minnesota.

Communities of opportunity are communities (counties) that are primed to improve their food systems. Opportunity for change in a community is a complex idea and depends on a number of factors. In the GFC project in the United States, communities of opportunity are those which have a thriving agricultural sector (especially with small and medium-sized farms) and, paradoxically, high food insecurity among their limited-resources population. The GFC team created an index to rank the 3000 counties across the US on these two paradoxical measures of high potential for food production and high food insecurity. The index comprised variables that measured potential for agriculture, food insecurity and strength of connections between consumers and farmers in each county. Variables measuring agricultural potential included the proportion of small and medium-sized farms in the county, acres of land in production, and proportion of land with soil suitable for agriculture. Variables measuring food insecurity included percentage of population with low access to supermarkets, percentage of children receiving free/reduced-fee meals (in schools) and percentage of minority populations. Variables measuring connectivity between farmers and consumers included the availability of farmers' markets, community-supported agriculture (CSA) and farm-to-school operations. The resulting index informed the first layer of the selection of COOs in the US. (The research team is adapting this methodological approach for use by local governments in Global South countries.)

Of course, opportunity for change also depends on the landscape of local struggles and the readiness and willingness of a community for policy change. Therefore, for a subset of counties that ranked high on our aggregated index, we qualitatively assessed communities' willingness and readiness to engage in collaborative action to strengthen the food system through local government policy. Ultimately, eight COOs were selected across the United States; in this chapter, we report the opportunities and experiences of two COOs: Dougherty County, Georgia and Chautauqua County, New York.

Note that the categorisation of COOs and COIs is a heuristic device, and we recognise that communities do not easily fit into two binary categories. All the GFC communities present particular, locally rooted, opportunities and challenges and are continuously evolving along their own unique trajectory. Thus we opt to present the information about the COOs and COIs using a case study approach.

To provide a backdrop for COIs and COOs, we first describe how food systems are being addressed in the mainstream planning milieu in the US. Results from a national survey provide a backdrop to exploring deeper, qualitative case studies of food systems planning innovations and opportunities in COOs and COIs in the US.

6.2. National landscape: results from a survey of members of the American Planning Association

To document how food is being viewed, integrated or ignored in mainstream planning practice, in 2014 the GFC partnership conducted a national survey of the members of the APA.[5] Results suggest that food is no longer a stranger to planning practice (Raja et al. 2017b). About a quarter of respondents report that their LRM governments view food systems planning as a top priority or that their local government is significantly or moderately involved in food systems planning (Figure 6.1).

LRM governments are incorporating food into a number of different types of plans, including comprehensive (or master) plans, land use plans and sustainability plans (Figure 6.2). Some are even beginning to prepare food systems plans. Among the different types of plans, comprehensive plans were most frequently reported as incorporating food systems. This is not surprising, since comprehensive plans are broad and most able to address the new frontier of food. Respondents frequently reported that their official plans lacked any mention of food (Figure 6.2). Moreover, when
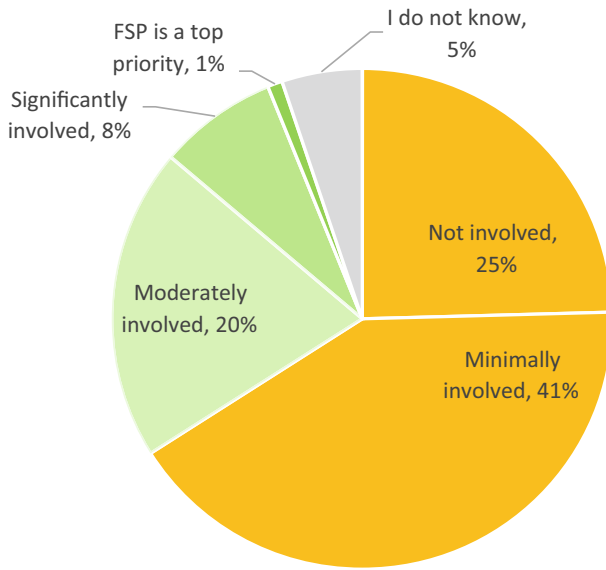
Figure 6.1 Local and regional government engagement in food systems planning as reported by members of the APA ($n = 1482$ respondents). (*Source*: Authors)
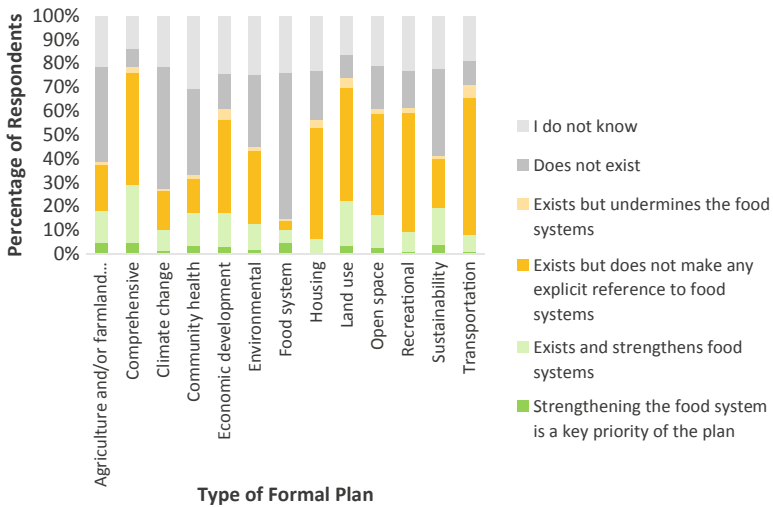
Figure 6.2 Long-range plans adopted by LRM governments. (*Source*: Authors)

LRM governments do address food they tend to focus on specific sectors of the food system, especially agriculture. Urban agriculture in particular appears to preoccupy local government planners. This preoccupation with urban agriculture is not unique to the US. A similar focus on urban agriculture is reported in South African cities, for example (Battersby et al. 2015). US local governments' focus on urban agriculture – rather than food *systems* – may be a response to urban citizens' demands for alternative solutions to urban challenges (Raja and Diao 2016): in cities struggling with years of economic decline, such as Buffalo and Detroit, urban agriculture is viewed as a way to promote food security, livelihood, etc. In wealthier cities or neighbourhoods, residents are increasingly viewing urban agriculture as a desirable 'green' amenity. In both cases, local governments are responding to demands from residents to support urban agriculture.

When asked to report the key reasons why their local, regional or metropolitan government does not address food systems, respondents point to a number of barriers, including limited availability of public resources and limited awareness of food systems issues in their local government (Figure 6.3). A number of respondents also reported that their local, regional or metropolitan government was implementing policy supports for different sectors of the food system. A review of these implementation tools suggests that planners currently favour the use of zoning and other regulatory forms to engage with the food system, over other forms of support such as financial investment or physical infrastructure.
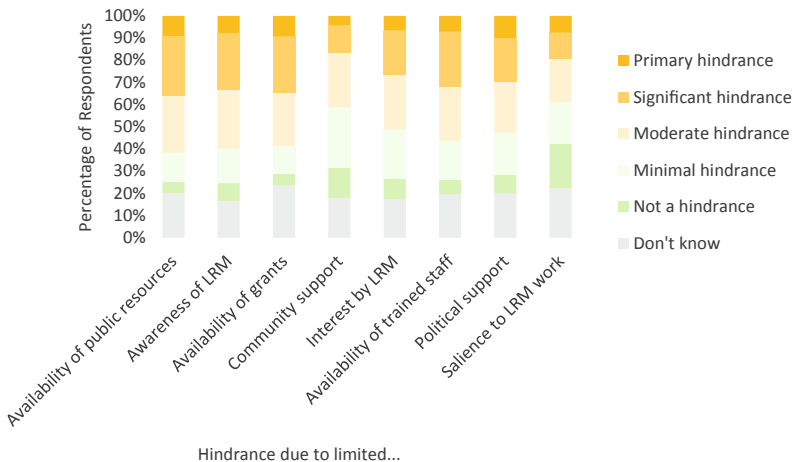
Figure 6.3   Factors hindering local and regional government engagement in food systems planning. (*Source*: Authors)

In short, although food is beginning to be integrated into planning practice, this integration is limited to particular sectors of the food system, planning interventions are narrow and appear restrictive and local government planning engagement is hindered by multiple constraints.

6.3. Communities of innovation: case examples

Despite the somewhat dismal national landscape, many local governments are laying the groundwork for a new way of engaging with food systems. These local governments include large cities such as New York and Seattle, as well as smaller and medium-sized cities such as Buffalo (New York), Cleveland, Ohio and Madison, Wisconsin. A few of these communities are using local government planning and policy to simultaneously strengthen local agriculture *and* promote food access, a key criterion of the GFC project. We detail the experiences of two such innovative local governments below. We chose these two innovative cases because of the comprehensive way in which the local government in Seattle and Minneapolis worked to strengthen food systems through policy and planning.

6.3.1. Comprehensive approach to strengthening the food system in King County and the City of Seattle, Washington

Washington County, home to the City of Seattle, is an agriculturally rich area in the US Pacific Northwest. Seattle has a population of a little over 650 000 residents and is on the coastal edge of King County, home to more than four million people (United States Census Bureau 2014b). The region produces a wide range of agricultural products, including fruits, vegetables, berries and grains. Home to P-Patch Community Gardening Program, one of the largest and oldest[6] publicly operated community gardening programmes, the city has a robust history of and support for urban food production. Despite strong political and public support for urban agriculture – and urban food systems – the area also faces some challenges, including the lack of large, contiguous parcels of land in the city. Moreover, the high cost of land and water and limited infrastructure make farming a challenging business in the city and the region. Yet, since 2008, the governments of the city and county have managed to integrate food into a number of areas of planning and

public policy. Listed below are some recent actions of potential interest to urban planners:

- *Local Food Action (LFA) Initiative, City of Seattle Resolution 31019* (2008): In 2008, the City Council adopted and the Mayor signed a resolution enacting the LFA Initiative. The initiative established a core framework for food-related policies in municipal government, and provided direction and authority to municipal government departments to work on food issues. Most importantly, the initiative institutionalised food as an important municipal government topic and led to the creation of (1) an interdepartmental food system team to coordinate food systems efforts, and (2) a food policy coordinator position to allow deeper city work related to food systems.
- *Seattle Food Action Plan* (2012): Building upon the momentum created by the LFA Initiative, the Seattle Office of Sustainability and Environment and the Seattle Food Interdepartmental Team developed a stand-alone food system plan – the Seattle Food Action Plan. In 2012, the City Council adopted this citywide plan which established an overarching food policy for municipal government and provided guidance to all city departments on the development of specific strategies to achieve the higher-level goals of the LFA.

Armed with an understanding that food system issues extend beyond jurisdictional boundaries, in 2013 the local governments of the City of Seattle and King County and the Pike Place Market Preservation and Development Authority entered into a public–private partnership to protect farmland outside the city from development and increase production at existing farms.

6.3.2. Public leadership to strengthen food systems in Minneapolis

The City of Minneapolis, located in Hennepin County in the state of Minnesota, has a community food infrastructure built by a partnership of municipal government and strong non-governmental partners which employs a systemic approach to food planning. Minneapolis is home to approximately 400 000 residents, with a growing non-White population that is more diverse than in the rest of Minnesota (United States Census

Bureau 2014a). Inequitable income distribution and inadequate transportation options limit sufficient food access for many lower-income residents. Minneapolis being located in the northern Midwest of the US, rural areas outside the city maintain a strong dairy farming and small and mid-sized fruit and vegetable production sector, and small urban farms can be found within the city. Although nearly 30 farmers' markets and mini-markets are active across the city, urban and rural food growers lack access to satisfactory infrastructure to support small-scale food aggregation, processing and distribution.

In response to local challenges for both food growers and low-income consumers, in 2008 Minneapolis Mayor Rybak convened a local food initiative, Homegrown Minneapolis (HGM), to identify ways in which municipal government could facilitate more growing, processing, distributing, consuming and composting of healthy, sustainable and locally grown foods in the city and surrounding region. By using a co-leading model to engage community partners and hold city departments accountable, HGM has had several outcomes of note for planners and policy-makers, including:[7]

- *Local Food Indicators* (2009): As part of a city sustainability initiative, the municipal government established two key 'local food' indicators for urban agriculture and food access to measure and track progress in the food system. The indicators set targets for increasing the land area dedicated to food-producing gardens and ensuring that all residents live within close proximity of a healthy food outlet such as a grocery store or farmers' market. These indicators are part of the municipal comprehensive plan and their use is mandated across all 18 city departments, representing efforts to institutionalise food systems planning across local government.
- *Urban Agriculture Policy Plan* (2011): Developed by the city's Community Planning and Economic Development Department, this plan was adopted by the City Council and incorporated into the city's comprehensive plan. Possibly, one of the first municipal urban agriculture policy plans in the US, it examines existing urban agriculture policies and facilities (farmers' markets, community gardens, etc.), outlines issues and opportunities and offers recommendations. Key recommendations centred on altering the zoning code to allow urban agriculture activities; incorporating urban agriculture into long-range planning and encouraging it to

be integrated with new construction projects as appropriate; and reviewing the city-owned land inventory to make land available that is not desirable for development but is well suited for urban agriculture.

- *Homegrown Business Development Center* (2011): Established by the Community Planning and Economic Development Department in partnership with the Metropolitan Consortium of Community Developers, this programme 'provides financing and technical assistance for Minneapolis based businesses that process and manufacture local food products'. The programme fosters the development and expansion of business ventures that promote sustainable agriculture and food production within Minneapolis and the surrounding region by providing matching loans and technical assistance for food-related businesses based in Minneapolis which use a minimum 10 per cent of local ingredients.

Overall, the city's full systems approach of addressing urban agriculture, local food businesses, community kitchens, public markets, food retail access and neighbourhood connections is indicative of successful institutionalisation of food systems planning and policy throughout local government and the community. This systemic approach is akin to that of more progressive local governments in other parts of the world, such as Belo Horizonte, Brazil (Rocha and Lessa 2009) and Malmo, Sweden (Moragues-Faus and Morgan 2015).

6.4. Communities of opportunity: case examples

Many communities in the United States are primed to address local struggles and strengthen food systems through planning and policy. We report here the experiences of two (of eight) communities that are primed for change, and describe the ways in which they are embarking on using policy to strengthen food systems. We chose these two cases because one is urban and one is rural. Both also have strong presence of community organisations (or coalitions) *outside* of local government which are compelling local government to pay attention to food systems. In both of these communities, the GFC team provided technical assistance to build the capacity of local government and community stakeholders to engage in planning reform and community change.

6.4.1. Growing justice: opportunities for community organising around food systems planning in Dougherty County, Georgia

Located in the heart of the southern United States is Dougherty County, a small urban and predominantly African American county in the south-western area of the state of Georgia. Dougherty County offers insight into the United States' rich agricultural assets as well as its history of racism towards African Americans, and illustrates how racial and economic inequities have shaped contemporary challenges and opportunities for strengthening food systems through planning practice in the United States.

Dougherty County has a population of nearly 94 000 residents and covers a land area of about 850 km² (United States Census Bureau 2015; 2014d). The overwhelming majority of the county's residents are Black (68 per cent) and live in the City of Albany (82 per cent) (United States Census Bureau 2015). The remaining county residents live in unincorporated areas outside the city which are less densely populated but are home to the majority of the county's agriculture and forestry activities (Albany–Dougherty County Department of Planning, Development Services and Code Enforcement 2005). Dougherty County has many celebrated agricultural assets, including large plantations that produce pecans, peanuts and cotton for export out of the county and even out of the United States.[8] Despite rich agricultural assets, small and mid-sized farmers and vulnerable consumers in Dougherty County face challenges that reflect broken links in the community food system, and structural racism persists. Recent community-led efforts to bridge divides between underserved farmers and community residents represent opportunities for local government to strengthen the food system through planning practice and suggest an important role for food systems planners in promoting equity.

Although Dougherty County's agriculture sector is often overshadowed by large plantations that produce commodity crops for exports, 88 per cent of the county's 121 farms are small and mostly produce a variety of food crops for local consumption (United States Department of Agriculture 2014).[9] However, small and mid-sized farmers in the county lack resources and incentives to increase local food production despite tremendous need. Farmers struggle to find local markets, and processing, aggregation and distribution facilities for local crops are extremely limited.[10] Small and mid-sized farmers are not the only group unable to unlock the county's agricultural potential. Nearly 27 per cent of

Dougherty County's residents are food insecure and lack adequate access to healthy food (Gundersen et al. 2015). Low-income and Black residents throughout the county, especially in the city, are most vulnerable to food insecurity owing to poverty and unemployment as well as limited food retail and transportation options.[11] Several grocery stores have closed down in recent years and limited public transit service in underserved neighbourhoods creates additional barriers to accessing healthy food.[12] Local government has made efforts to attract grocery stores to underserved neighbourhoods, but negative perceptions of high crime and low spending power discourage private sector investment.[13] Dougherty County also lacks sufficient alternative sources of fresh foods such as farmers' markets.[14]

Economic and racial inequities shape many of the food system challenges that Dougherty County faces. Beginning in the 1970s, the county experienced major population shifts in response to industrial decline and social upheaval (Albany–Dougherty County Department of Planning 2005). These local shifts reflected broader national trends as the United States transitioned from a manufacturing to a services economy and struggled to integrate African Americans as full citizens in society in the aftermath of the Civil Rights Movement.[15] One of the negative effects of these trends over the last several decades has been the gradual flight of industries, jobs and White and middle-income residents from Dougherty County, resulting in the predominantly poor and Black population that exists today (Albany–Dougherty County Department of Planning 2005). At the same time, the Civil Rights Movement's legacy of grassroots community organising around racial justice issues has extended to agriculture and food, and some of the most promising opportunities to strengthen the community food system in Dougherty County are emerging from community-led work with an emphasis on equity and social justice.

The strongest examples of this work come from the social justice organisation Southwest Georgia Project for Community Education, founded by Civil Rights leaders in 1961.[16] Southwest Georgia Project is currently planning a regional food hub in the City of Albany for the development of local food infrastructure. The food hub will provide aggregation, processing and distribution facilities for local farmers in Dougherty County and surrounding counties to clean, process, package and ship their crops for consumption.[17] The food hub will also include retail vending and community meeting spaces.[18] Southwest Georgia Project has also worked with the Dougherty County school system to establish farm-to-school programmes and has developed proposals for farmers' markets in

underserved areas of the county.[19] All of these initiatives are designed to enhance food security while ensuring sustainable and economically viable agriculture and food production. Furthermore, these initiatives are grounded in the belief that equity – just and fair inclusion – must drive planning and policy decisions.

To strengthen and advance this emerging food systems work in Dougherty County, local government planning and policy interventions are essential. Most importantly, local government planners and policy-makers must develop tools to translate community organising into planning and policy, and institutionalise these exchanges through creating opportunities for greater community control over and input in local government decision-making processes. The experience of Dougherty County cautions those engaged in planning practice to reflect upon the role of racial and economic inequities in framing the challenges and opportunities a community's food system faces, in order to design interventions that are equitable and just.

6.4.2. Growing economies: opportunities for local economic development around food systems planning in Chautauqua County, New York

Chautauqua County, New York has a strong small and mid-sized agricultural base and local leaders who seek to link their farming heritage to a community food system that provides for all county residents, both urban and rural. Located in western New York State and on the edge of Lake Erie, one of the Great Lakes, the county has a population of 133 080 (United States Census Bureau 2014c). The county is divided into 27 towns, most of which are rural in nature with small population centres of under 10 000. Two small cities, Jamestown – with fewer than 30 000 people – and Dunkirk – with fewer than 13 000 people – comprise the urban population centres. The county has more farms than any other county in the state (1515 farms), including half of New York's grape acreage, a robust dairy industry, timber stands, small and mid-sized vegetable producers and a large food and agriculture manufacturing industry (Chautauqua County Department of Planning and Economic Development 2011). The county's potential as an agricultural powerhouse is weighted by a shrinking and ageing population, declining manufacturing sector, lagging household incomes and high unemployment. This situation presents an opportunity to use policy and planning not merely to connect producers with low-income consumers but also to leverage food and agriculture as a form of economic development in a declining region.

In Chautauqua County, challenges to accessing healthy and affordable food differ for those living in cities versus those in rural areas.[20] Lack of income and lack of (both personal and public) transportation options contribute to higher food insecurity among rural senior citizens, minority populations and low-income populations.[21] The county's largest city, Jamestown, is not large enough to have a comprehensive public transportation system, leaving city residents without a personal vehicle unable to access the area's large grocery stores. Furthermore, the city has a small but growing Hispanic population that has few places to access culturally acceptable and affordable food.

Chautauqua County's local government, in partnership with Cooperative Extension, the Jamestown Renaissance Corporation and Chautauqua County Health Network, is engaged in protecting and supporting valuable agricultural assets while providing opportunities for low-income families to access healthy and affordable food. The Chautauqua 20/20 Comprehensive Plan provides dedicated guidance on food and agriculture as part of the local economy. Direction for this section of the plan was informed by the Agriculture/Foods Focus Group, which outlined 11 actions, including strengthening agricultural districts, supporting local right-to-farm legislation and implementing agricultural zoning (Chautauqua County Department of Planning and Economic Development 2011). Chautauqua also has a county-wide comprehensive farmland protection plan written in 2000 which outlines protection of farm and forest land, support for farming as a profitable industry and retention and development of agribusinesses in the county (Chautauqua County Agricultural and Farmland Protection Board 2000). The county's status as a GFC COO has supported their capacity to implement these aims in the plans. Community stakeholders and local government officials, via the GFC Chautauqua County Steering Committee, are engaged in finding innovative localised ways to provide economically viable aggregation and processing facilities, to increase agricultural employment training and job placement and to develop local and regional markets.

In addition to formal planning and policy efforts to support the food system, Chautauqua County has benefited from New York State funding to the Chautauqua County Health Network to support food and health planning. This grant-supported work, known as Creating Healthy Places, has made significant progress in starting and organising pilot Farm to School programmes and Healthy Corner Store programmes. Partnerships with the Jamestown Renaissance Corporation have led to a growing downtown Jamestown farmers' market and expansion of safe walking and biking lanes near a Jamestown grocery store.

Preserving farmland, maintaining the rural landscape and protecting the agricultural resources and economy are top priorities for the county's government. By capitalising on its physical assets and agricultural heritage *and* expanding its priorities to meet the food security and livelihood needs of its residents, Chautauqua County is primed for positive policy and planning change. Chautauqua County's ongoing work demonstrates that urban planning and policy work to support the food system need not only focus on large metropolitan areas but can be adapted for success in small cities.

6.5. Successes and challenges

The experiences of COIs and COOs offer important lessons for thinking critically about the connections between local challenges faced by communities in the United States.

Across the COIs, including Seattle and Minneapolis, common ingredients of success are evident. Corroborating similar findings in the literature (Raja et al. 2014), we find that the integration of food into local government planning in COIs and policy hinged upon a few key elements:

1. Strong community interest in food issues that spanned concerns about food access, agricultural viability and, often, public health.
2. Strong leadership within/from local government was essential to integrate food into planning and policy.
3. Unusual partnerships and coalitions across public and private sectors spur reform across the food system.
4. Leveraging of funds from outside local government enabled work to proceed in fiscally constrained environments.

Although it is too early in the life of the GFC project to detail the appropriate policy supports, early ideas from the COOs, as well as results from the national survey, point to a need for policy supports in the following areas:

1. Recognise food as central to local government policy/planning in communities.
2. Create stronger markets for small to medium-sized agriculture.
3. Establish food hubs to aggregate agricultural products, and identify similar 'infrastructure of the middle' to strengthen food systems.

4. Secure access to land for new farmers.
5. Strengthen educational programming to promote food literacy.
6. Address structural racial/economic disparities and injustices through equitable food planning/policy.

Although the experiences of COIs and COOs have largely been presented as distinct throughout this chapter, the reality is that communities across the *opportunity-to-innovation* continuum face unique challenges to integrating food systems into planning and policy-making processes. Even among COIs, local governments are concentrating on specific sectors of the food system (e.g. production) rather than taking a more comprehensive systems approach. Moreover, the types of policy approaches among communities tend to emphasise programming rather than reform in public finance structures. The challenges facing COIs and COOs across the US suggest important next steps for the GFC project and the overarching task of using planning and policy to strengthen food systems.

The GFC project built capacity in eight COOs, including Dougherty and Chautauqua Counties, to embark on addressing local struggles and strengthening food systems through planning. The COOs received tailored technical assistance in the planning and policy-making process. With facilitation by GFC's core team member, American Farmland Trust, all COOs established steering committees of community stakeholders who would oversee the policy reform process. The COOs also received training in targeted areas such as inclusive policy-making and more technical areas such as food systems planning. A COO–COI learning network was facilitated to promote learning and sharing across peer groups through in-person workshops and online webinars for steering committee members across all of the communities.[22]

Despite the successes of the COIs and promise of the COOs, much work remains to be done across the United States. Our preliminary COO research suggests that even communities that are rich in agricultural (and other) assets are home to food-insecure residents. This is not surprising given the vast body of literature that suggests that limited economic capacity is a key driver of food insecurity. The jurisdictional boundaries of US local governments, combined with limited regional governments, pose challenges as well. Across COIs and COOs, the geography of foodsheds does not coincide with the geography of political jurisdictions in the US. For example, there are few regional planning agencies with the authority to work across the rural–urban landscape of a food system. Similarly, in many cities, planning is used to pit, incorrectly, the

strengthening of food systems (especially agriculture) against economic development needs. Finally, the overall societal political landscape in the US is generally public policy averse. Unlike the proactive approach among local governments on other parts of the globe – such as Belo Horizonte in Brazil (Rocha and Lessa 2009) or Malmo in Sweden – the use of local government policy to address structural problems in food systems in the US is occasionally conflated with the overzealous reach of government.

6.6. Conclusion

Across the United States, food is emerging as a planning issue. Local, regional and metropolitan governments are responding to calls from community stakeholders to provide policy support to strengthen food systems. Many of these planning and policy interventions are in a stage of infancy, and their impacts on community food systems remain to be seen. Yet early signs suggest that with the right combination of planning tools local governments can go a long way in supporting stronger food systems that promote agricultural viability *and* promote community food security.

The US experience is rooted in a particular legal context where powers of planning are quite limited and to a large degree advisory in nature. Despite this limited legal power in the US, local governments and planners across the globe do have the 'power to convene' stakeholders. Exercising soft power to develop an informal network of food system stakeholders reignites connections across food sectors (Moragues-Faus and Morgan 2015) and strengthens local food systems.

Moving forward, it will be increasingly important for planners and community advocates to consider the contextual and historical nature of challenges that communities face – from struggling economies to limited educational opportunities to environmental degradation to declining public health to poor transport infrastructure – and the interconnections among these challenges. The task of improving food connections through planning will require better understanding of how food interacts with and interconnects multiple sectors and local struggles of communities. As the two case examples of COOs illustrate, the food system in a community is unequivocally linked to other sectors such as the economy and local-ised concerns about equity and justice (Raja et al. 2017a). Much work remains to be done to connect food systems planning to more established

sectors of local government planning, and to demonstrate compatibility rather than competition among multiple government objectives and communities' struggles.

Notes

1. www.growingfoodconnections.org. GFC is a comprehensive national food systems project led by the University at Buffalo, the State University of New York in partnership with Cultivating Healthy Places, American Farmland Trust, Ohio State University and the APA. The project was seeded through funding by the Agriculture and Food Research Initiative of the National Institute of Food and Agriculture (NIFA).
2. The different levels of government in the United States include federal, state, county and municipal governments. Municipal governments include cities, towns, villages, etc. We use the phrase 'local government' to refer to counties and municipalities.
3. For the purposes of this chapter, we define small and mid-sized agriculture using the definitions created by the United States Department of Agriculture's Economic Research Service. 'Small agriculture' refers to any family-owned farm with less than US$350 000 gross cash farm income. 'Mid-size agriculture' refers to any family-owned farm bringing in between US$350 000 and US$999 999 gross cash farm income.
4. By 'public policy', we mean any action (or inaction) by a local government in response to the public issue of improved food access and agricultural viability. Since local government policies can range widely, we group them in the following categories: (1) plans, (2) programmes, (3) regulations/laws, (4) physical infrastructure and (5) financial investments. In the US context, plans (1) do not always hold the power of law, while policy (2–4) are implementable activities that are often outlined in a plan.
5. The survey was administered to members of the APA and received 3103 responses, of which 1169 respondents reported working for local, regional and/or metropolitan governments while others were academic planners, consultants, students, etc. We report here the results for all respondents.
6. The programme was established in 1973.
7. Resolutions, laws, policies and ordinances passed under the Homegrown Minneapolis initiative include: Resolution 2009R-283, Homegrown Minneapolis Task Force; Resolution 2011R-445, Homegrown Minneapolis Food Council; Ordinance 2011-Or-095, Farmers Market & Mini-Market Ordinance; Ordinance 2014-Or-022, Mobile Food Stores; Ordinance 2014-Or-092, Staple Foods Ordinance; Ordinance 74.80 Keeping of Honeybees; Ordinance 70.10 Raising Fowl and Small Animals Permit; Community Garden Program; and Healthy Vending and Foods in Parks Program.
8. Interview with Farming and Agriculture Representative in Dougherty County (ID 44), 25 March 2015.
9. According to the introduction to the 2012 United States Census of Agriculture, small family farms were defined as those which had gross sales of less than US$250 000, based on the United States Department of Agriculture's Economic Research Service typology. This proportion was calculated by summing the number of farms with gross sales under US$250 000 and dividing that value by the total number of all farms. This value had to be calculated because the Census of Agriculture did not report it in 2012.
10. Interview with Consumer Advocate Representative in Dougherty County (ID 51), 25 March 2015.
11. Interview with Local Government Representative in Dougherty County (ID 43), 27 March 2015.
12. Interview with Local Government Representative in Dougherty County (ID 45), 26 March 2015.
13. Ibid.
14. Interview with Consumer Advocate Representative in Dougherty County (ID 51), 25 March 2015.

15. The Civil Rights Movement was a social movement in the United States to secure for African Americans equal access to the basic privileges and rights of United States citizenship, particularly in the areas of education, public accommodations and voting rights. Although the roots of the movement date back to the nineteenth century, the movement peaked in the 1950s and 1960s and was the largest social movement of the twentieth century in the United States. Beginning in the late nineteenth century, state and local governments passed segregation laws, known as 'Jim Crow laws', and imposed restrictions on voting qualifications that rendered the Black population economically and politically disenfranchised. The Civil Rights Movement centred on the southern United States, where the African American population was geographically concentrated and where racial inequality in education, economic opportunity and the political and legal processes was most blatant.
16. Interview with Consumer Advocate Representative in Dougherty County (ID 51), 25 March 2015.
17. Ibid.
18. Ibid.
19. Ibid.
20. Chautauqua County is a rural geographic area that also encompasses two small cities, Dunkirk and Jamestown, as well as numerous smaller population centres referred to as towns and villages.
21. Interview with Local Government Representative in Chautauqua County (ID 07), 8 April 2015.
22. GFC uses a web-based dashboard to facilitate a COO–COI learning network. COIs also make presentations and answer questions through webinars on topics selected by COOs.

References

Albany–Dougherty County Department of Planning, Development Services and Code Enforcement. 2005. Albany–Dougherty County Comprehensive Plan 2005–25, Albany, GA.

Battersby, J., Haysom, G., Marshak, M. and Tawodzera, G. 2015. 'Looking Beyond Urban Agriculture: Extending Urban Food Policy Responses', South African Cities Network Programme, Sustainable Cities.

Chautauqua County Agricultural and Farmland Protection Board. 2000. Chautauqua County Farmland Protection Plan, Chautauqua County, NY.

Chautauqua County Department of Planning and Economic Development. 2011. Chautauqua 20/20 Comprehensive Plan, Chautuaqua County, NY.

Gundersen, C., Satoh, A., Dewey, A., Kato, M. and Engelhard, E. 2015. 'Map the Meal Gap 2015: Food Insecurity and Child Food Insecurity Estimates at the County Level', Feeding America.

Hodgson, Kimberley. 2012. *Planning for Food Access and Community-Based Food Systems: A National Scan and Evaluation of Local Comprehensive and Sustainability Plans*. Chicago: APA.

Moragues-Faus, A. and Morgan, K. 2015. 'Reframing the Foodscape: The Emergent World of Urban Food Policy', *Environment and Planning A* 47(7): 1558–73.

Morgan, K. 2009. 'Feeding the City: The Challenge of Urban Food Planning', *International Planning Studies* 14(4): 341–8.

Morgan, K. and Sonnino, R. 2010. 'The Urban Foodscape: World Cities and the New Food Equation', *Cambridge Journal of Regions, Economy and Society:rsq007*.

Neuner, K., Kelly, S. and Raja, S. 2011. *Planning to Eat: Innovative Local Government Plans and Policies to Build Healthy Food Systems in the United States*. Buffalo: University at Buffalo, the State University of New York.

Pothukuchi, K. and Kaufman, J.L. 2000. 'The Food System: A Stranger to the Planning Field', *Journal of the American Planning Association* 66(2): 113–24.

Raja, S. and Diao, C. 2016. 'Community-Led Urban Agriculture Policy: A View from the United States', *Urban Agriculture Magazine* 31: 18–24.

Raja, S., Born, B. and Kozlowski Russell, J. 2008. *A Planner's Guide to Community and Regional Food Planning: Transforming Food Environments, Building Healthy Communities*. 54 vols, *Planning Advisory Service*. Chicago: APA.

Raja, S., Picard, D., Baek, S. and Delgado, C. 2014. 'Rustbelt Radicalism: A Decade of Food Systems Planning in Buffalo, New York', *Journal of Agriculture, Food Systems, and Community Development* 4(4).

Raja, S., Morgan, K. and Hall, E. 2017a. 'Planning for Equitable Urban and Regional Food Systems', *Built Environment* 43(3): 309–14.

Raja, S., Raj, S. and Roberts, B. 2017b. 'The US Experience in Planning for Community Food Systems: An Era of Advocacy, Awareness, and (Some) Learning', in *Nourishing Communities: Sustainable Food System Transformation through Theory, Practice and Policy*, edited by A. Blay-Palmer, I. Knezevic, C. Levkoe, P. Mount and E. Nelson. Springer Press.

Rocha, C. and Lessa, I. 2009. 'Urban Governance for Food Security: The Alternative Food System in Belo Horizonte, Brazil', *International Planning Studies* 14(4): 389–400.

United States Census Bureau. 2014a. State and County Quick Facts Minneapolis. Washington.

United States Census Bureau. 2014b. State and County Quick Facts Seattle (city). Washington.

United States Census Bureau. 2014c. State and County Quickfacts – Chautauqua County, New York. Washington.

United States Census Bureau. 2014d. State and County Quickfacts – Dougherty County, Georgia. Washington.

United States Census Bureau. 2015. 2010–14 American Community Survey 5-Year Estimates.

United States Department of Agriculture. 2014. 2012 Census of Agriculture.

7

Food flows and waste
Planning for the dirty side of urban food security

Pay Drechsel and Hanna Karg

By 2050, when the world population is expected to have increased to 9.6 billion, approximately 66 per cent of us will be living in urban areas. Urbanisation is placing significant pressure on resource management, given that cities are hungry and thirsty and enormous hubs of consumption of all kind of goods to which food, water and energy are central. This in turn makes cities major centres of solid and liquid waste generation. This 'dirty' side of the urban food security challenge determines an important share of the urban footprint. If this waste remains in the urban area, valuable resources, like crop nutrients, are not returned into the production cycle and the production areas increasingly face soil fertility degradation. Waste is today not only the paramount environmental and health challenge that growing cities face, but also a significant economic challenge in those countries where waste collection and treatment cannot be financed through taxes and fees – something that raises a question mark over the sustainability of urban growth (Walker et al. 2012).

In this chapter we report mainly about some research in Ghana, in West Africa, which analysed the metabolism of three cities. We picture the challenges of urban food supply as well as food waste management for system sustainability, and discuss options and experiences with respect to links between these two challenges across sectors and look at opportunities to build a circular economy. The text draws in several sections from other articles by the lead author – in particular, one by Drechsel and Hanjra (2016).

7.1. The urban metabolism

With its origins in ecology, *urban metabolism* has been defined as 'the sum total of the technical and socioeconomic processes that occur in cities, resulting in growth, production of energy, and elimination of waste' (Kennedy et al. 2007, 44). The metabolism of cities intensifies with population growth and global trading, catalysing an increase of resource flows over larger distances. Closely related to the notion of metabolism are footprint concepts that are based on quantifying the impacts of humans on the ecosystem, on the one hand, and the ecosystem's carrying capacity, on the other. Wackernagel and Rees (1996) introduced the ecological footprint, which describes the area required to provide resources to a certain entity and to absorb its wastes. Ecological footprints can be calculated for multiple scales, e.g. for a community, a city, a nation or the planet as a whole. According to Wackernagel and Rees (1996), footprints are an indication of sustainability: a footprint not exceeding the available carrying capacity is a necessary condition for sustainability, whereas a big footprint resulting in the appropriation of carrying capacity from elsewhere is considered unsustainable. This indication of sustainability has been questioned by Blomqvist et al. (2013), especially on a city scale, where a negative footprint balance can reflect patterns of trade that are not necessarily negative from a sustainability perspective.

Inspired by the terminology of the ecological footprint, other footprint concepts such as carbon, nitrogen and water footprints were introduced (Ercin and Hoekstra 2012; Leach et al. 2012). The water footprint measures both the consumption and pollution of water resources in cubic metres, whereas the nitrogen footprint, for example, captures the amount of nitrogen released to the environment as a result of consumption.

Understanding urban metabolism, including its water and nutrient inputs and outputs as well as accumulations, is essential to develop effective strategies for sustainable urban growth and rural–urban linkages (Kennedy et al. 2007). Even though cities have become less dependent on their surrounding hinterland in some facets of human consumption, these areas still play an important role for many food commodities and are the most affected by urban waste and pollution. These areas are therefore central to strategies for reducing the urban footprint. For instance, whereas it is challenging to transfer accumulated nutrients from food imports back to the source, they can be recycled in urban and peri-urban agriculture.

The importance of peri-urban and rural areas for integrated rural–urban development has increasingly been addressed in global agendas, most recently in the Sustainable Development Goals (SDGs), the Milan Urban Food Policy Pact (MUFPP 2015) and the New Urban Agenda (United Nations 2017). Tracey-White (2005), the Organisation for Economic Cooperation and Development (OECD) (2013) and Tacoli and Agergaard (2017) also stressed the importance of small towns and villages in facilitating the exchange of agricultural goods between rural producers and urban consumers. Growing urban demand can hence have a positive impact on rural agricultural production if favourable market access is supported by regional planning (Satterthwaite and Tacoli 2003). A particular concept in this context is that of *city region food systems* (CRFS), which allow food planning across rural–urban boundaries by means of considering the various commodity-specific foodsheds that feed a city. The 'city region' is in this context the geographic space of a holistic planning approach including urban, peri-urban and near rural areas (Blay-Palmer et al. 2015). Thereby, a CRFS refers to all food system activities, ranging from food production to waste management, and furthermore to related aspects such as resource recovery and climate change adaptation.

7.2. Urban metabolism in Ghanaian cities

From the perspective of urban water consumption, in actual as well as virtual[1] terms, the geographic footprint could be described for example in terms of 'water basins'. Ghana's capital Accra, for example, receives its piped water from two basins (Volta and Densu). Eighty per cent of its food supply (and food-related virtual water) comes from four basins in and around Ghana, and 20 per cent of its food and virtual water comes from 38 basins worldwide, which illustrates the size of Accra's water footprint to satisfy urban demands (Drechsel et al. 2007). The majority of food coming from within the country, the CRFS could be addressed by analysing the contributions urban centres receive from rural, peri-urban and urban agriculture. With about one million tonnes of food entering the cities of Accra and Kumasi each year, of which a third (Accra) or a half (Kumasi) may then leave these urban trade hubs (Drechsel et al. 2007), the amounts of food consumed and food waste generated in the cities are significant. There are clear commodity-specific 'foodsheds', used here to refer to the geographical sources of each commodity supplied to the urban area, which vary between lean and bumper seasons (Karg et al. 2016). To meet the growing urban calorie demand, cities heavily depend

on rural production, especially for staple crops like cereals and tubers, but they also increasingly rely on large-scale, long-distance transportation of foods like rice, poultry and processed tomato paste, which often suppresses local production with competitive prices. On the other hand, urban and peri-urban farming can contribute noticeably to the diversity of urban food supply and is the main production system in low-income countries for vitamin-rich but easily perishable commodities, which have to be produced close to their market when refrigerated transport and storage are absent (Figure 7.1).
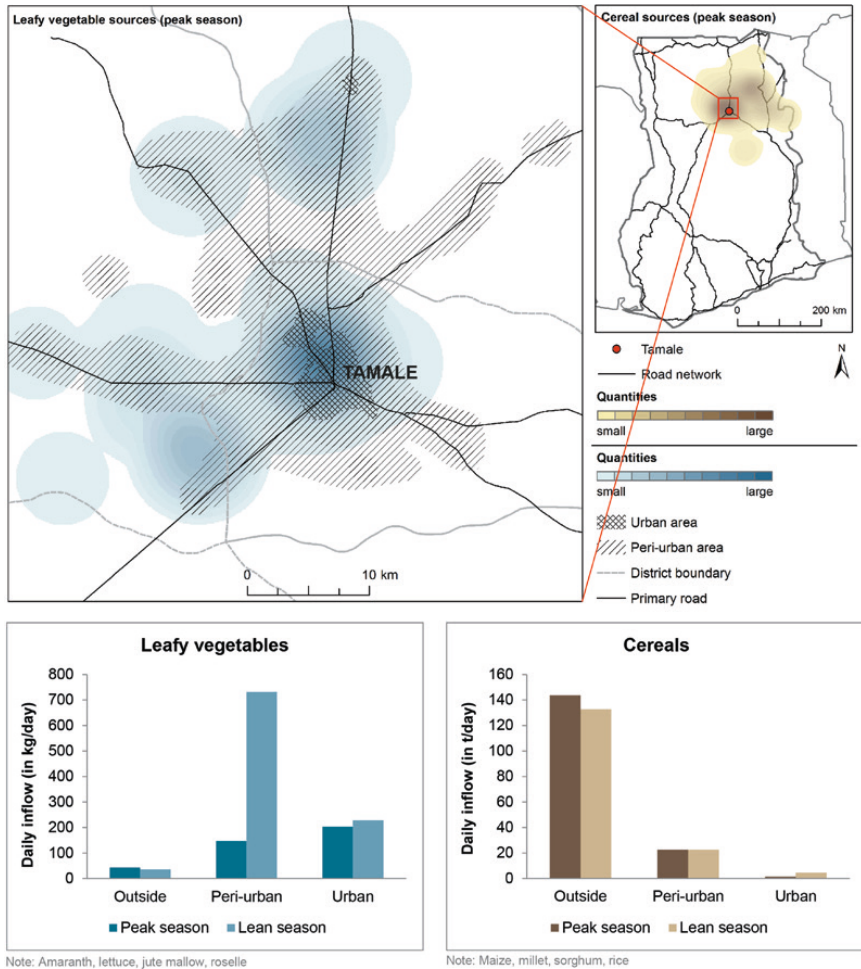
Figure 7.1 The contrasting role of different regions (urban, peri-urban and rural/import) for Tamale's supply of cereals and leafy vegetables in 2014. (*Source*: Karg et al. 2016)

Food flows can be interpreted in terms of nutrients. The quantity of nitrogen that flows annually into the city of Kumasi, for example, is more than the total amount of nitrogen fertiliser imported into the whole of Ghana over several years (Drechsel et al. 2007). As both fertiliser use and urban waste recycling activities are negligible, soils in agricultural production areas are continuously mined of their fertility while the bulk of the food waste ends either in landfills, street drains or the environment, so urban centres are indeed nutrient 'sinks' with significant implications for environmental pollution (Craswell et al. 2004). About 18 per cent of the solid waste (largely organic food waste) and about half the human excreta do not reach a designated treatment facility (Drechsel and Hanjra 2016; Furlong and Mensah 2015).

Most 'wasted' nutrients are contained in the ultimate food waste, that is, in human excreta including urine. However, wastewater collection and treatment across Ghana's cities remain poor and serve less than 10 per cent of households. This not only limits the potential for resource recovery, but implies significant freshwater pollution and the consequent enlargement of the urban water footprint.[2] A 'material flow analysis' combining solid and liquid flows (Erni et al. 2011) showed that between 70 and 80 per cent of the food-based nitrogen and phosphorus consumed in Kumasi eventually pollutes the urban environment. A significant part derives from leaking or overflowing septic tanks, since only four per cent of the population are served by sewers. Ground and surface water sources receive the largest pollution share. As a result, the amounts of nitrogen and phosphorus that leave the city via different streams are 10 times larger than the amounts that enter the city in the same streams and through precipitation. Only about 20 per cent of the total nitrogen and phosphorus from food ends in treatment plants.

Owing to recent investment in septage treatment, the share of the nutrients going to treatment plants has increased (Furlong and Mensah 2015). Kumasi happens to be one of very few cities in West Africa with a large dedicated septage treatment plant. However, the proportion of nutrients in treated septage which are recovered and reused remains very small (Erni et al. 2011). The limited attention to resource recovery reflects common reality in sub-Saharan Africa.

From a technical perspective, resource recovery does not have to mean investment in sophisticated technology. Significant parts of the food waste from markets could be recycled, for example, through composting or co-composting of nutrient-rich faecal sludge. In a 'realistic' recycling scenario, which took account of the existing waste collection

capacity, the entire nitrogen and phosphorus demand of urban farming could be recovered, as well as 18 per cent of the nitrogen and 25 per cent of the phosphorus needs of peri-urban agriculture within a 40 km radius around Kumasi (Belevi 2002). This transformation could offer an alternative to farmers, assuming a competitive price for other organo-mineral inputs, and product acceptance.

There are also options for urban metabolism to reduce its water footprint, especially through wastewater treatment and reuse. This would not only bring an often limited resource back into the production process, but reduce the pollution of freshwater resources downstream of the cities and their footprint. Moreover, wastewater treatment does not have to be costly, that is, energy intensive. There are many suitable technologies with low operational costs (Libhaber and Orozco-Jaramillo 2013). And urban farming offers a kind of water treatment (soil filtration) while capturing valuable plant nutrients. In Accra, for example, irrigated urban agriculture recycles up to 10 per cent of Accra's domestic wastewater, making the farming sector a larger informal 'treatment' service provider than that offered by public infrastructure (Lydecker and Drechsel 2010).

Another farmer-driven example is the reuse of faecal sludge from septic tanks around Tamale. Cofie and colleagues (2005) reported that drivers of trucks that empty those tanks discharge their faecal load on demand of local farmers keen to get the human manure to fertilise their fields. The practice is very common and less risky from a health perspective than it may appear, since the sludge is usually sun dried over several months before cereals are grown. An interesting aspect is the reversed cash flow of the model. Whereas normally the drivers have to pay to desludge their trucks, here the farmers are paying them (Otoo and Drechsel 2018).

The water and nutrient flows embodied in food supplied to the urban centres and transformed into waste after consumption are good examples of the possibility of using a CRFS approach to urban planning. First, these examples cover all value chain stages from food production to food waste use. Second, the stages of the food system take place in different locations within the city region.

This makes, at least from an academic perspective, the CRFS concept a possible analytical and/or planning framework that could help to integrate urban food supply and waste management. The examples also make clear that the potential for reuse of food waste is high but largely untapped.

7.3. Towards a circular economy

In many developed countries urban society has been transformed from a linear to a circular metabolism, in particular with regard to paper, glass or metal recycling or organic waste composting. Such transformation remains, however, a great challenge in low-income countries where public awareness of green values is less developed, has a generally lower priority among key stakeholders and public budgets are too constrained to make the necessary investment. Besides household- and community-based initiatives for resource recovery, most success stories at scale remain limited to developed countries (Lazarova et al. 2013), although there are more and more exceptions where smaller or larger enterprises as well as public–private partnerships (PPPs) are presenting viable options for closing the resource loops (Asian Development Bank [ADB] 2014; Otoo and Drechsel 2018). Many governments and private sector actors are beginning to realise the double value proposition of 'treatment for reuse'. On its own, wastewater treatment has a significant economic value in terms of environmental safety and public health, but almost no financial value. Reuse can add a range of new value propositions to the treatment proposition (Figure 7.2; Rao et al. 2015). In particular, the recovery of energy from different types of waste or the recovery of phosphorus from wastewater treatment processes has benefits for both treatment operators and resource users, and shows how inter-sectoral approaches can push the circular agenda forward (Gebrezgabher et al. 2015). In many situations, the direct revenues from selling treated wastewater are small, given that the freshwater prices are usually subsidised and the wastewater has to be sold even more cheaply. However, with the right business plan, several revenue streams can be combined, like crop irrigation, fish feed production (phytoremediation) and aquaculture. Energy recovery can allow wastewater treatment plants to become energy self-sufficient while supporting other reuse options that on their own would not be viable (Drechsel and Hanjra 2016).

Another common challenge, especially in sub-Saharan Africa, are limitations in institutional capacities and finance. Many treatment plants appear to be on a run-to-failure trajectory with no allocations for maintenance (Murray and Drechsel 2011). This can be avoided when facilities are run by the private sector or the city establishes a dedicated account where revenues from tariffs and resource recovery are collected and can only be used for the particular plant and not for other budget gaps the city is facing (Rao et al. 2015). In low-income countries overdue and delayed
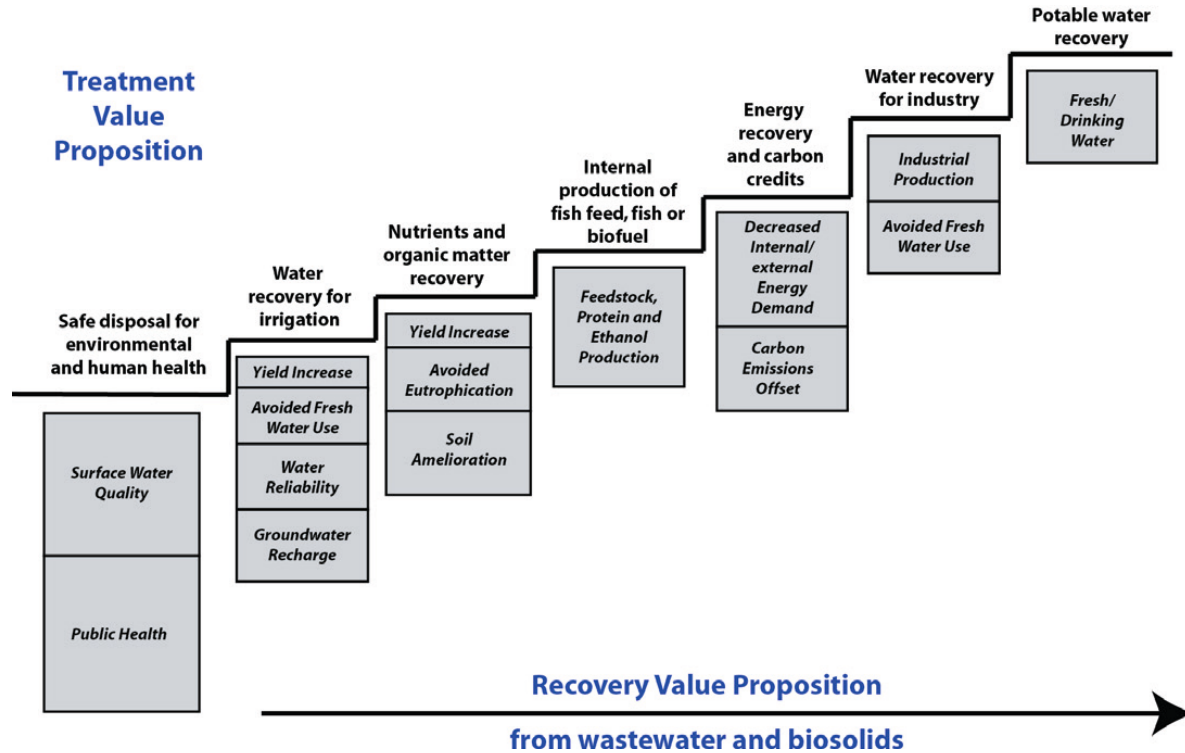
Figure 7.2 Value propositions relating to water, nutrient and energy recovery from wastewater. (*Source*: Rao et al. 2015)

payments for repairs and salaries as well as limited technical capacities in decentralised structures are common causes of the breakdown of treatment infrastructure (Nhapi and Gijzen 2004).

7.4. Appropriate business environment

Resource recovery and reuse are often described as an engineering challenge ('Reinvent the Toilet'), but they are increasingly understood as an institutional, social and economic challenge in dire need of participatory planning strategies, capacity development and thorough business modelling (Otoo and Drechsel 2018).

Given the common situation of publicly financed waste and wastewater collection and treatment, the term 'business models' may appear out of place in this sector. However, with increasing calls for cost recovery, efficiency and private sector participation, the thinking is changing (Koné 2010). Although wastewater treatment was and is first of all a 'social business model' with a strong economic justification and return on investments through safeguarding public health and the environment, a second (reuse-based) value proposition in support of cost recovery can be a significant advantage from the financial perspective, not only to encourage private sector engagement, but also to address weaknesses of the public sector (Drechsel and Hanjra 2016). This does not mean private sector participation in waste management is a panacea for success. Many companies in the waste sector know only one business model: the public sector pays for their service. If such companies also run compost stations, they invest little in marketing and continue to rely on payments for processed waste volumes, and not on sales revenue. This calls for more innovative private–public contracts and business models (e.g. pay per volume *reused*) supported by policies like one in India where the chemical fertiliser sector is encouraged to co-sell organic waste compost (Box 7.1).

As regular household billing to cover the costs of conveyance, treatment and disposal of wastewater or faecal sludge is usually pro-poor and highly subsidised, additional revenue streams, such as via resource recovery and reuse, are needed to cover operational and maintenance costs. However, effective billing, dedicated budgeting and incentive systems to promote corporate responsibility are seldom put into place although they can be critical components of the required business model. A good example in this regard was the Drarga wastewater treatment plant in Morocco (Otoo and Drechsel 2018). This was supported by a participatory planning approach based on dialogue and effective institutional partnerships

To promote the acceptance of city compost, the Indian Cabinet approved in early 2016 a policy on Promotion of City Compost. The Ministry of Urban Development in consultation with the Ministry of Chemicals and Fertilizers agreed to subsidise compost sale to the tune of ₹1500 (US\$ 22.5) per tonne of city compost. This market development assistance will be paid to fertiliser companies with the expectation of co-marketing city compost with chemical fertilisers. The co-marketing details will be decided by the Department of Fertilizers depending on supply and demand. Earlier suggestions for co-marketing were to sell, for example, one bag of municipal compost with every two bags of chemical fertiliser, or that only a co-marketing arrangement should give access to the subsidy on chemical fertiliser. Such a directive would urge fertiliser companies to seek compost from compost stations; inverting the common situation where compost plants have to seek customers (Otoo and Drechsel 2018).

with key stakeholders in the town of Drarga (Agadir region). Each stakeholder was responsible for some aspect of project implementation, with oversight by a steering committee of local, regional and national stakeholders. Positive examples are also emerging in Ghana. Following a research based pilot station in Kumasi, a commercial co-composting plant has been set up in Accra–Tema as a PPP. Several other resource recovery plants are planned across the country, targeting food waste composting, wastewater reuse for fish farming, and energy recovery from human manure (Impraim et al. 2014). These plants are either run as a PPP or by local NGOs like DeCo in Tamale (Kranjac-Berisavljevic and Gandaa 2013).

7.5. Planning challenges

As shown in many projects aiming to deliver closed loop processes, public consultation and trust building at the earliest stages of a reuse project are crucial given the possible links between waste, sanitation and public health (Po et al. 2004). If in addition the target is to influence policies and institutional capacities, multi-stakeholder processes can be very instrumental, as was verified in Ghana. This applies in particular to the challenges of integrating academic research, for example on foodsheds,

CRFS, short food chains, urban footprints or closed loop processes, into urban planning, which requires a high level of local understanding, knowledge exchange, capacity development and cultural sensitivity. Some of the common challenges faced in the dialogue between researchers and authorities, and options to address these, are summarised in Table 7.1.

The multi-stakeholder policy formulation and action planning (MPAP) approach, which was led by the RUAF,[3] helped in Accra to bring stakeholders across the agricultural and sanitation sector, as well as across district boundaries, to elaborate the role, opportunities and challenges of urban agriculture, and how it can support policy objectives in non-agricultural sections of local authorities. The multi-stakeholder forum included farmers, traders, social groups, researchers, NGOs, the private sector and a range of governmental institutions and policy-makers. The dialogue was supported by capacity-building among stakeholders to understand and support the stakeholder approach as well as action research to fill data gaps to enable informed decision-making. A concrete result was the setting up of a municipal working group to revise Accra's bylaws and to set up market outlets for short food chains (Larbi et al. 2014). Based on the application of the same approach in different countries, they analysed process challenges such as the rapid turnover of government stakeholders, limited stakeholder interest in MPAP theory, and the need to align learning objectives and practical innovations with institutional mandates. This last point showed many pathways by which urban open space farming could become part of the municipal agenda as long as its benefits are explained in the light of other urban policy goals (Table 7.2).

In Ghana, the stakeholder process eventually facilitated the integration of urban farming into the national agriculture policy. Also a City Strategic Agenda on urban farming was included in Accra's urban development plan (Amerasinghe et al. 2013). A similar multi-stakeholder process, also under the guidance of RUAF, is currently taking place in Tamale. The process accompanies the UrbanFoodPlus[4] research project and within stakeholder task teams translates research findings into policy recommendations that will be presented to a wider stakeholder platform. Members of the task team represent the city, the country's planning department and concerned district assemblies, the Environmental Protection Agency, the Ministry of Food and Agriculture and farmers' associations.

Table 7.1   Communication challenges in the interface of academia and urban planning

Concept	Challenges (to local acceptance, planning and development)	How challenges could be/are addressed
1. CRFS	1. Concept is new and perceived as (too) academic. 2. No city department in charge of food supply ('private sector business') or the 'city region'. 3. City regions do not adhere to existing administrative boundaries, and stakeholder roundtables can easily get very large. 4. No authority in charge can result in lack of data for analysis and demonstration of the CRFS concept and its benefits. 5. How to institutionalise planning across sectors and administrative boundaries?	1. Use only the terminology of the (municipal) target group and break the concept down using locally relevant examples. 2. Identify overlap between existing policy objectives and benefits from a CRFS perspective and work with those departments. 3. Best first to identify particular food security/safety/waste/etc. challenges relating to specific food commodities, and then identify key stakeholders across that value chain and rural–urban continuum. 4. Explore methodologies for the analysis of CRFS, food flows and foodsheds in data-scarce environments with the help of, e.g. RUAF or FAO. 5. This will require a multi-stakeholder consultation and planning approach.
2. Food waste and closed loops (resource recovery and reuse, RRR)	1. Authorities acknowledge the usefulness of RRR, but struggle to achieve complete waste collection, which limits their capacity to invest in RRR. 2. Market demand and cost information for 'green' innovations and business models are unknown. 3. The investment climate appears unsupportive. 4. Consumer perception and behaviour towards products from waste reuse unknown.	1. Show that resource recovery and reuse business models can generate sufficient revenue to incentivise improved waste collection. 2. Conduct feasibility studies to estimate costs and benefits for different RRR demand scenarios. 3. Several SDG targets address resource recovery and reuse, calling for national recycling targets and incentives. 4. Quality standards for recovered resources and education are mandatory to gain consumer trust.

Table 7.1 (Continued)

Concept	Challenges (to local acceptance, planning and development)	How challenges could be/are addressed
3. Urban footprint (support of short food supply chains via urban agriculture)	1. No city department in charge of 'urban agriculture'. 2. Urban farming considered informal, illegal or just inappropriate for (modern) urban development. 3. Land prices do not support low-revenue land use like urban farming. 4. Urban environment considered unhealthy for farming. 5. Decreasing availability of (possible) farmland in and around cities.	1. Urban farming contributes to multiple non-agricultural benefits for a modern city and can be seen as a means to achieve those, not as a means in itself (see Table 7.2 for examples). 2. Visits/slideshows, etc., of modern cities with integrated urban farming can visualise potential and benefits. 3. There are options for authorities to intervene in land markets and contestations (Allen et al. 2014). 4. Zoning and pollution monitoring can minimise risks. Examples from larger European cities with allotment gardens can verify this. 5. This is a key challenge for urban farming, except towards the boundary of the city unless inner-city areas are zoned or rooftop or vertical farming will be supported.

Table 7.2 Possible benefits from open-space urban farming for planning towards different municipal development objectives in Ghana

Urban development challenge	Innovation/benefit from open-space urban crop farming	Urban development goal
Climate change and flooding	Buffer zones for improved infiltration; slope stabilisation and prevention of soil sealing	Climate change adaptation; flood control
Marginalised wasteland along watercourses	Transformation of marginal lands into productive use for general benefit, scenic value and health risk control	Land reclamation; urban greening; urban biodiversity
Storm and wastewater channels entering streams	Wastewater purification through land application, filtration and constructed wetlands	Wastewater filtration, pollution control, reduced treatment costs
Urban demand for fresh produce; poverty, undernutrition	Growing of high-value crops for improved diets and nutrition in market proximity	Small-scale private sector support; reduced food miles; improved nutrition
Lack of cold storage facilities in markets	Production of perishable goods in market proximity (reduced urban footprint)	Savings in power, transport and infrastructure investment
Squatters and uncontrolled waste dumping	Land under permanent agricultural use	Land protection; slum prevention; savings in waste collection
Land eviction (threat) or official support of farmers (opportunity)	Formation of e.g. vegetable growers' associations to protect farmers' interests.	Empowering vulnerable minorities
Food waste accumulation in cities	Need for organic inputs; use of organic waste products; minimised waste dumping into streams	Waste reduction through compost use; resource recovery
Competing claims for urban space by commercial and other conventional city land uses	(i) Incorporation of market gardening in land use of newly developing areas (ii) Enacting municipal bylaws and legislation permitting market gardening	(i) Creating jobs for vulnerable groups (ii) Enacting proactive legislation
Economic crisis; civil war	Urban food supply independent of functional rural–urban linkages and external aid	Emergency food programme

Source: Drechsel et al. (2014), modified.

7.6. Conclusions

Several SDGs call for putting significantly more effort into improving rural–urban linkages and the recovery and reuse of otherwise wasted resources. As much as urbanisation is a challenge for resource allocation, it also offers a variety of so far little used opportunities to address the food waste challenge through resource recovery. Many of the processes involved, like reusing crop residues or composting food waste and excreta, are well-known 'best practices' with tangible benefits (like waste volume reduction) for waste management itself. What is needed is more attention to inter-sectoral planning and a shift in focus from technical solutions to institutional business models and economics, for example to attract private capital or to quantify the benefit to society. To catalyse such development, concepts like CRFS, foodsheds, short supply chains and resource recovery and reuse (circular economy) can add value to urban planning if they are seen not as ends in themselves but as means to support local needs and policy objectives, and can be expressed in local terminology. Given that waste management will always be accompanied by health risks and a possible stigma, broader stakeholder involvement to understand and appropriately address possible concerns will have to be part of any resource recovery initiative.

Acknowledgements

Notes

1. The 'virtual-water' content of a product (a commodity, good or service) is the volume of freshwater used to produce the product at the place where it was actually produced (Hoekstra and Chapagain 2007).
2. The additional environmental water requirements to dilute downstream contamination where wastewater treatment is poorly developed easily multiplies the normal urban water footprint.
3. www.ruaf.org
4. http://www.urbanfoodplus.org

References

ADB. 2014. *From Toilets to Rivers. Experiences, New Opportunities, and Innovative Solutions*. Manila. http://www.adb.org/publications/toilets-rivers-experiences-new-opportunities-and-innovative-solutions

Allen, A.A., Frediani, A.A. and Wood-Hill, M. 2014. 'Land and Planning for Urban Agriculture in Accra: Sustained Urban Agriculture or Sustainable Urbanization?', in *Irrigated Urban Vegetable Production in Ghana: Characteristics, Benefits and Risk Mitigation*, edited by P. Drechsel and B. Keraita, 2nd edn, 161–79. Colombo: International Water Management Institute (IWMI).

Amerasinghe P., Cofie, O.O., Larbi, T.O. and Drechsel, P. 2013. *Facilitating Outcomes: Multi-Stakeholder Processes for Influencing Policy Change on Urban Agriculture in Selected West African and South Asian Cities*. Colombo: IWMI.

Belevi, H. 2002. 'Material Flow Analysis as a Strategic Planning Tool for Regional Waste Water and Solid Waste Management', paper presented at the workshop Globale Zukunft: Kreislaufwirtschaftskonzepte im kommunalen Abwasser- und Fäkalienmanagement. Munich, 13–15 May. Accessed 4 June 2018. http://www2.giz.de/Dokumente/oe44/ecosan/en-material-flow-analysis-wastewater-and-waste-management-2002.pdf

Blay-Palmer, A., Renting, H. and Dubbeling, M. 2015. *City Region Food Systems: A Literature Review*. Leusden: RUAF.

Blomqvist, L., Brook, B.W., Ellis, E.C., Kareiva, P.M., Nordhaus, T. and Shellenberger, M. 2013. 'Does the Shoe Fit? Real versus Imagined Ecological Footprints', *PLOS Biology* 11(11): 1–6.

Cofie, O.O., Kranjac-Berisavljevic, G. and Drechsel, P. 2005. 'The Use of Human Waste for Peri-urban Agriculture in Northern Ghana', *Renewable Agriculture and Food Systems* 20(2): 73–80.

Craswell, E.T., Grote, U., Henao, J. and Vlek, P.L.G. 2004. *Nutrient Flows in Agricultural Production and International Trade: Ecological and Policy Issues*. Bonn: ZEF (Center for Development Research, University of Bonn).

Drechsel, P. and Hanjra, M.A. 2016. 'Green Opportunities for Urban Sanitation Challenges through Energy, Water and Nutrient Recovery', in *The Water, Food, Energy and Climate Nexus: Challenges and an Agenda for Action*, edited by F. Dodds and J. Bartram, 204–18. Abingdon: Earthscan.

Drechsel, P., Graefe, S. and Fink, M. 2007. *Rural–Urban Food, Nutrient and Virtual Water Flows in Selected West African Cities*. Colombo: IWMI. http://www.iwmi.cgiar.org/Publications/IWMI_Research_Reports/PDF/PUB115/RR115.pdf

Drechsel, P., Obuobie, E., Adam-Bradford, A. and Cofie, O.O. 2014. 'Governmental and Regulatory Aspects of Irrigated Urban Vegetable Farming in Ghana and Options for Its Institutionalization', in *Irrigated Urban Vegetable Production in Ghana: Characteristics, Benefits and Risk Mitigation*, edited by Pay Drechsel and Bernard Keraita, 2nd edn, 199–218. Colombo: IWMI.

Ercin, E. and Hoekstra, A.Y. 2012. *Carbon and Water Footprints: Concepts, Methodologies and Policy Responses*. Paris: UNESCO. http://waterfootprint.org/media/downloads/Ercin-Hoekstra-2012-Carbon-and-Water-Footprints_1.PDF

Erni, M., Bader, H.P., Drechsel, P., Scheidegger, R., Zurbrügg, C. and Kipfer, R. 2011. 'Urban Water and Nutrient Flows in Kumasi, Ghana', *Urban Water Journal* 8(3): 135–53.

Furlong, C. and Mensah, A. 2015. 'SFD Report – Kumasi, Ghana', SFD Promotion Initiative, Water, Engineering and Development Centre (WEDC). Accessed 4 June 2018. http://www.susana.org/en/resources/library/details/2361

Gebrezgabher, S., Rao, K.K., Hanjra, M.A. and Hernandez, F. 2015. 'Business Models and Economic Approaches for Recovering Energy from Wastewater and Fecal Sludge', in *Wastewater: Economic Asset in an Urbanizing World*, edited by P. Drechsel, M. Qadir and D. Wichelns, 217–45. Dordrecht: Springer.

Hoekstra, A.Y. and Chapagain, A.K. 2007. 'Water Footprints of Nations: Water Use by People as a Function of Their Consumption Pattern', *Water Resources Management* 21(1): 35–48.

Impraim, R., Nikiema, J., Cofie, O.O. and Rao, K.C. 2014. 'Value from Faecal Sludge and Municipal Organic Waste: Fertilizer cum Soil Conditioner in Ghana', paper presented at the 37th WEDC [Water, Engineering and Development Centre] International Conference on Sustainable Water and Sanitation Services for All in a Fast Changing World, Hanoi, 15–19 September 2014.

Karg, H., Drechsel, P., Akoto-Danso, E.K., Glaser, R., Nyarko, G. and Buerkert, A. 2016. 'Foodsheds and City Region Food Systems in Two West African Cities', *Sustainability* 8(12).

Kennedy, C., Cuddihy, J. and Engel-Yan, J. 2007. 'The Changing Metabolism of Cities', *Journal of Industrial Ecology* 11(2): 43–59.

Koné, D. 2010. 'Making Urban Excreta and Wastewater Management Contribute to Cities' Economic Development. A Paradigm Shift', *Water Policy* 12: 602–10.

Kranjac-Berisavljevic, G. and Gandaa, B.Z. 2013. 'Business Opportunities in Safe and Productive Use of Waste in Tamale', *Urban Agriculture Magazine* 26: 47–51.

Larbi, T.O., Cofie, O.O., Amoah, P. and van Veenhuizen, R. 2014. 'Strengthening Urban Producer Organizations', in *Irrigated Urban Vegetable Production in Ghana: Characteristics, Benefits and Risk Mitigation*, edited by Pay Drechsel and Bernard Keraita, 2nd edn, 136–44. Colombo: IWMI.

Lazarova, V., Asano, T., Bahri, A. and Anderson, J. 2013. *Milestones in Water Reuse: The Best Success Stories*. London: IWA.

Leach, A.M., Galloway, J.N., Bleeker, A., Erisman, J.W., Kohn, R. and Kitzes, J. 2012. 'A Nitrogen Footprint Model to Help Consumers Understand Their Role in Nitrogen Losses to the Environment', *Environmental Development* 1(1): 40–66.

Libhaber, M. and Orozco-Jaramillo, A. 2013. 'Sustainable Treatment of Municipal Wastewater', *Water 21*, October, 25–8.

Lydecker, M. and Drechsel, P. 2010. 'Urban Agriculture and Sanitation Services in Accra, Ghana: The Overlooked Contribution', *International Journal of Agricultural Sustainability* 8(1): 94–103.

MUFPP. 2015. Milan Urban Food Policy Pact. Accessed 12 January 2018. http://www.milanurbanfoodpolicypact.org/wp-content/uploads/2016/06/Milan-Urban-Food-Policy-Pact-EN.pdf

Murray, A. and Drechsel, P. 2011. 'Why Do Some Wastewater Treatment Facilities Work When the Majority Fail? Case Study from the Sanitation Sector in Ghana', *Waterlines* 30(2): 135–49.

Nhapi, I. and Gijzen, H.J. 2004. 'Wastewater Management in Zimbabwe in the Context of Sustainability', *Water Policy* 6: 501–17.

OECD. 2013. *Settlement, Market and Food Security. West African Futures*. Paris.

Otoo, M. and Drechsel, P. 2018. *Resource Recovery from Waste: Business Models for Energy, Nutrient and Water Reuse in Low- and Middle-Income Countries*. Abingdon: Routledge.

Po, M., Kaercher, J.D. and Nancarrow, B.E. 2004. *Literature Review of Factors Influencing Public Perceptions of Water Reuse*. Canberra: Australian Water Conservation and Reuse Research Program, CSIRO Land and Water.

Rao, K.C., Hanjra, M.A., Drechsel, P. and Danso, G.K. 2015. 'Business Models and Economic Approaches Supporting Water Reuse', in *Wastewater: Economic Asset in an Urbanizing World*, edited by P. Drechsel, M. Qadir and D. Wichelns, 195–216. Dordrecht: Springer.

Satterthwaite, D. and Tacoli, C. 2003. *The Urban Part of Rural Development: The Role of Small and Intermediate Urban Centres in Rural and Regional Development and Poverty Reduction*. London: IIED.

Tacoli, C. and Agergaard, J. 2017. *Urbanisation, Rural Transformations and Food Systems: The Role of Small Towns*. London: IIED.

Tracey-White, J. 2005. *Rural–Urban Marketing Linkages: An Infrastructure Identification and Survey Guide*. Rome: FAO Agricultural Service.

United Nations. 2017. 'New Urban Agenda', HABITAT III, Quito, 17–20 October 2016, A/RES/71/256.

Wackernagel, M. and Rees, W.E. 1996. *Our Ecological Footprint: Reducing Human Impact on the Earth*. Gabriola Island, BC: New Society.

Walker, R.V., Beck, M.B. and Hall, J.W. 2012. 'Water – and Nutrient and Energy – Systems in Urbanizing Watersheds', *Frontiers of Environmental Science and Engineering in China* 6(5): 596–611.

8

Planning a local and global foodscape
Tsukiji fish market in Tokyo

Alice Covatta

8.1. Tokyo's fishery distribution system

Today Japan is the world's leading consumer of seafood and it boasts the largest fishing industry. After China, India, Peru and Indonesia it is also the world's fifth-largest producer in the aquaculture and fishing sectors (Food and Agriculture Organisation of the United Nations Statistics Division [FAOSTAT] 2015). Two factors underlie the Japanese fishery's huge demand: population density and the importance that fish has in Japan's cultural and urban identity.

The Greater Tokyo Area is the world's largest urban agglomeration with 39.4 million people. To make a comparision with Italy, for instance, the Tokyo area (16 218 km²) is slightly smaller than the Veneto region (18 264 km²), but it has 10 times the population (Brinkhoff 2015). Traditionally, local agriculture and fishing around Tokyo JCR (Japanese Capital Region) fed population demand and the food production system reflected traditional values and skills, but since the end of the twentieth century food distribution has changed drastically as the result of increased demand and globalisation. It is crucial to stress this extreme urban and demographic situation because in the next 40 years 75 per cent of the expected world population will live in urban areas and the world will probably reach 10 billion inhabitants, becoming similar in many ways to Japanese urban agglomeration (Burdett and Del Puglia 2006, 4–23).

At the beginning of the twenty-first century, Japan was the world's biggest importer of fish, in both volume and value with 11 per cent and almost 3.34 million tonnes of marine products (both fish and seaweed)

of global total volume.[1] The self-sufficient and sustainable model based on local fishery production and consumption cannot be applied to the Tokyo region, which instead has developed a huge infrastructure to satisfy import/export demand from/to other countries.

The complex import/export system has produced all around the nation two different types of wholesale market: the landing site wholesale market and the consumption site wholesale market. The landing site handles the landed fishery products and involves middlemen and distributors. Landed fish are collected by intermediaries in the wholesale market and, according to the Japanese Ministry of Agriculture, Forestry and Fisheries, there are 864 markets in landing sites (Yagi 2011). The distributor purchases fish at the landing site and then sends it overland to the wholesale consumption sites in cities, such as the Tsukiji wholesale site in Tokyo. Other distributors sell fish directly to supermarkets, decreasing the importance of wholesale in satisfying urban demand.

The consumption wholesale market is located in urban areas and involves wholesalers and brokers. There are three central wholesale and consumption sites in the JCR: Tsukiji, Adachi and Ohta.

The fishery distribution system has moved to smaller operations. In the case of Tsukiji, the largest wholesale market, the process has moved from local and international fishing companies that supply wholesale to the seven auction houses located in Tsukiji which later process marine products and sell them to retailers, trade buyers and grocery stores. Every step is supervised by the Ministry of Agriculture, Forestry and Fisheries of Japan and the Tokyo Metropolitan Government and all these operations originate from an old system that has not changed over the years. To supply the three central wholesale markets, highway and railway infrastructure systems have been designed close to Tokyo Bay and around the central wholesale urban areas.

As mentioned above, the importance of wholesale is decreasing because distributors are delivering processed imported fish directly to retailers and supermarkets, which are becoming the main channels for purchasing fish.

8.2. Tsukiji: Tokyo's kitchen

The main wholesale market is in the Tsukiji quarter, in Tokyo's inner core, and represents a physical demonstration of how trade, and more generally economics, is defined by social and cultural processes. The market occupies an area of 250 000 m^2 and around 50 000 people visit Tokyo's

kitchen daily to buy and sell fresh, frozen and processed marine products; 2000 varieties of seafood are offered and around 628 000 tonnes of fish are distributed every year, generating a turnover of US$5.7 billion (Bestor 2004, 10–11). These huge numbers make Tsukiji a sort of economic indicator of Japan's GDP and financial stability, extending its importance beyond that of a normal market.

The critical size and density of markets generated by food distribution is the reason behind their usual position in the suburban areas of a metropolis. Tsukiji is the exception (see Figure 8.1).

Tsukiji literally means 'land reclamation' and refers to the Edo period when this area was formed out of land reclaimed from the Tokyo waterfront after the Meireki fire (1657). In the Edo period, the transport network was based on a dynamic water system; the construction of Tsukiji market was one of the first examples of the transition between the use of water and the use of rail for food transport. Its long history, from 1935 to the present day, underlines the strength and legacy of this spatial system in contrast to the capitalistic development of Tokyo Bay.[2]

To better understand the Tsukiji dynamic, it is necessary to take a quick look at its long history. In the Edo period, fish trading took place on the Tokyo Nihonbashi waterfront, where water represented the major infrastructure for trade. After the big Kanto earthquake in 1923, a huge part of Tokyo was rendered a tabula rasa and the fish market was relocated in 1935 to the Tsukiji neighbourhood, again close to the Tokyo Bay but the transportation system shifted from water to rail. This is why the main market building is curvilinear in shape, to accommodate the passage of trains.

Since the 1970s the massive infrastructural development of Tokyo's inner core and Tokyo Bay extended the waterfront from Tsukiji to the new artificial islands. The market was absorbed into the urban fabric and then connected with the Tokyo hinterland and airports via highways.

These historical layers highlight the importance of urban mobility and its spatial footprint for Tsukiji. Speed is the first requirement for a market of this size and high quality level in the fish supply chain.

Today the Tokyo fish distribution system is organised into three markets: Tsukiji, Adachi and Ohta. The Tsukiji market ships and handles 87 per cent of Tokyo's total supply and has become one of the biggest markets in the world, functioning simultaneously as both warehouse and trade market (Bestor 2004, 184).
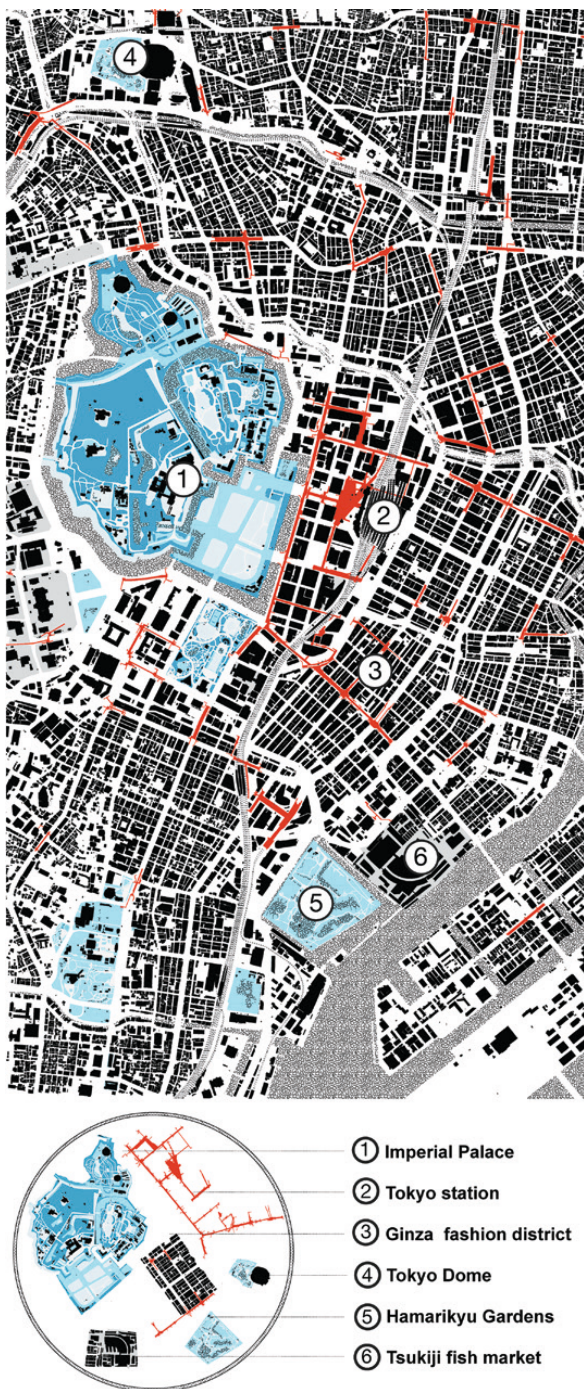
Figure 8.1 Tokyo map with landmarks. (*Source*: Alice Covatta)

The legend of the map reads:

1. Imperial Palace
2. Tokyo station
3. Ginza fashion district
4. Tokyo Dome
5. Hamarikyu Gardens
6. Tsukiji fish market

The supply chain is made up of several steps in descending scale: local and international seafood companies sell their products to the seven auction houses, which in turn resell to the wholesale market's 1677 retailers and to other traders outside the market. Lastly, sushi bars, restaurants, convenience stores and supermarkets purchase goods from the retailers.

The distribution system for fish consumption includes upward and downward connections, both local and international, and – as noted by Bestor (2004) – the spatial and temporal connections sometimes assume weird logic: 'A 500-pound tuna is caught off the coast of New England or Spain, flown thousands of kilometres to Tokyo, sold for tens of thousands of dollars to Japanese buyers … and shipped to chefs in New York and Hong Kong? That's the manic logic of global sushi.'

8.3. From macrostructure to capsule

Tokyo's pantry acts and reacts on two urban scales: on the one hand, global supply and, on the other negotiation, on a human scale.

The critical dimension of food distribution is the reason behind the unusual positioning of markets and warehouses in suburban areas where the interaction between food, architecture, infrastructure, consumption and the city is generally neglected. Instead Tsukiji's location makes it easily accessible to citizens and tourism; it is a place where various forms of exchange take place simultaneously in the urban core. The direct food–city relationship makes citizens more aware of their diet.

If the upward system regulates Tsukiji's supply, the downward system is the core business in the market. The main part is the wholesale market which is sheltered within a *macrostructure* whose long life started when the market was first built in the early twentieth century. Inside, the structure hosts 1677 capsules with a much shorter life span – around four years – where the processes of food retail are carried out. The size of the capsule sometimes allows so little space that the seller has to perform their functions in as close proximity as you can imagine to their own body, to the food and to the architecture. Each unit's design is organised around the individual space, consisting of a shelf on which to cut fish, a counter and other surfaces for displaying the goods, a box the size of a shower stall where the retailer performs huge economic transactions, storage space and finally a telephone and fax for receiving orders (see Figure 8.2).

Both scales are necessary for the market's output and operation; on one hand, the largeness of the macrostructure and economic turnover; on the other, the smallness of individual retailers' space. The same extreme

Figure 8.2   Inside the Tsukiji fish market. (*Source*: Alice Covatta)

design was expressed during the 1960s in the Japanese Metabolism movement with the terms 'macrostructure' and 'capsule'.

The Japanese architect Fumihiko Maki (1964) argued that the macrostructure is a 'large frame in which all the functions of a city or part of a city are housed. It has been made possible by present day technology. In a sense, it is a man-made feature of the landscape. It is like the great hill on which Italian towns were built', whereas the capsule is a 'unit: a primacy space which performs and contains some of the basic functions of human existence and of society' (Maki 1964, 27).

Both elements are necessary as new architectural devices in city construction but the capsule perfectly suits Tokyo's density. Also in the 1960s, the architect Kisho Kurokawa wrote *Capsule Declaration*, where he argued that

> The capsule stands for an emancipation of the building in relation to the ground and heralds the era of moving architecture …
>
> The capsule is intended to institute an entirely new family system centred on individuals …
>
> The landscape of future cities will be determined not by expressways or skyscrapers, but by colossal aggregation of individual unit spaces. (Kurokawa 1969)

8.4. Individual luck and common order

The central wholesale market is the place where the main transactions happen. It is arranged in a grid design based on pillars that equally divide each sector. However, the individual retail unit is self-designed by the seller and the whole system is a capsule assemblage in which each position depends on a four-year lottery.

The position within the grid plays an important role for retailers' income and is regulated by a *super partes* system: the lottery. It has been calculated that the position of the shop can affect the income of the business by 10–15 per cent (Bestor 1998, 171). For this reason the market's organisation and shop distribution are strictly regulated via a lottery that evens out differences. Everything happens inside the macrostructure, where the capsules settle and then change position every four years. As Bestor argues, 'a good location can't save failing business and a bad location won't ruin a strong one, but middling operations can be seriously affected' (Bestor 2004, 292). (See Figure 8.3.)

After the lottery, the market is closed for four days while shops are disassembled and then reassembled again in their new locations. Each seller has to organise their shop on the basis of the new space allocated within the grid, in a cycle where construction, luck and destruction follow hot on the heels of each other. The first lottery was organised after World War II, in 1950.

8.5. Formal and informal urban systems

Retailers' small-scale space fuels an informal system based on a set of social relationships such as friendship, similar education and cultural background, reputation, food specialities. These interactions constitute a network inside the wholesale market, where the small scale of the retailers' space enhances direct feedback among the various actors, thus increasing fish quality. Although Tsukiji is the world's largest fish market, it simultaneously operates on two scales, those of global supply and human scale, and on two levels, the formal and informal.

These relationships can be unpacked into four layers.

8.5.1. Economics

Trade takes place through an upstream model for global demand, and a downstream model for local trading.

location affects sales volume for **15%**

¥¥¥
regular shape and rows
closest to the auciton areas
offer customers best access

¥¥
close to the entrance,
far from auction areas and affected
by the curvature of the building

¥
inner space: far from
everything and affected by
the curvature of the building
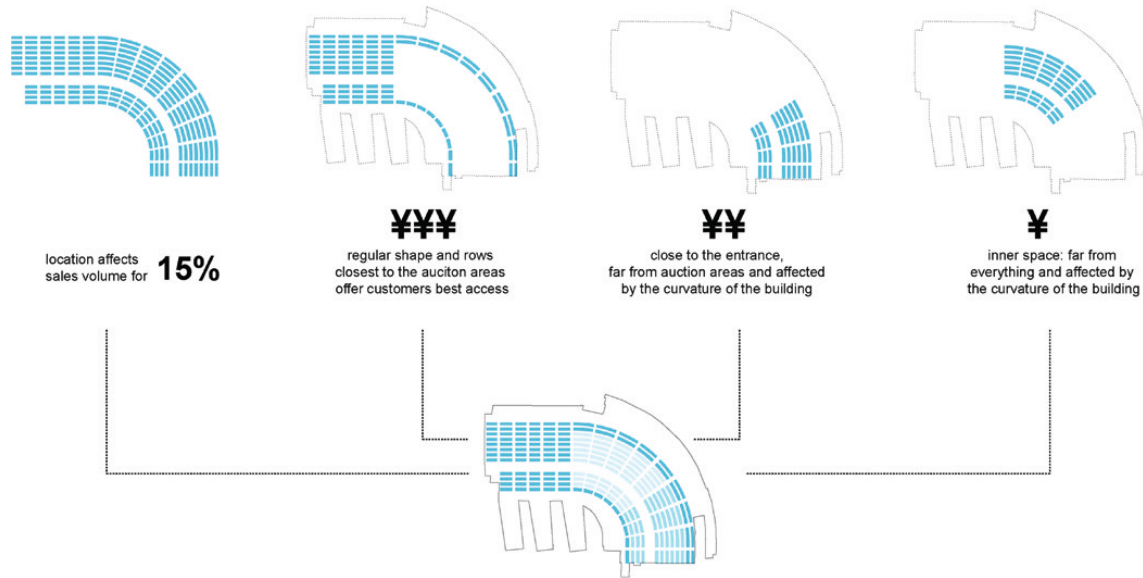
Every four years locations are reassigned through a stall lottery.

In 1995 Tsukiji inner market did business on Friday June 9, stalls moved on Saturday June 10 and Sunday June 11, the market reopened for business on Monday June 12.

Figure 8.3   Tsukiji market plan. Potential volume of sales according to the position of the stall. (*Source*: Alice Covatta)

8.5.2. Politics

Top-down politics that takes place outside the market is continuously verified by the bottom-up domestic demand that applies directly in the wholesale market.

8.5.3. Linguistics

The two ideograms that make up the Japanese word for 'market' – 市 場 – are pronounced as *shijō*, but can also be read as *ichiba*. Both words mean 'market', but whereas the former is more formal, referring to the market as a theoretical system, and is usually used in economic terms, the latter is more colloquial and refers to the market as a physical and social entity.

8.5.4. space

The spatial configuration of the market is divided into two areas, the internal market, *jōnashi shijō*, and the external market, *jōgai shijō*. The first is regulated by the Tokyo Metropolitan Government and the second is a public market, set outside the warehouse. In the internal market there are the auction houses, offices, loading docks and landing, a huge warehouse, and a wholesale trading area in which intermediary sales are carried out via 1677 shops. The outer market – leading to the wholesale market's main entrance – is an aggregation of shops, restaurants and parasitic activities (or 'accessory activities'), such as knife, rice and seaweed shops. It embodies the density of the *shitamachi* urban pattern: thin streets just wide enough for one car and lined with numerous small shops.[3] The traditional Japanese mercantile house, or *machiya*, still exists and it acts as an open space on Tokyo common ground, owing to its large roof that makes it like a kind of loggia. The external market presents the traditional form of public space: from a place for selling goods to an activator of culture (see Figure 8.4).

The Tsukiji quarter has a different temporal flow from Tokyo's daily routine. Both indoor and outdoor markets close very early – at noon – and all the mobile structures are put away inside the shops. This temporal disconnection from the rest of the city reveals Tsukiji as suspended in time.

8.6. Learning from Tsukiji as the kingdom of food

Data obtained through analysis, observation and measurement reveal Tsukiji's legacy as an *assemblage* of programmes (trade, distribution,

Figure 8.4   Tsukiji outdoor fish market. (*Source*: Alice Covatta)

auctions …), behaviours, movements, rituals, stories. When architecture has a minimum degree of formal definition the possibilities are endless.

Tsukiji's long history has accumulated a myriad of social activities that make both inner and outdoor markets complex systems on two levels: formal and informal. Both markets' planning and development are based on a repetition of small food capsules next to each other which creates a defined socialspace based on daily human interaction. For 100 years, the relations between the elements, open and sheltered spaces, different programmes, and fluidity and choreography of movement have been more important in Tsukiji than defining structures. Tsukiji acts as a food kingdom within the biggest metropolis in the world, having a clear urban character yet rejecting a top-down overall control (see Figure 8.5).

Maki described this kind of generative system with the term 'collective form', a system that belongs to the past legacy of urban development:

> Cities, towns, and villages throughout the world do not lack in rich collection of collective form. Most of them have, however, simply evolved: they have not been designed … The city is [a] combination of discrete forms and articulated large forms. It is collective form – the agglomerate of decisions (and abnegations from decision) in the past concerning the way in which things fit together, or are linked. (1964, 5)
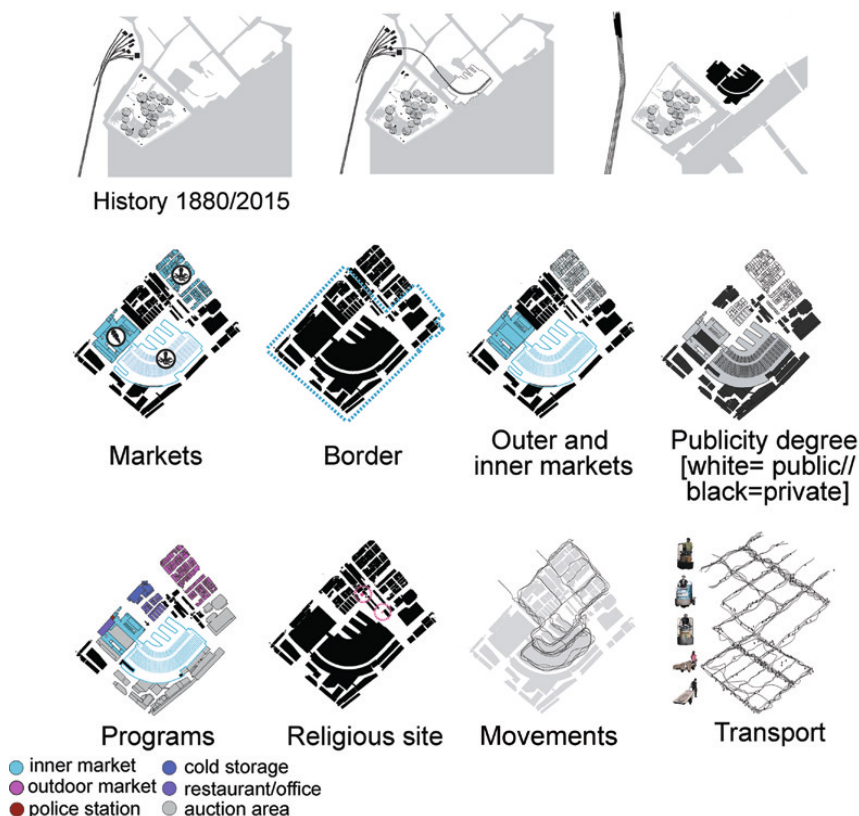
Figure 8.5 Tsukiji urban analysis. (*Source*: Alice Covatta)

The tensions and relations between formal and informal systems defined both Tsukiji markets as a huge molecular structure or collective form; a blurred body able to settle and spread across the city without the formalism that prevents evolution.

Otherwise, the most important requirement to obtain a dynamic system are the individual spaces of the traders or capsules, which – as Maki underlined – can colonise cities spontaneously because only small elements suggest a way to grow. Tsukiji's system is based on the energy released by the operational cells where the measures, scales and dimensions are those of the human body, and so when the modules are substituted or reorganised the overall system and order do not change.

The food supply chain has been completely metabolised by Tokyo's urban fabric and citizens participate actively in the fish process from

tuna catch to tuna *nigiri*. Moreover, the proximity of this process to urban everyday lives enhances citizens' knowledge. It is not a process that happens invisibly and far away as in the US, where detachment from food production has created weird eating habits.

Linking trade on different layers of the public sphere transforms a simple wholesale market into the biggest cultural landmark for fish lovers, popular worldwide; and, as Bestor notes, 'economic action is socially situated, embedded in ongoing networks of personal relationships rather than being carried out by atomized actors … That economic action is a form of social action, that economic action takes place in social contexts, and that economic institutions are socially constructed' (Bestor 2004, 14). Tsukiji is a self-sufficient and time-based urban intervention that reveals that integrating food within a city's core necessitates complex relationships between time and planning.

Some years ago, Kenzo Tange argued that urban planning must consider element timespan as a key factor in city growth/degrowth; he wrote that

> short-lived items are becoming more and more short-lived, and the cycle of change is shrinking at the corresponding rate. On the other hand, the accumulation of capital has made it possible to build in large-scale operations. Reformations of natural topography, dams, harbours, and highways are of a size and scope that involve long cycles of time, and these are the man-made works that tend to divide the overall system of the age. The two tendencies – toward shorter cycles and toward longer cycles – are both necessary to modern life to humanity itself (Lin 2010, 162).

Overcrowded situations highlight that some realities fall short of our expectations – as we see when retailers' position is regulated by lottery – whereas others are deeply rooted within city identity and urban visual culture, such as the wholesale framework and Tsukiji rituals. Here urban planning has adapted the flow of goods, infrastructure mobility and new hybrid buildings over time.

Tsukiji teaches us that it is possible to integrate food culture into urban planning and obtain a different kind of gentrification of the urban core. Food production and food consumption can merge the economic advantages of both the global market and local tourism (see Figure 8.6).

In this sense, Tsukiji fish market is an example of a design methodology that accepts the indeterminate to achieve a flexible system over time.

Figure 8.6 Early morning at the Tsukiji fish market. (*Source*: Alice Covatta)

8.7. Postscript: the new central wholesale market in the changing business environment

In July 2002, Tokyo Gas and the Tokyo Metropolitan Government decided to move the historical Tsukiji market to Toyosu. The relocation of the Tsukiji market was scheduled in 2012, later postponed to November 2018 and still has an unclear future, but it is certainly going to be one of the most radical changes in Tokyo's urban system.

In this last section my aim is to highlight, in a speculative way, the main reason behind Tsukiji's dramatic relocation to Toyosu, among the artificial islands of Tokyo Bay, in order to better understand the role of the central wholesale market in today's changing business environment.

The Tsukiji market is too small and too old for the global economy and its demand for large-scale operations. Unlike the Tsukiji market and other existing markets, the new building will be one of the first examples of a multi-storey market building and it is going to be designed with the auction space separated from the wholesale space. In this way, the building can be completely isolated from the outside in order to control the indoor temperature for the sake of fish preservation.

The plan for Tsukiji's relocation started from a large-scale redevelopment of approximately 20 hectares together with the Tokyo Olympic and Paralympic Games urban plan for 2020. Both the new fish market and the Olympic Games are boosting the development of the whole Toyosu district named Tokyo Smart City TOYOSU22. Since the Fukushima disaster in March 2011, the number of smart projects in Japan has increased and they have the following goals: fostering energy security and efficiency, boosting local development in social and economic terms and enhancing regional and local competitiveness (Pham 2015).

Japan is not self-sufficient; it can meet only 20 per cent of its demand for energy. For this reason, energy autonomy and disaster prevention are prerogatives for every future large-scale urban development, including the new fish market district.

Tokyo Smart City TOYOSU22 aims to create a new town surrounded by green space and water space with a mixed-use development of residential, commercial and business functions. Tokyo Gas will also construct a Smart Energy Center with very efficient gas co-generation systems for recyclable energy to supply the new Toyosu market. The centre will supply the market with electricity and then utilise the waste heat.

The new Toyosu market and the Olympic Games are accelerating urban development according to the IOC (International Olympic Committee) guidelines for cities hosting the Olympic and Paralympic Games. This development includes sport, culture and sustainability.

The new location will be readily accessible by road and railway and will have good connection to airports, avoiding the intricate urban fabric of the central *shitamachi*. The Tokyo Metropolitan Government has decided to move the market from the *shitamachi* area, originating from the Edo period, to the old Tokyo Gas plant, thus improving health and hygiene conditions and the availability of space while reducing costs and logistic difficulties.

The idea to plan the new market site together with the Olympics reflects a long-term and technological vision whereby new access, transport and infrastructure will be developed throughout the whole Toyosu wharf district, to last beyond the legacy of the Tokyo Olympic Games.

Notes

1. http://www.maff.go.jp/e/annual_report/2007/
2. In 2020, Tokyo will host the Olympic Games and on this pretext Tsukiji fish market will move, for the first time in a century, to another location on Tokyo Bay; a move scheduled for the end of 2018. As reported by the *New York Times* (Fackler 2013), this decision has important con-

sequences both for Tokyo's development and for citizens' daily life: '"Tsukiji was the beating heart of the sushi culture that spread across the world," said Mr Kazuki Kosaka, a former local assembly member who opposed the relocation. "Now, it will be redeveloped into condominiums." When moving Tsukiji was first proposed 14 years ago, it spurred widespread opposition, even leading to rare street protests. They were led by so-called middle wholesalers, the traditional middlemen who buy from big wholesalers and sell to restaurants and other retailers; they feared the new market would allow large corporate wholesalers to squeeze them out … "The Tokyo government is using the Olympics as an excuse to distract people from the contamination issue," said Makoto Nozue, 76, who has bought and sold tuna at the market for six decades. "Tsukiji is a globally known brand name and a cultural treasure. Why throw this away?"'

But another reason for moving Tsukiji is reported by Bloomberg.com (2014): 'The site, one of the largest parcels ever offered for redevelopment in the Japanese capital and located near the luxury shopping enclave of Ginza, would be an alternative to the Odaiba district that is seen as the top contender for a gaming resort … Tokyo may sell the Tsukiji parcel, about double the size of the area being redeveloped at the Hudson Yards site in Manhattan.' Finally, in an article from Spoon & Tamago (2015), readers could get a preview of the new fish market.

3. The *shitamachi* or 'commoner' district occupied the area to the east of the castle, whereas warrior or high-city districts extended to the west. The level areas of the low city, built from reclaimed land around such sites as the Hibiya inlet, constituted a planned chequerboard-style urban organisation of 60-ken (110-m) square units typical of the ancient *jōbō* land division system (Hidenobu 1995, 18).

References

Bestor, T. 1998. 'Making Things Clique', in *Networks, Markets and the Pacific Rim: Studies in Strategy*, edited by W.M. Fruin. Oxford: Oxford University Press.

Bestor, T.C. 2004. *Tsukiji: The Fish Market at the Center of the World*. Berkeley: University of California Press.

Bloomberg.com. 2014. 'MGM Said to Scout Tokyo Fish Market as Casino Site', 19 August. Accessed 14 January 2016. http://www.bloomberg.com/news/articles/2014–08-18/mgm-said-to-scout-tokyo-fish-market-as-casino-site

Brinkhoff, T. 2015. 'City Population'. Accessed 17 March 2015. http://www.citypopulation.de/Japan-Cities.html?cityid=6982

Burdett, R. and Del Puglia, F. (eds). 2006. *Cities: Architecture and Society: 10. Mostra Internazionale Di Architettura*. Venice: Marsilio.

Fackler, M. 2013. 'A Way of Life Moves with a Market', *New York Times*, 16 September. Accessed 11 January 2016. http://www.nytimes.com/2013/09/17/world/asia/a-way-of-life-moves-with-a-market.html?_r=0

FAOSTAT. 2015. 'Food Balance – Food Supply – Livestock and Fish Primary Equivalent in 2011'. Accessed 15 January 2016. http://faostat3.fao.org/analysis/Q/QC/E

Fruin, W.M. 1998. *Networks, Markets and the Pacific Rim: Studies in Strategy*. Oxford: Oxford University Press.

Hidenobu, J. 1995. *Tokyo: A Spatial Anthropology*. Berkeley: University of California Press.

Koolhaas, R., Obrist, H., Ota, K. and Westcott, J. 2011. *Project Japan: Metabolism Talks*. Cologne: Taschen.

Kurokawa, K. 1969. 'Capsule Declaration', *Space Design* 3: 75–8.

Lin, Z. 2010. *Kenzo Tange and the Metabolist Movement: Urban Utopias of Modern Japan*. London: Routledge.

Maki, F. 1964. *Investigations in Collective Form*. St Louis: School of Architecture, Washington University.

Pham, C. 2015, *Tokyo Smart City Development in Perspective of 2020 Olympics, April*. Accessed 15 April 2016. http://www.eu-japan.eu/sites/default/files/publications/docs/smart2020tokyo_final.pdf

Spoon & Tamago. 2015. 'Plans Unveiled for the New Tsukiji Fish Market'. http://www.spoon-tamago.com/2015/10/13/plans-unveiled-for-the-new-tsukiji-fish-market/

Yagi, N. 2011. 'Value Chains of Fishery Products'. Accessed 3 January 2016. http://www.fao.org/valuechaininsmallscalefisheries/participatingcountries/japan/es/

9

Improving urban food security in African cities
Critically assessing the role of informal retailers

Jane Battersby and Vanessa Watson

There is a growing realisation that the issue of food security, for a long time a primarily rural concern, needs to become a focus of urban policy and planning. It is usually assumed that solutions to urban food insecurity lie in support for food production (urban agriculture), but research has shown that most African urbanites, including low-income households, source their food from retail outlets. It is therefore essential to consider the urban food marketing and distribution structure and how this impacts on food security and urban poverty.

This chapter will first review the evidence from recent research in African cities which supports the argument that urban agriculture is not as important a source of food for the poor as it is often believed to be. Section 9.1 describes the transitioning food retail environment in which supermarkets are increasingly present and informal food retailers face removal or formalisation. This informal food retail sector is argued to be a major source of food supply for the poor. The following section uses the case study of Cape Town to show how the shifting pattern of food outlets has impacted on one particular city. The last section will argue that urban planning has often been used as a mechanism for these kinds of shifts in the nature of food retail outlets and has, perhaps unwittingly, become an important cause of increases in urban food insecurity, but that it is possible to consider a role that planning can play to shape the urban food distribution pattern in ways that instead promote urban food security.

The chapter draws on extensive research on urban food security in Southern African cities carried out under the auspices of the African Food

Security Urban Network (AFSUN) project at the African Centre for Cities at the University of Cape Town, as well as further empirical research on South African cities and especially Cape Town by Jane Battersby.

9.1. How do poor urbanites source their food? Evidence from African cities

Although there has been a growing interest among policy-makers and planners in the role of urban agriculture in addressing urban food insecurity, improving nutrition and increasing dietary diversity, the evidence base to support the assumption of its central role is weak (Zezza and Tasciotti 2010). Warren and colleagues (2015) argue that this is because of poor-quality study designs rather than because the link has been disproved. These authors find no reason to discourage the practice of urban agriculture but suggest that its potential to address food insecurity should be more thoroughly tested before it is adopted and resourced as the primary policy tool to address urban food insecurity. Research specifically in the African context found that the prevalence of urban agriculture varies greatly between cities owing to distinctive local histories and geographies and was unable to generalise about the potential of urban agriculture to address food insecurity (Frayne et al. 2014).

Despite the overwhelming policy and planning focus on urban agriculture, the vast majority of African urban residents obtain most of their food from various types of retail outlets (Maxwell 1998; Crush and Frayne 2011b). The structure of this market is changing rapidly as supermarkets expand into urban Africa and diffuse their products from wealthy to food-insecure households (Weatherspoon and Reardon 2003). Research in Southern African countries has shown particularly rapid supermarket growth driven in part by large South-African-based food retail chains that have invested heavily in larger and secondary cities (Crush and Frayne 2011b). By way of example, Acquah and colleagues (2014) show how Southern Africa's 'supermarket revolution' has transformed the way in which urban (and rural) residents of Botswana source their food. Supermarkets now handle around 50–60 per cent of food retail in cities and major urban villages in Botswana. The AFSUN survey of residents of a low-income area in Gaborone found that 92 per cent of households reported using supermarkets as a source of food. Only four per cent of households never shopped at supermarkets.

However, the expansion of supermarkets does not imply a declining importance of informal food retailers in supporting urban food security (Battersby and Watson 2018), as research in Lusaka (Zambia) has shown (Abrahams 2010). In this city informal food networks and outlets still play a very important role and integrate in various ways with the formal food sector. Lusaka is unusual in some respects, however, in terms of the role played by the municipality in supporting the informal food sector (see below). Although Lusaka may have unique characteristics, Reardon and colleagues (2007) have identified a process of 'consumer segment differentiation' whereby consumers buy different types of products at different types of market.

In most cities in Southern Africa the growth of supermarkets has had an impact on informal food suppliers, and evidence from Botswana (Acquah et al. 2014) suggests that the size and growth of the informal economy have been constrained by supermarket growth. However, informal food retailers (whether pavement trade or in markets) have advantages in serving low-income households, since they can gain better physical access to them, have lower overheads, can break bulk and sell in small units and sometimes offer credit (Battersby 2012). The larger formal supermarkets tend to locate closer to middle-class areas and are often only accessible by car, but are frequently able to sell cheaper than informal traders, since they can access in bulk and have control over supply chains. Formal and informal retailers also link in a variety of ways (informal sellers sometimes using larger formal outlets as wholesalers) and consequently the way the systems pattern spatially in any city, as well as the extent to which informal traders are being undermined by supermarkets, depends very much on context (Crush and Frayne 2011a). It is for this reason that the concept of the 'food desert', often used in Global North literature to describe urban districts where food is difficult to access, was found to have less relevance in the AFSUN research sites: small and informal food traders are highly flexible and mobile and are able to occupy the spaces that have no supermarkets (Battersby and Crush 2014).

As patterns of urban food retail transform in Africa it is important to consider what changes are happening in the resultant food system. Research in Cape Town found that the largest four supermarket companies (which account for 97 per cent of sales in the formal food retail sector) estimated that, although 56 per cent of their vegetables came from within 200 km of the city, just five per cent of grain did, and, even though there is considerable meat and poultry production in the region, only a third of protein came from local areas (Battersby et al. 2014, 159).

Similarly, informal traders cannot be assumed to be sourcing locally. A survey of 100 informal traders in Cape Town found that they bought food for trade from sources that have local, national and international supply chains. Over half of traders bought from wholesalers (largely for processed foods and meat), who source processed foods from national and international producers. The main source of fresh produce was the Cape Town Fresh Produce Market, which procures locally where possible, but also sells key products that cannot be produced locally (such as bananas). Some traders also buy direct from farms, but this is not often possible given existing contracting agreements between farmers and retailers (Battersby et al. 2014, 163).

Similar experiences of non-local food supply chains are to be found throughout Africa. In Maputo, Mozambique, the frozen chickens sold by street traders are Brazilian (Raimundo et al. 2014, 27). In Kitwe, Zambia, fish sold by traders come from local sources and also from Namibia and China (Siyanga 2016). In Kisumu, Kenya, eggs being sold by wholesale traders in Kibuye market were from Uganda (Hayombe et al. 2018). Throughout West Africa, imports now supply more than 40 per cent of the demand for cereals (Moseley et al. 2010, 5774). It is therefore essential that food security policies consider the governance of formal and informal, and local and global components of, urban food systems.

Given the importance of context in shaping the distribution of food outlets and the links between this and urban food security, the next section focuses on a case study of Cape Town, South Africa.

9.2. The changing structure of urban food distribution networks and urban food security – Cape Town

The value of Cape Town as a case study to illustrate how the food system affects urban food insecurity is that this city, and South Africa, is quite wealthy compared with the rest of the subcontinent and yet levels of urban food insecurity are high. Cape Town has also experienced extensive supermarket penetration into the poorer parts of the city, which has impacted in turn on informal food retailers.

South Africa is food secure at a national scale, meaning that it currently either produces or can import sufficient food to meet the food needs of its residents. However, the 2013 South African National Health and Nutrition Examination Survey (SANHANES) found that 28 per cent
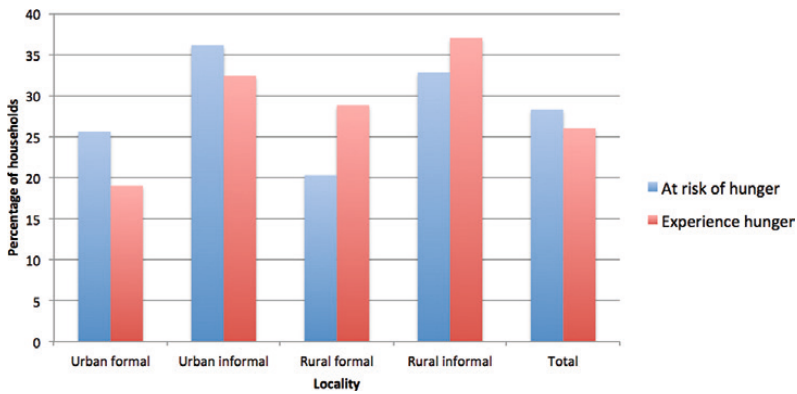
Figure 9.1 Proportion of the South African population experiencing food insecurity by location. (*Source*: Redrawn from Shisana et al. (2013))

of households nationally are at risk of hunger and a further 26 per cent experience hunger. In urban informal areas the proportion of households at risk of hunger was 36 per cent and correspondingly 32 per cent experienced hunger (Shisana et al. 2013, 10). Figure 9.1 indicates the spread of food insecurity across urban and rural areas and between formal and informal areas. In Cape Town a 2008 survey, conducted by AFSUN, of households in three selected poor areas (Khayelitsha, Philippi and Ocean View) found that 80 per cent of households in the sample were food insecure, 68 per cent of these falling into the category of severely food insecure (Battersby 2012).

Urban households in the AFSUN survey of low-income areas of Cape Town exhibited limited dietary diversity with an over-reliance on starchy staples and foods with high caloric density (Battersby 2012). Figure 9.2 shows the foodgroups consumed in surveyed low-income areas. This diet, high in bulky, high-energy foods, but deficient in protein and micronutrients is typical of food-insecure households (Savy et al. 2005). Household members may consume enough food to meet the calorimetric food requirements, but the type of food they consume may not have the requisite nutrients to sustain good physical and mental health and development. Urbanisation is associated with acceleration of the nutrition transition. While earlier work on the nutrition transition identified changes in consumption as driven in part by increased disposable income in urban areas of developing countries (Popkin 1999), more recent work has highlighted the fact that it is lower-income households that are most exposed to foods that are high in energy but nutritionally compromised (Wiggins and Keats
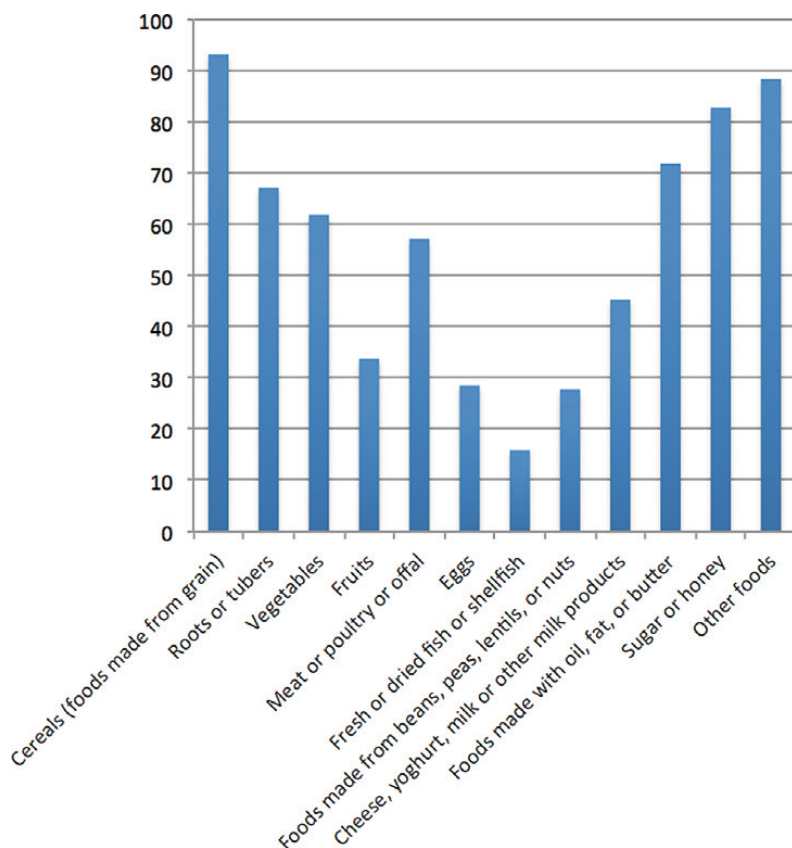
Figure 9.2 Household dietary diversity in surveyed low-income areas of Cape Town (percentage of households that had consumed particular foodstuffs within the preceding 24 hours). (*Source*: Redrawn from Battersby (2011))

2015). Because of diets of this kind, malnutrition persists but at the same time people may be overweight, and obesity and diet-related non-communicable diseases, such as diabetes, are on the increase. Dietary quality is therefore an important health issue, particularly in countries such as South Africa which are urbanising rapidly, and it is essential to understand the role of the food system in shaping diets. The food retail mix is an essential component of such analysis.

Food insecurity in urban areas is typically characterised as a problem of food access among poor households, usually understood as having insufficient income to buy the required food. However, income is not the only factor determining food access and geographical proximity to sources

or outlets providing nutritious and diverse foods is very important. Other factors such as access to storage and refrigeration, household structure and size, and income stability all influence food access and choice.

As elsewhere, research in Cape Town reveals a low level of reliance on urban agriculture. In the 2013 AFSUN survey of selected low-income areas, only two per cent of households sourced food through their own production, compared with seven per cent of households in middle-income areas and 10 per cent of households in high-income areas. Larger parcels of land and resources (including time) appeared to be necessary to stimulate self-production. Furthermore, although urban agriculture is
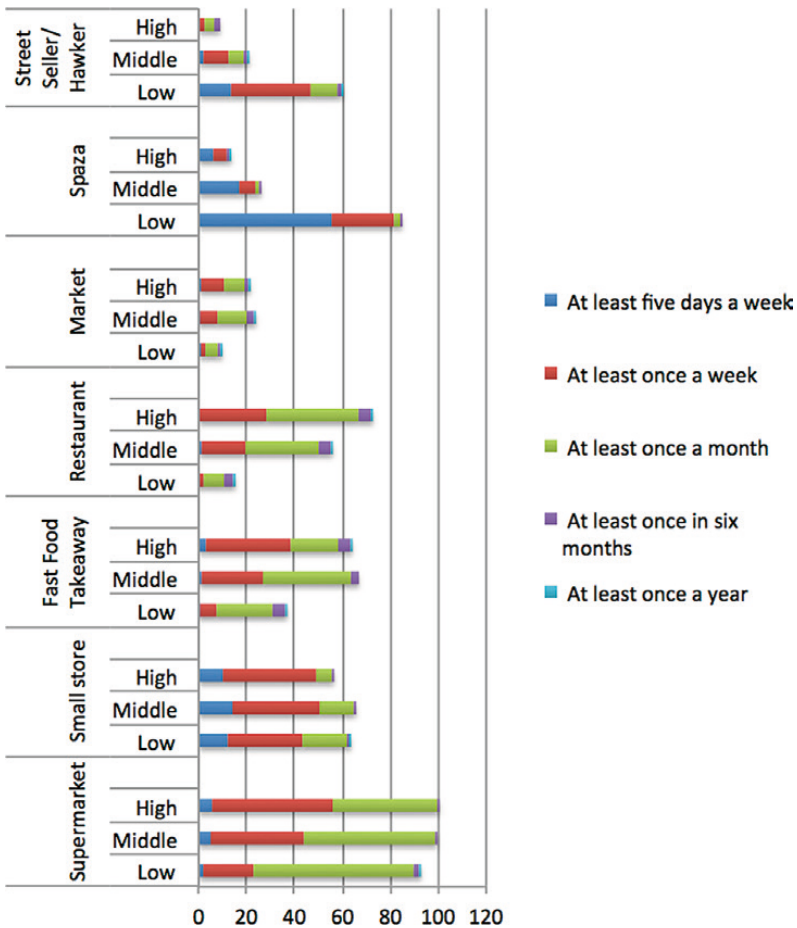
Figure 9.3 Frequency of sourcing food from different market types in high-, middle- and low-income areas of Cape Town, 2013. (*Source*: AFSUN unpublished)
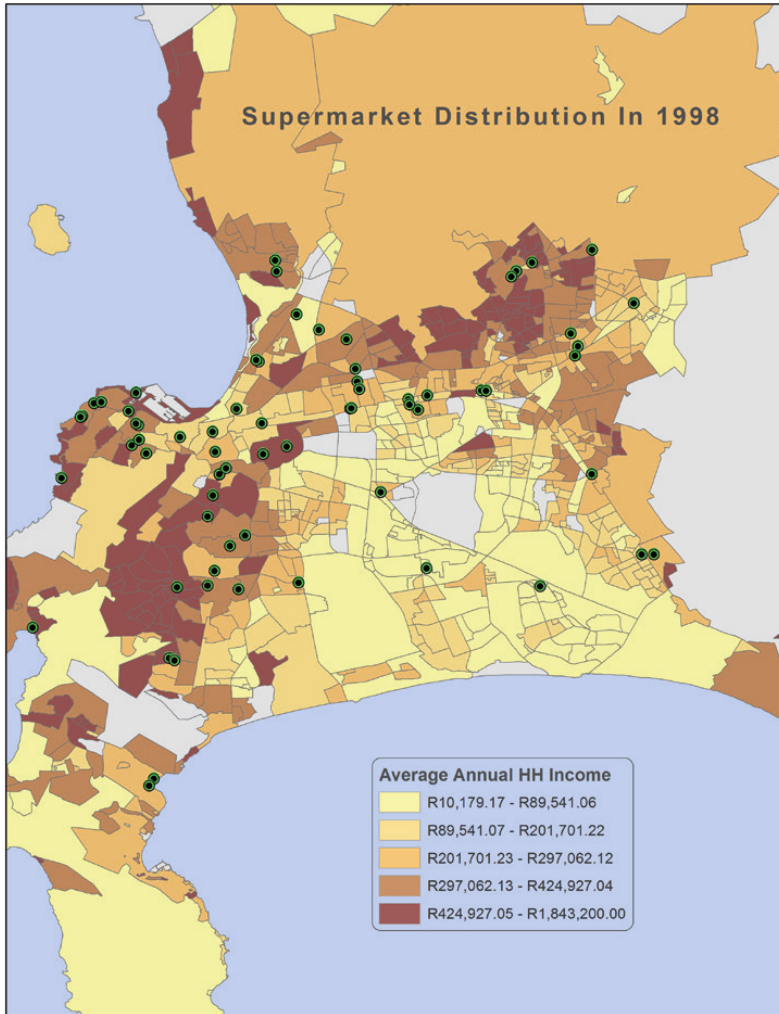
Figure 9.4 Location of supermarkets in Cape Town, 1998 and 2013. (*Source*: Redrawn from http://www.ingentaconnect.com/contentone/ alex/benv/2017/00000043/00000003/art00009)

also often viewed as a poverty relief strategy, the study found that household-based urban agriculture is not a significant income earner (South African Cities Network [SACN] 2015).

In the AFSUN-surveyed low-income areas of Cape Town, households obtained their food from a range of sources: borrowing from neighbours; sharing with other households; community food kitchens and food aid; self-production; buying from informal traders, small shops, restaurants or
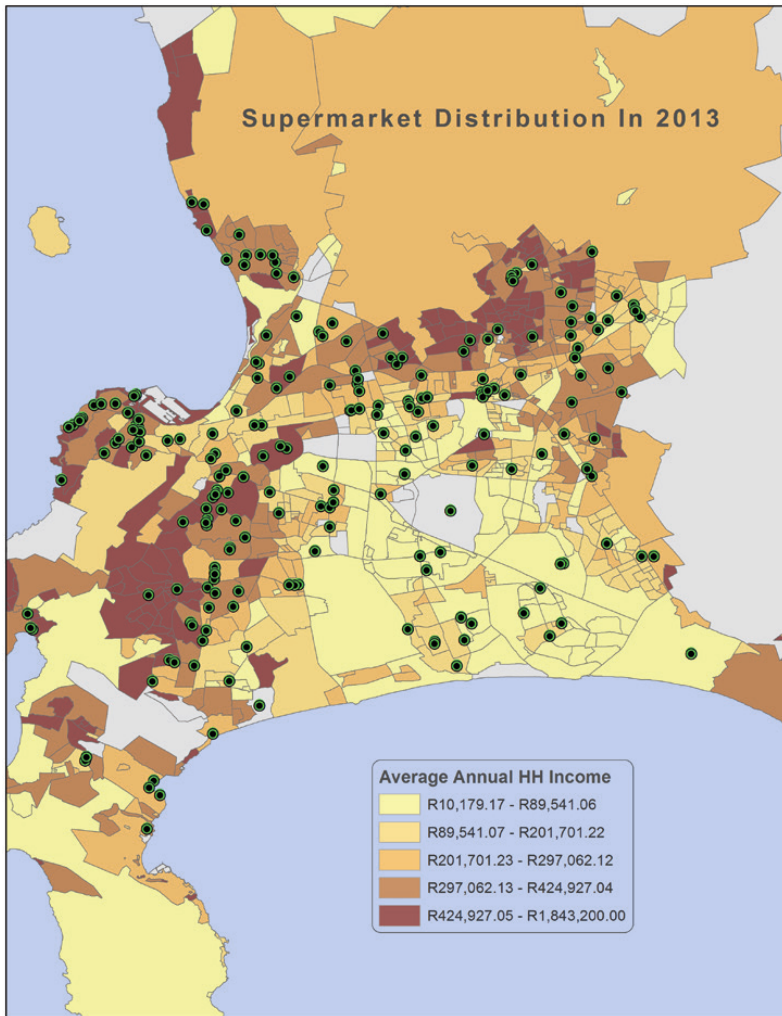
Figure 9.4 (Continued)

takeaways; and buying from supermarkets (Battersby 2011). Figure 9.3 shows the food sources for high-, middle- and low-income areas. In the three low-income surveyed areas the most commonly used source of food was the supermarket, for both food-secure and food-insecure households. This was followed by smaller shops and takeaways, and informal traders. However, supermarkets were infrequently visited, day-to-day purchases being made from the informal sector.

This pattern of food acquisition has shifted significantly over the last several decades with the rapid penetration of supermarkets into the

poorer areas of Cape Town (see Figure 9.4 showing supermarket distribution in 1998 and 2013). Previously, these areas were served largely by informal traders and a few smaller shops. The post-apartheid era has been characterised by market deregulation and an impetus towards local economic development in townships. This has provided the preconditions for supermarket expansion into low-income areas. Improved infrastructure in many townships has made the presence of large retail businesses feasible (Tustin and Strydom 2006, 56) and the growing disposable income among African consumers has made the township market appealing to supermarkets (van Wyk 2004). The arrival of the supermarkets has made it easier for the urban poor to purchase bulk goods at lower prices. However, it has also increased access to highly processed foods, without necessarily increasing access to fresh produce (Battersby and Peyton 2014).

Despite the increased presence of supermarkets, both food secure and insecure households still rely heavily on the purchase of food from informal traders, since these traders offer some advantages to consumers. So, although supermarkets offer lower prices per unit, high safety standards and a larger range of goods, they are often poorly located for consumers without access to transport, have opening hours unsuited to consumers with long commutes and do not sell products in unit sizes affordable on a day-to-day basis. By contrast, informal traders will sell in unit sizes fitting customer needs, are well located for daily purchases, have long opening hours, sell cuts of meat preferred by customers and may offer food on credit in recognition of the economic realities of their customers. Though they may be more expensive than supermarkets,[1] offer more limited ranges of foods and have lower safety standards, there are clear food security advantages with informal traders, who by necessity are more responsive to customer needs than are supermarkets. Their range of products is also more closely linked to customer needs, as shown in Figure 9.5, which indicates the product types of informal food traders in two Cape Town low-income areas.

Although a diverse food retail sector, including supermarkets and informal traders, provides clear benefits to consumers, it is not clear whether this retail mix is viable given current trends and planning responses. It is important at this point to acknowledge the different types of informal food retail in South Africa. Spazas (small, fixed-location general stores, located mainly in residential areas) are impacted upon by supermarket expansion in different ways than street traders selling fresh produce or (raw or cooked) meat and livestock vendors. It is estimated there are currently around 100 000 spazas in South Africa (Basardien et al. 2014, 57). The South African Spaza and Tuckshop Association
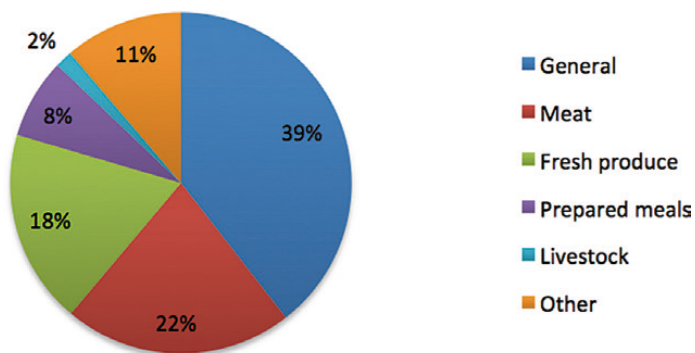
Figure 9.5 Primary product type of informal food traders in low-income areas of Philippi and Khayelitsha, Cape Town, 2013. (*Source*: Battersby et al. (2016))

argues that this number is far lower than before the supermarkets entered low-income areas. They estimate that Soweto lost 30 per cent of its spazas between 2005 and 2014 (Dolan 2014). Spazas cannot compete on price per unit with supermarkets, and urban residents who can afford to purchase in bulk from supermarkets do so. Spazas are very marginal businesses, and so any loss of income places them under great pressure. The loss of spazas exacerbates the food insecurity of the urban poor who cannot use supermarkets as their main source of food (Battersby 2011).

The relationship between street traders and supermarkets is a little different. Although well dispersed throughout low-income areas, street traders tend to cluster specifically around transport interchanges to serve commuting customers and outside the new shopping malls (see Figure 9.6, which shows street traders clustering outside a shopping mall and at a transport interchange). The clustering outside malls results from the recognition that the supermarkets do not necessarily provide access to more or cheaper fresh produce or meat in the forms that low-income consumers want. Although this may seem an organic relationship between supermarkets and informal traders, the traders generally have precarious rights to trade (Bamu and Theron 2012). Besides the implicit privileging of the formal over the informal in terms of regulation and planning, there is an additional structure that gives supermarkets a state-sanctioned advantage over informal traders. Since 2012, state social grants (child support grants, old age pensions, etc.), have been disbursed at supermarkets. This has provided a significant market advantage for supermarkets over smaller formal retailers and informal traders and has raised concerns

Figure 9.6   Street traders clustering outside a mall in Kitwe, Zambia (top) and adjacent to a transport interchange, Bree St taxi rank in Johannesburg (bottom). (*Source*: Jane Battersby)

that the disbursement of grants through supermarkets merely channels government money to the big food companies, which will further increase their market share and hence less capital will circulate within the townships (Ledger 2013).

Although the experience of Cape Town and South Africa with regard to the relationship between food retail and food security has some unique aspects, such as the disbursement of social grants, there are important common characteristics and pointers towards future trajectories which match the pattern elsewhere in Africa. In 2008, the survey that was conducted by AFSUN in Cape Town was also conducted in 10 other cities in Southern Africa. In each city, by far the majority of households bought the vast majority of the food they consumed. And the majority of households bought food from supermarkets, but infrequently, day-to-day purchases being made in the informal sector. There were differences in the extent of these purchasing practices, for reasons that may be owed to supermarket penetration as well as fundamental urban design (Riley and Legwegoh 2014. What is clear is that, although South Africa is more advanced in terms of the expansion of supermarkets into the food retail environment, it is far from unique and similar processes of expansion and impact on informal food retail are occurring across the continent.

9.3. The role of urban policy and planning in urban food security

An important thread that comes through the research on urban food security discussed above is the potential of government, and particularly local government, to influence the extent and nature of urban food insecurity. Although food insecurity is directly related to levels of poverty, a problem that needs to be addressed by national and international economic reforms, there are nonetheless a range of measures that can be taken by government to ameliorate its impacts. This section will first consider broad policy initiatives that can be undertaken by government and then focus on the potential role of urban planning.

Writing in North America, Pothukuchi and Kaufman drew attention to the relative absence of planners in issues of food within cities, noting,

> Planners have been heavily involved in efforts to improve the quality of air and water through air and water pollution control programs. But the third leg of the life essential stool, food, has been

virtually ignored by planners. If planners are truly concerned about improving human settlements, they need to incorporate food issues into their working models. (Pothukuchi and Kaufman 1999, 220)

Since then there has been increased focus on integrating food planning into broader urban planning. Although food issues have been identified as critical urban challenges, it has also been noted that 'municipalities have had limited jurisdiction over the food system, yet they are faced with the consequences of food system failure' (MacRae and Donahue 2013, 3). As a result, cities around the world have developed a range of governance structures and strategies to embed food system interventions in local government. The problem of lack of a clear mandate is far from unique to South Africa.

In South Africa the explicit inclusion of food in urban planning has been extremely limited. This is largely attributable to the framing of food issues in South Africa and internationally. A belief that problems of food insecurity can be tackled by the increased production of food (agricultural stimulation) has been the dominant position internationally for many decades (Committee on World Food Security [CFS] 2006 cited in Crush and Frayne 2011b). In the new Sustainable Development Goals, Goal 2 (end hunger, achieve food security and improved nutrition and promote sustainable agriculture) continues to assume a link between food security and agriculture. Thus, despite the growing research and evidence that food security, and particularly urban food security, is far more complex and requires a multifaceted approach in which local governments should be centrally involved, the dominant solution continues to be sought in agricultural production.

The 2015 report of SACN argues that responses to the persistent food crisis have remained locked in a productionist/welfarist paradigm, following the lead of the twin-track approach to alleviating food insecurity supported by the Food and Agriculture Organisation (FAO) and other global players (Crush and Frayne 2011a). The primary response is that agriculture and social safety nets (the social grant) should be employed to catch those unable to access food through the prevailing food system. This is evidenced in both the Integrated Food Security Strategy (IFSS) of 2002 and the National Policy on Food and Nutrition Security (NPFNS) (gazetted in 2014). As a result of this framing of food insecurity, and in the resultant strategic planning and programming, the position of national government dominates. The remaining spheres of government are not much more than implementers of nationally generated and uniformly (in terms of distribution) applied programmes and

projects, lacking contextual nuances and programming responses that engage local experiences.

In Cape Town, the only direct spatial planning connection to food is through agriculture. The 2012 Spatial Development Framework engages with food only through a policy statement about the need to 'protect valuable agricultural areas, existing farmed areas and horticultural areas from urban encroachment, and support urban agriculture', and identifies existing national and local legislation to support this policy statement (City of Cape Town 2012b, 65). The city's current Integrated Development Plan (IDP) acknowledges food in two particular contexts. The first is in a discussion of the city's role in municipal health (environmental health) through food control. The second is in a discussion of the benefits of rainwater harvesting for food gardens as a water conservation initiative. Previous IDPs have engaged food only through the lens of urban agriculture as a means to address food insecurity. This pattern is also reflected in the planning and policy documents of other cities in South Africa (SACN 2015). In contrast, a Food System Report conducted for the City of Cape Town in 2014 (Battersby et al. 2014) suggested ways in which the municipality could influence the food system and address food insecurity. This can be achieved through careful engagement with private sector stakeholders and civil society to nudge changes in areas of the food system beyond the city's control. The report recommended five interventions that would help embed food within planning and wider municipal processes: develop a food charter to play a role in raising the public profile of the city's food governance plan and developing consensus around objectives; develop political will through garnering support from high-ranking officials; develop a small core group of people within and beyond the city to work together to develop food system and food security interventions; develop an understanding of the priorities of departments and of how food can fit into their existing agendas; develop an overarching strategy, but start with small doable projects that connect at least two departments (Battersby et al. 2014)

Although there is currently little explicit engagement with the food system beyond land for production in existing planning legislation in South Africa, it is clear that planning profoundly shapes the food system. Pothukuchi (2000 cited in Roberts 2001) has argued that inaction in the food-planning environment does not have neutral consequences, but rather reflects negative outcomes. This is particularly the case because of ways in which informal food retail is dealt with in policy and planning.

AFSUN's and other work on African cities shows that, in the face of strong supermarket penetration of cities along with the consistently low

contribution of urban agriculture to food sources, the availability of food through informal traders is a critical necessity. As argued above, informal traders, whether working from pavement locations or collectively in markets, can reduce the 'food desert' problem created by centralising supermarketisation and can continue to offer food sources to low-income households in forms that are accessible, affordable, flexible and suitably packaged. Moreover, the informal food economy is more likely to provide jobs and income that lower-income households (and especially women) can take advantage of; and is more likely to tap into local food production sources. Yet it is these informal traders which in many cities are most directly under attack from government regulation as attempts are made to disperse them from central retail areas, often as part of programmes to 'clean up' cities, to promote the spurious idea of 'world class' cities or to achieve the planning ideal of 'orderly' and controlled cities.

Linked to this is an ongoing attempt to formalise, modernise and relocate informal traders in African cities (for example, Chisokone market in Kitwe, Zambia and the proposed Hawkers' Mall in Kisumu, Kenya). This planning logic usually undermines the viability of these markets, since the new locations are often far removed from the usual consumers. The urban planning function of local government is most often implicated in these measures, although other departments (health, transport) may be involved as well.

This lack of sensitivity to the food security role of informal trade can be attributed both to the departmental siloing of food security in city municipalities with supporting food production, and also to the ways in which informal trade has been constructed in global, national and local policy. At a global level, informal trade is viewed primarily in terms of livelihoods and entrepreneurialism. This discourse filters down to national governments. So, in South Africa, the National Development Plan focuses on providing an enabling environment for small enterprises and addressing entrepreneurship skills gaps (Fourie 2015 cited in Skinner and Haysom 2016). This focus is reflected in the 2014 National Informal Business Upliftment Strategy (NIBUS), which rearticulates the need to encourage entrepreneurial activities and to graduate informal businesses into the formal economy (Skinner and Haysom 2016). It largely neglects the role of the informal sector in providing goods and services to the poor, seeking rather to formalise the informal. NIBUS does not make any reference to food, and, although the National Development Plan pays considerable attention to food security, the role of the informal sector is not acknowledged (Skinner and Haysom 2016). Somewhat unexpectedly, the Western Cape Informal Sector Framework notes that

informal traders play a role in providing superior-quality products at lower prices than their giant retail counterparts (Provincial Government of the Western Cape 2014, 12). The general omission of food is glaring given the prevalence of food retail in the informal sector. For example, a survey of informal street traders operating in metropolitan Durban in 2003 found that 60 per cent were selling food (KMT Cultural Enterprises 2003 cited in Skinner 2008, 230).

The national policy framing of informal trade has filtered down to the local government level. The City of Cape Town has an Informal Trading Policy and an Informal Policy By-Law (City of Cape Town 2013a; 2013b). The 2013 policy states that 'The City acknowledges the legitimacy and role of the informal economy, in terms of its employment and economic growth prospects' and identifies a role for spatial planning in 'locating suitable trading areas that support the viability and sustainability of informal trade'. There is no mention of food in the policy except in food safety regulation. Although the policy uses the language of creating an enabling environment, the City of Cape Town's new Amended Informal Trading By-Law (2013) has been widely critiqued by traders and researchers who argue that the bylaw is a 'controlling policy that stifled rather than promoted economic growth' (Hweshe 2013) and focuses on regulation rather than empowerment, as promoted in the Economic Growth Strategy.

The policy and bylaw need to be viewed within the broader planning regulations in Cape Town. In 2012, a new single zoning scheme was introduced (City of Cape Town 2012a), which has been argued to be anti-poor and could render 70 per cent of spazas illegal. A coalition of concerned individuals has questioned the rationale behind the new bylaw. The Western Cape Informal Traders Coalition has stated,

> The most harmful of these provisions is section 5.2.3 which require that there should be a separate structure for trading, and that no area used for trading should open into a bedroom or toilet. These provisions clearly target the most vulnerable of subsistence traders who reside in one roomed RDP houses and one roomed shacks in informal settlements and are therefore automatically disqualified from trading.
>
> The restrictive trading hours will have a dramatic impact on consumers who rely on Spaza Shops for their daily essentials with residents having to commute to formal shopping malls at night and on Sundays to purchase a loaf of bread … The question may be asked whether these By-Laws were designed to benefit

the Corporate Retailers who are increasingly encroaching on the townships with the proliferation of shopping malls. Are these unrealistic and unjustifiable requirements placed on spaza shops a disguised attempt to eliminate competition for Big Business especially Corporate Retailers, who are the stated preferred constituency of the political party ruling the City at the moment? (Western Cape Informal Traders Coalition et al. 2013).

This suggests that despite the rhetoric of supporting informal traders, the larger planning frameworks seek to 'modernise' and 'standardise' the city in a way that undermines the traders' viability, particularly that of the small, marginal food retailers who are most responsive to the food needs of the poor.

The restrictive role of urban planning is evident in other countries as well. In Malawi the government upheld the belief that street vendors were 'out of place' in the city and that the role of government was to promote 'order' in the city. When food vendors were subject to large-scale eviction measures, as happened in Blantyre (Malawi) in 2006, then the 'geography of urban poverty [wa]s reshaped' and households no longer able to access these cheaper outlets suffered worsened food insecurity (Riley 2014). Such instances of eviction of urban informal workers are common in African cities and can be an expression of political bias against the growth of urban areas and in favour of rural areas.

Yet there is a growing recognition in the language of international policy that the informal economy has an important role to play in providing jobs and income, particularly in rapidly urbanising and under-resourced cities. The International Labour Organization (ILO) has shifted its discourse on informal workers from largely regarding them as 'tax evaders' in the early 2000s, to a present recommendation that sees them as vulnerable workers and economic units needing protection and policies that ensure decent work for all within a rights-based approach to formalisation. In their conferences of 2014 and 2015 the ILO acknowledged that informal workers should have regulated access to public space as a workplace as well as access to public natural resources. Mexico, Colombia and India all recognise the constitutional right of people to work and court decisions have affirmed the right to work on the street. In March 2014, the Indian Parliament ratified the Protection of Livelihood and Regulation of Street Vending Act providing legal protection for street traders and affirming that street hawking is a fundamental right when carried out in designated spaces. The new Act also requires recognition

of 'natural markets' where street traders have congregated in response to local demand.

The role of government policy in supporting informal food retailers in Lusaka is an example of how the state can play a positive role. Even though there has been strong supermarket penetration in Lusaka, informal food markets and small outlets have maintained overall dominance in the urban food economy and still account for two-thirds of consumer food expenditure (Abrahams 2010). This, argues Abrahams (2010), shows that urban food markets do not inevitably have to transition towards supermarkets, but such a transition is likely to happen when government fails to support and invest in local and informal food networks. Lusaka has undergone significant public market construction projects, with three completed after independence in 1964 and a further large 'modern' market built in the 1990s able to house 'hundreds' of market stalls. Subsequent funding was used to locate a bus station near the trading area to support the market. In 2007 a Markets and Bus Station Act was instituted to address the management and representation of informal markets, transport networks and bus stations, and to allow consumers, vendors and other stakeholders to participate in decision-making around these facilities. More wholesale and cold-storage facilities were planned. These kinds of actions, Abrahams (2010) suggests, have not only strengthened informal and smaller food networks but have also encouraged them to formalise supply and chain management, thus allowing them to compete more effectively with formal supermarkets. The larger markets are centralised in the city and networks of smaller markets in the residential areas bring food outlets closer to residents. Urban food consumers benefit from these interventions because they have choices beyond that of the supermarket. The public markets are usually more accessible, provide cheaper food, source their products locally and often transport goods more quickly than the large supermarket chains (Abrahams 2010).

There has been increased interest in urban food system governance in many parts of the world, with calls for the integration of food into wider planning processes through the development of urban food strategies that move beyond disconnected sectoral responses (Hatfield 2012). Of particular interest is the call for food-sensitive planning and urban design (FSPUD) as described by Donovan and colleagues (2011). The FSPUD approach considers the physical and spatial implications of meeting food needs and actively seeks opportunities to connect meeting food needs to meeting other desired planning outcomes. Advocates of FSPUD argue that

> FSPUD means thinking about 'and' opportunities rather than 'or'. By planning and designing food-sensitive places, we have the opportunity to create jobs, build communities and transform, for the better, the environmental sustainability of our settlements and the environmental welfare enjoyed by their inhabitants. Planners and designers can use food to simultaneously address multiple objectives, creating diverse opportunities for people to meet their needs. (Donovan et al 2011, 13)

Through developing strategic rather than responsive food security policies, embedded in an understanding of the food system's role in food security and other urban functions, spatial planning can play a wider role in ensuring food security. This includes using urban planning tools to generate food retail spaces that enhance food security.

9.4. Conclusion

This chapter has argued that, given the overwhelming scale of urban food insecurity and its implications in African cities and elsewhere, and the clear failure of policies that rely on increasing rural agricultural production and urban agriculture, alternative approaches to addressing this issue are urgently required.

Supermarkets will continue to increase their presence and influence over food economies in cities and it is important that local governments consider their potential impacts on food security, positive and negative. Research continues to show the important role played by small and informal food outlets in cities, where they are able to provide food far closer to poorer urban residents, and often at competitive prices. Yet many city governments continue to evict, harass and constrain informal workers, sometimes because they are seen as competing with formal and more powerful economic interests and sometimes because of misguided visions of what an orderly and 'world class' city should look like. Section 9.3 of this chapter drew attention to certain shifts in attitude towards urban informal workers on the part of powerful bodies such as the ILO and also on the part of some governments that are moving to recognise and accommodate this sector of the economy. Some of these initiatives, as well as some cases where government has supported the informal urban food economy, have shown the important role that can be played by local urban policy and planning. We are not suggesting that policy and planning to support the informal food economy can solve problems

of urban food insecurity (this will demand much larger-scale socioeconomic and political reform) but we do argue that it can make an important difference.

Such planning interventions need to be framed within an overall initiative to address food system governance at the local government level. This is because the issue of food security demands integration across a range of local government departments and also demands collaborative engagement with other stakeholders: civil society, NGOs, the private sector, academia, etc. Such a policy framework and food security strategy needs to consider urban food production and distribution sectors and chains as an integrated whole, applying interventions that consider regulatory factors, pricing and food quality monitoring, capital investments (e.g. in markets, storage, transport) and the spatial distribution of the food system relative to the distribution of urban populations of different income levels.

Note

1. With the exception of fresh produce and some meat.

References

Abrahams, C. 2010. 'Transforming the Region: Supermarkets and the Local Food Economy', *African Affairs* 109(434): 115–34.

Acquah, B., Kapunda, S. and Legwegoh, A. 2014. 'The Dimensions of Urban Food Insecurity in Gaborone, Botswana', *Urban Forum* 25: 217–26.

Bamu, P. and Theron, J. 2012. *'Nothing about Us without Us': A Case Study of the Dynamics of the Informal Workplace at Mitchell's Plain Town Centre*. Cape Town: UCT Faculty of Law.

Basardien, F., Parker, H., Bayat, M.S., Friedrich, C. and Appoles, S. 2014. 'Entrepreneurial Orientation of Spaza Shop Entrepreneurs: Evidence from a Study of South African and Somali Owned Spaza Shop Entrepreneurs in Khayelitsha', *Singaporean Journal of Business Economics and Management Studies* 2: 45–61.

Battersby, J. 2011. 'Urban Food Insecurity in Cape Town, South Africa: An Alternative Approach to Food Access', *Development Southern Africa* 28(4): 545–61.

Battersby, J. 2012. 'Beyond the Food Desert: Finding Ways to Speak about Urban Food Security in South Africa', *Geographiska Annaler* 94(2): 141–58.

Battersby, J. and Crush, J. 2014. 'Africa's Urban Food Deserts', *Urban Forum* 25(2): 143–51.

Battersby, J. and Peyton, S. 2014. 'The Geography of Supermarkets in Cape Town: Supermarket Expansion and Food Access', *Urban Forum* 25(2): 153–64.

Battersby, J. and Watson, V. 2018. 'Addressing Food Security in African Cities', *Nature (Sustainability)* 1 (April): 153–5. https://rdcu.be/LTXX

Battersby, J., Haysom, G., Tawodzera, G., McLachlan, M. and Crush, J. 2014. 'Food System and Food Security Study for the City of Cape Town', unpublished report for the City of Cape Town.

Battersby, J., Marshak, M. and Mngqibisi, N. 2016. 'Mapping the Informal Food Economy in Cape Town, South Africa', Discussion Paper No. 5, Hungry Cities Partnership. http://hungrycities.net/wp-content/uploads/2017/01/HCP5.pdf

City of Cape Town. 2012a. 'City of Cape Town Zoning Scheme Regulations'. Accessed 31 January 2018. http://resource.capetown.gov.za/documentcentre/Documents/Forms%2c%20notices%2c%20tariffs%20and%20lists/93793_PGWC_7058n2_Part2.pdf

City of Cape Town. 2012b. 'Cape Town Spatial Development Framework: Statutory Report'. Accessed 31 January 2018. http://resource.capetown.gov.za/documentcentre/Documents/City%20research%20reports%20and%20review/SDF_Technical_Report_2012_Interactive.pdf

City of Cape Town. 2013a. 'Informal Trading Policy'. Accessed 31 January 2018. http://resource.capetown.gov.za/documentcentre/Documents/Bylaws%20and%20policies/Informal%20Trading%2c%202013%20-%20%28Policy%20number%2012664%29%20approved%20on%2026%20September%202013.pdf

City of Cape Town. 2013b. 'Informal Trading Amendment By-Law, 2013'. Accessed 31 January 2018. http://resource.capetown.gov.za/documentcentre/Documents/Bylaws%20and%20policies/Informal%20Trading%20Amendment%20By-law%202013.pdf

Crush, J. and Frayne, B. 2011a. 'Supermarket Expansion and the Urban Food Economy in Southern African cities: Implications for Urban Food Security', *Journal of Southern African Studies* 37(4): 781–807.

Crush, J. and Frayne, B. 2011b. 'Urban Food Insecurity and the New International Food Security Agenda', *Development Southern Africa* 28(4): 527–44.

Dolan, D. 2014. 'South African "Spaza" Shops Suffer as Big Retail Rolls in', *Reuters*, 20 April. Accessed 31 January 2018. http://www.reuters.com/article/2014/04/20/us-safrica-retail-spaza-idUSBREA3J06420140420

Donovan, J., Larsen, K. and McWhinnie, J.-A. 2011. 'Food-Sensitive Planning and Urban Design: A Conceptual Framework for Achieving a Sustainable and Healthy Food System. Melbourne', report commissioned by the National Heart Foundation of Australia (Victorian Division).

Frayne, B., McCordic, C. and Shilomboleni, H. 2014. 'Growing out of Poverty: Does Urban Agriculture Contribute to Household Food Security in Southern African Cities?', *Urban Forum* 25(2): 177–89.

Hatfield, Molly M. 2012. 'City Policy and Programs: Lessons Harvested from an Emerging Field, Bureau of Planning and Sustainability', City of Portland.

Hayombe, P.O., Owino, F.O. and Awuor, F.O. 2018. 'Planning and Governance of Food Systems in Kisumu City', in *Urban Food Systems Governance and Poverty in African Cities*, edited by J. Battersby and V. Watson, 116–27. London: Routledge.

Hweshe, F. 2013. 'Report Criticises City's Informal Trading By-laws', *West Cape News*, 26 March. Accessed 31 January 2018. http://westcapenews.com/?p=6122

Ledger, T. 2013. 'Food Is Different: Morality and Modern Food Systems', Right to Food Seminar, Section 27, Johannesburg, 4 November.

MacRae, R. and Donahue, K. 2013. 'Municipal Food Policy Entrepreneurs: A Preliminary Analysis of How Canadian Cities and Regional Districts Are Involved in Food System Change', Toronto Food Policy Council Report. Accessed 31 January 2018. http://capi-icpa.ca/pdfs/2013/Municipal_Food_Policy_Entrepreneurs_Final_Report.pdf

Maxwell, D. 1998. 'The Political Economy of Urban Food Security in Sub-Saharan Africa', FCND Discussion Paper No. 41, IFPRI, Washington.

Moseley, W.G., Carney, J. and Becker, L. 2010. 'Neoliberal Policy, Rural Livelihoods, and Urban Food Security in West Africa: A Comparative study of the Gambia, Côte d'Ivoire, and Mali', *Proceedings of the National Academy of Sciences* 107(13): 5774–9.

Popkin, B.M. 1999. 'Urbanization, Lifestyle Changes and the Nutrition Transition', *World Development* 27(11): 1905–16.

Pothukuchi, K. and Kaufman, J.L. 1999. 'Placing the Food System on the Urban Agenda: The Role of Municipal Institutions in Food Systems Planning', *Agriculture and Human Values* 16(2): 213–24.

Provincial Government of the Western Cape. 2014. 'Informal Sector Framework', policy memo, Department of Economic Development and Tourism, April.

Raimundo, I., Crush, J. and Pendleton, W. 2014. *The State of Food Insecurity in Maputo, Mozambique*. Cape Town: AFSUN.

Reardon, T., Henson, S. and Berdegúe, J. 2007. 'Proactive Fast-Tracking Diffusion of Supermarkets in Developing Countries: Implications for Markets, Institutions and Trade', *Journal of Economic Geography* 7: 399–431.

Riley, L. 2014. 'Operation Dongosolo and the Geographies of Urban Poverty in Malawi', *Journal of Southern African Studies* 40(3): 443–58.

Riley, L. and Legwegoh, A. 2014. 'Comparative Urban Food Geographies in Blantyre and Gaborone', *African Geographical Review* 33(1): 52–66.

Roberts, W. 2001. 'The Way to a City's Heart Is through Its Stomach: Putting Food Security on the Urban Planning Menu', Toronto Food Policy Council, Crackerbarrel Philosophy Series. Accessed 31 January 2018. http://www.toronto.ca/health/tfpc_ hs_report.pdf

SACN. 2015. 'A Study on the Current and Future Realities for Urban Food Security', Johannesburg. http://www.sacities.net/wp-content/uploads/2015/11/Urban-Food-Security-Report.pdf

Savy, M., Martin-Prevel, Y., Sawadogo, P., Kameli, Y. and Delpeuch, F. 2005. 'Use of Variety/Diversity Scores for Diet Quality Measurement: Relation with Nutritional Status of Women in a Rural Area in Burkina Faso', *European Journal of Clinical Nutrition* 59: 703–16.

Shisana, O., Labadarios, D., Rehle, T., Simbayi, L., Zuma, K., Dhansay, A., Reddy, P., Parker, W., Hoosain, E., Naidoo, P., Hongoro, C., Mchiza, Z., Steyn, N.P., Dwane, N., Makoae, M., Maluleke, T., Ramlagan, S., Zungu, N., Evans, M.G., Jacobs, L., Faber, M. and SANHANES-1 Team. 2013. *South African National Health and Nutrition Examination Survey (SANHANES-1)*. Cape Town: HSRC Press.

Siyanga, F. 2016. 'From Fork to Farm: Understanding the Food System in Kitwe's Low Income Area through the Pathways of Fish', master's thesis, University of Cape Town, 2016.

Skinner, C. 2008. 'The Struggle for the Streets: Processes of Exclusion and Inclusion of Street Traders in Durban, South Africa', *Development Southern Africa* 25(2): 227–42.

Skinner, C. and Haysom, G. 2016. 'The Informal Economy's Role in Feeding Cities: A Missing Link in Policy Debates?', PLAAS Working Paper 44, PLAAS, UWC and Centre of Excellence of Food Security, Cape Town.

Tustin, D.H. and Strydom, J.W. 2006. 'The Potential Impacts of the Formal Retail Chains' Expansion Strategies on Retail Township Development in South Africa', *South African Business Review* 10(3): 48–66.

Van Wyk, H. de J. 2004. 'National Personal Income of South Africans by Population Group, Income Group, Life Stage and Lifeplan', Research Report No. 333, Bureau of Market Research, University of South Africa, Pretoria.

Warren, E., Hawkesworth, S. and Knai, C. 2015. 'Investigating the Association between Urban Agriculture and Food Security, Dietary Diversity, and Nutritional Status: A Systematic Literature Review', *Food Policy* 53: 54–66.

Weatherspoon, D.D. and Reardon, T. 2003. 'The Rise of Supermarkets in Africa: Implications for Agrifood Systems and the Rural Poor', *Development Policy Review* 21(3): 333–55.

Western Cape Informal Traders Coalition, Somali Association of South Africa, National Consumer Forum, Congress of South African Trade Unions (COSATU) Western Cape, Passop South African Council of Churches, Scalabrini Foundation and Black Business Chamber. 2013. 'Implementation of New By-laws Affecting Spaza Shops', press release. Accessed 31 January 2018. http://www.passop.co.za/news/the-implementation-of-new-by-laws-could-force-up-to-70-of-spaza-shops-in-cape-town-to-close

Wiggins, S. and Keats, S. 2015. 'The Rising Cost of a Healthy Diet: Changing Relative Prices of Food in High-income and Emerging Economies', ODI Report, May, ODI, London.

Zezza, A. and Tasciotti, L. 2010. 'Urban Agriculture, Poverty and Food Security: Empirical Evidence from a Sample of Developing Countries', *Food Policy* 35(4): 265–73.

10
Integrating food distribution and food accessibility into municipal planning
Achievements and challenges of a Brazilian metropolis, Belo Horizonte

Cecília Delgado

10.1. A new standpoint on Belo Horizonte Food Security Program

Belo Horizonte is a planned Brazilian city, built in the late nineteenth century, whose city plan differentiated urban and peri-urban zones as well as a productive rural belt. The city has expanded swiftly from 25 000 inhabitants in 1897 to close to 2.5 million today (Instituto Brasileiro de Geografia e Estatística [IBGE] 2016), eating up arable land and bringing a dramatic impact on food production and informal distribution channels. To address this situation and regulate food market prices, the municipality created in the 1990s a municipal secretary for food supply, security and nutrition (*secretaria municipal adjunta de segurança alimentar e nutricional* – SMASAN) with overall responsibility for implementing the Belo Horizonte Food Security Program (BHFSP). Belo Horizonte is the capital of the state of Minas Gerais and has one of the most populous metropolitan areas in Brazil, with close to 5.7 million inhabitants in 2014 (Thomas 2014). This chapter will focus on Belo Horizonte municipality only.[1]

The amazing effects that such a programme has on increasing access to healthy food are well documented by authors such as Aranha (2004), who maintains that Belo Horizonte's positive results are rooted in municipal understanding of the food security concept as entailing the entire cycle from production to consumption, or Rocha and Lessa (2009), who highlight its unique 'alterity' with respect to other emerging experiences because it's government driven, or even Gonçalves and colleagues

(2011), who discuss popular restaurants as an outstanding example of food security policy focused on vulnerable people's access to nutritious food. Furthermore, the city has received global recognition by world institutions like the Food and Agriculture Organisation (FAO) (Thomas 2014), having been elected as one of the 10 greenest cities in Latin America and the Caribbean thanks to its Food Security Program, as well as the World Future Council, which claims that Belo Horizonte's development of a comprehensive system for food security with the involvement of civil society organisations has been key to the programme's success, along with its central supervision through SMASAN.

Food security has to be considered as a holistic concept. That said, this present contribution to knowledge of Belo Horizonte's food distribution and supply system focuses directly on its spatial planning frame under SMASAN supervision, as well as its shift from informal distribution channels to formal ones. Nevertheless, informal distribution channels still exist – as the remaining mobile street food vendors documented by Mörtenböck and Mooshammer (2015) testify – as do other informal work relationships that are not addressed here. The chapter does not overlap previous contributions, but, on the contrary, enriches other authors' findings from an urban planning perspective.

The chapter starts by introducing the multiple components of the food supply and distribution system that have been consolidated over time in Belo Horizonte and still exist today. It makes brief reference to those which disappeared or were not sustained. The evolution of the system is described in terms of its key moments: (1) the creation of SMASAN,[2] who has managed the most significant part of the food supply and distribution system in Belo Horizonte since 1993; (2) the city master plan approved in 1996, which placed food within spatial planning for the first time; (3) the role of the municipal councils (Conselho Municipal de Abastecimento e Segurança Alimentar [COMASA][3] and Conselho Municipal de Polítícas Urbanas [COMPUR][4]) in the collaborative planning process; (4) lastly, the IQVU (Quality of Urban Life Index) planning tool created in the 1990s to help reverse social and economic inequalities, which evidences the accomplishments of the Belo Horizonte food distribution system between 1994 and 2012.

10.2. Arguments and method

The central argument of this chapter is that a strong and successful collaborative planning approach has been the key factor in Belo Horizonte's unique achievements in 20 years of municipal food supply and distribution.

Another crucial element has been a sustained political will throughout those 20 years, and even before. To demonstrate both arguments, primary research was carried out – field visits, first-hand observation and interviews with SMASAN staff – and the contributions of the different partners in the city are duly acknowledged. Secondary information about Belo Horizonte was also selected and processed, exploring primarily SMASAN databases, global databases and Belo Horizonte's municipal website. A review of mainly Brazilian literature on food and planning and of the significant number of sources on Belo Horizonte's food system completed the research.

10.3. The food supply and distribution system today

Belo Horizonte Food Security Program, under the supervision of SMASAN, the special municipal secretary in charge of a significant proportion of food supply and distribution in Belo Horizonte, formally started in 1993 (Law 6.352/1993) under the Patrus Ananias administration (1993/1996) in a context of desperate hunger: over 300 000 were suffering from hunger and malnutrition in a city of roughly two million inhabitants, and most of the supply and distribution at that time was unregulated. The initiative was broad and addressed multiple food security challenges: (1) integrating the supply chains of the entire food system; (2) linking local producers directly to consumers to reduce prices and increase food sovereignty; (3) using government purchasing to stimulate the diversification of local agricultural production and job creation; (4) educating the population about food security and good nutrition; (5) regulating the markets of selected produce to guarantee healthy, high-quality food for all citizens.

For over 20 years since its beginning in 1993, Belo Horizonte's food supply and distribution has been active in 116 different locations spread over the city: 33 are permanent assets, e.g. popular restaurants, markets and other covered spaces, and 83 are non-permanent, e.g. the numerous open-air food markets, mostly in the morning.[5] Within this simple division, various activities take place and will be briefly summarised.

10.3.1. Popular restaurants (*restaurantes populares e refeitório*)

In 1994, the SMASAN administration reopened the popular restaurant Helbert de Souza (see Figure 10.1), located in Avenida do Contorno, at the edge of the city centre, matching the first ring of Aarão Reis's city

Figure 10.1 Popular restaurant supported by Belo Horizonte Municipality. Around 200 000 nutritious lunches and dinners a month are served (2017) in the four Belo Horizonte popular restaurants. (*Source*: Belo Horizonte Municipality/Secretaria de Assistência Social, Segurança Alimentar e Citadania)

plan (1895) (see Figure 10.2). In 2004, a second popular restaurant, Josué de Castro, opened in Região Hospitalar; four years later, a third popular restaurant called Maria Regina Nabuco opened in Venda Nova district; and a fourth popular restaurant, Dom Mauro Bastos, opened in 2010 in Barreiro. Their purpose is to offer nutritional meals for affordable prices. They are located in five different city locations, including poor neighbourhoods. There is also a refectory not open to the public which provides meals to public institutions such as schools and shelters.

10.3.2. Permanent covered markets (*mercados distritais e feira coberta*)

The three permanent covered markets are Lagoinha district market, Cruzeiro district market and Padre Eustáquio open-air food market under SMASAN supervision. They existed before BHFSP, but they were renewed under the municipal master plan's (1996) food supply strategy. Nowadays Lagoinha market is partially a cooking training school and Padre Eustáquio open-air food market also includes a food store and some restaurants.

10.3.3. Food stores (*sacolão*)

These are one of the most innovative Belo Horizonte strategies to regulate food prices and ensure low-income access to nutritional food. According
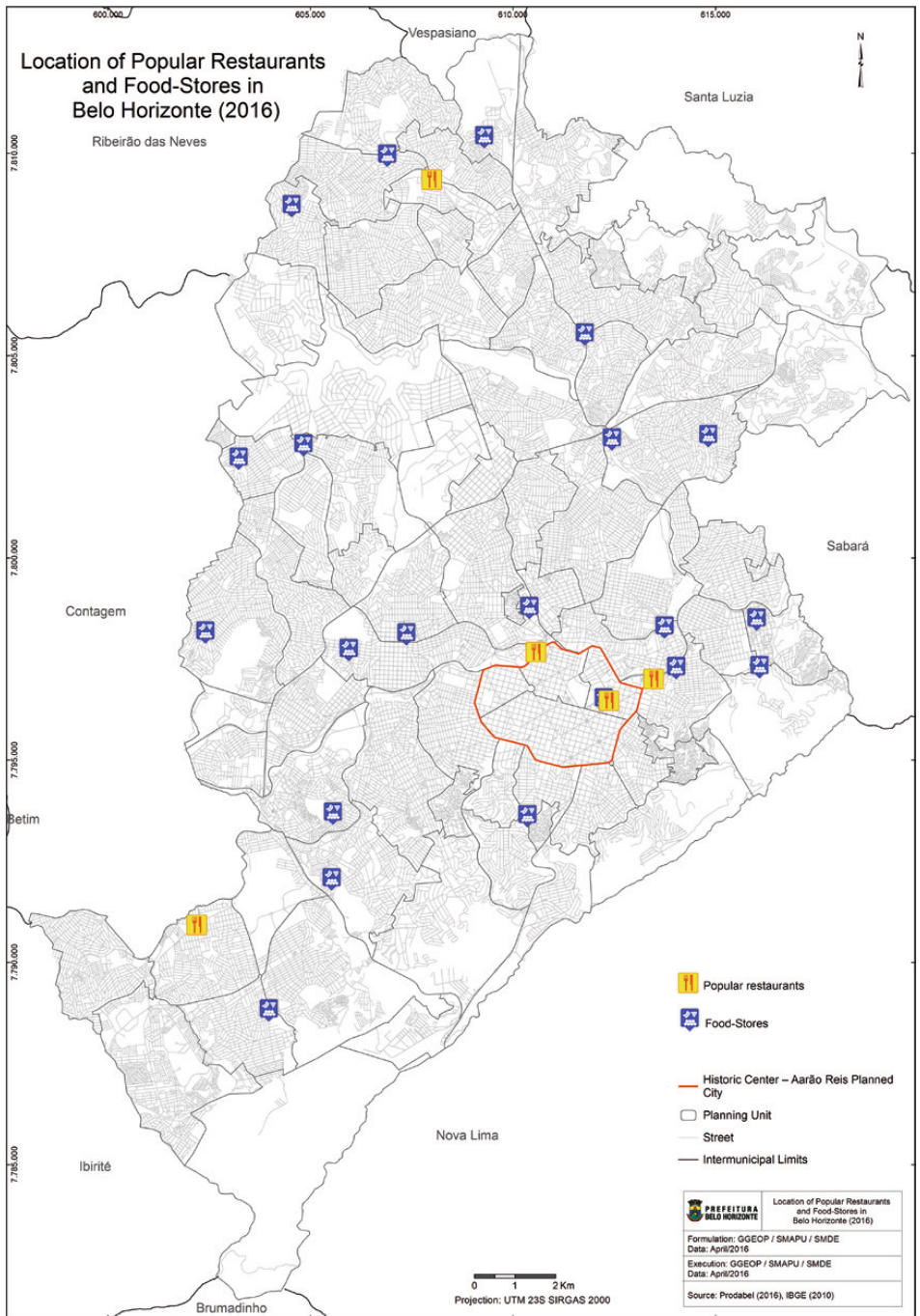
Figure 10.2 Location of popular restaurants and food stores in Belo Horizonte (2016). (*Source*: Based on SMAPU data (2016))

to SMASAN, the first food store in Caiçara opened in 1992. Nowadays there are 21 food stores located mainly in low-income districts, as will be explored below. These stores sell a range of 70 fresh products, of which 20 have to be sold at affordable prices as established by SMASAN. Usually, these stores are built on public land and the private trader will get a lease from the public sector.

10.3.4. Two permanent spaces to sell products 'directly from rural producers' (armazém direto da roça)

These spaces are part of a programme that started in 1995. Its main objective was to link rural farmers with urban consumers. Besides this non-permanent open-air food markets, this activity is based in two permanent spaces that are strategically located, one near the main bus station and the other in the city centre.

10.3.5. The municipal food distribution centre (central municipal de abastecimento)

This megastructure covering more than 10 000 m² opened in 1997 on the outskirts of the city. The municipal food distribution centre supplies most SMASAN-related programmes, principally the five popular restaurants, school canteens, kindergartens, shelters, etc. The place hosts a food store, several restaurants and flower retailing. It is the beating heart of Belo Horizonte's supply and distribution systems.

10.3.6. Food bank (banco alimentar)

This project started in 2003 and was directly linked to the national Zero Hunger programme. The food bank mainly receives from the 21 Belo Horizonte food stores (sacolão) fruit and vegetables that are rejected by the formal retailing system because they are too small or not exactly the required shape but yet have the same nutritional qualities. The food is sent free of charge to institutions such as school canteens and shelters.

10.3.7. Open-air food markets (feiras livres)

These open-air markets have been a traditional part of the informal food distribution system since Belo Horizonte's creation. The municipality supported their inclusion in a formal and regulated food supply and distribution system. They are mainly located along the streets of old neighbourhoods in the original planned city (see Figure 10.3), today the
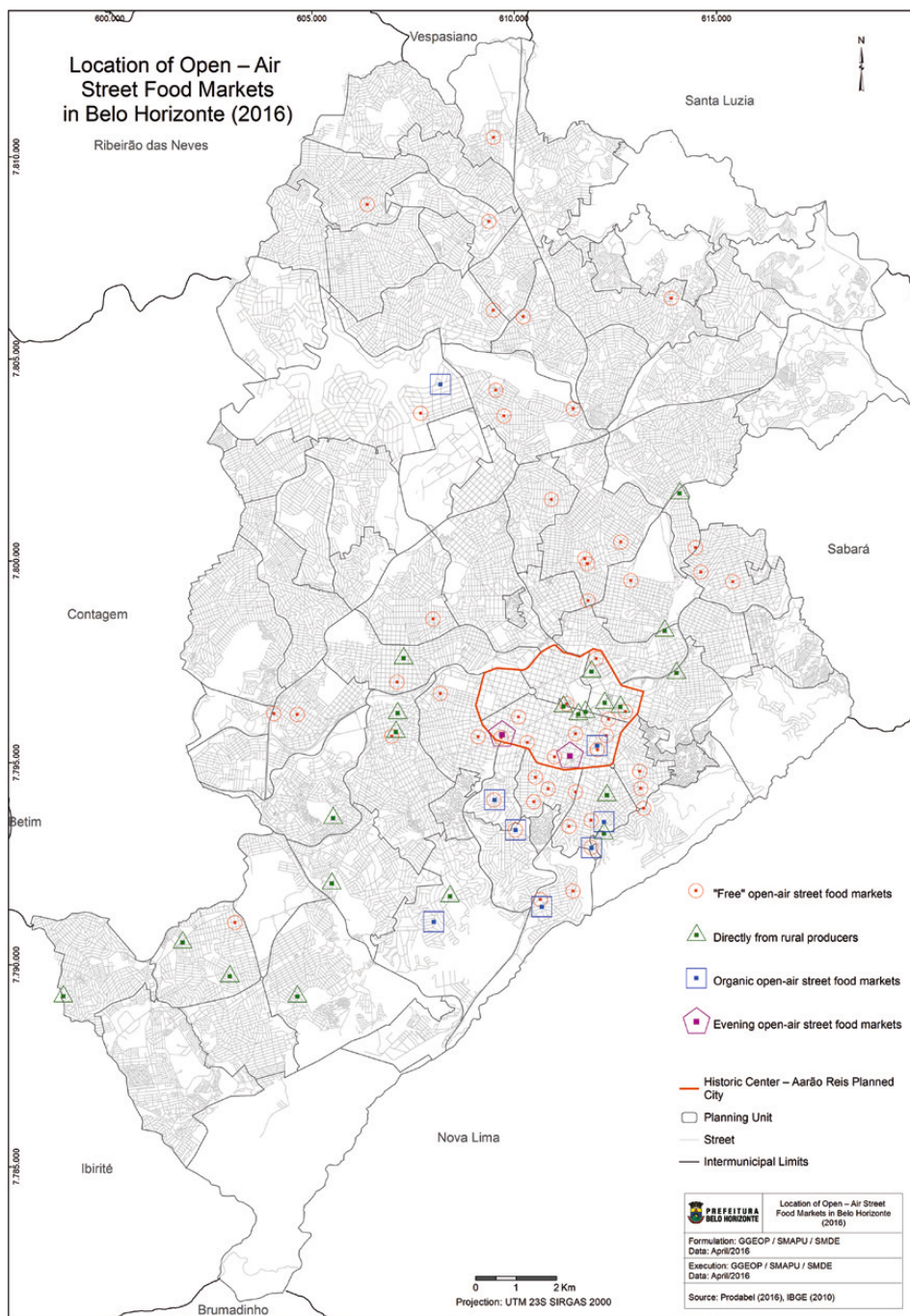
Figure 10.3 Location of open-air street food markets in Belo Horizonte. (*Source*: Based on SMAPU data (2016))

buzzing heart of Belo Horizonte. Once a week, traders set up their stands with an institutionalised logo provided by SMASAN to sell fresh fruit and vegetables, which are not strictly organic.

10.3.8. Directly from rural producers to open-air food markets (*direto da roça*)

This short food circuit started in 1995 and distributes locally produced food through 21 open-air food markets held either once or twice a week in streets and squares. Like the open-air food markets previously mentioned, these fairs are recognisable by their SMASAN logo. It is interesting to note that this programme was launched long before its institutionalisation within Belo Horizonte policy in 1998.

10.3.9. Evening open-air food markets (*feiras modelo*)

This evening programme started in 1995. The markets are similar to the previously mentioned open-air food markets, but the aim is to fulfil distinct consumer needs, so they are scheduled for the evenings and provide prepared food.

10.3.10. Organic open-air food market (*feira dos orgânicos*)

This last open-air food market programme started in 2002 to target consumers wanting to buy organic products. The market is similar to those mentioned previously and has its own SMASAN logo.

10.4. Spatial levels of Belo Horizonte's food supply and distribution system

Belo Horizonte's food supply and distribution system covers several spatial levels. Its main distribution asset is the municipal distribution food centre which receives reception from producers and distribution all over Belo Horizonte municipality. Also managed at the municipal level is the food bank, which receives and donates food all over Belo Horizonte.

On the district level we find the food stores covering the outskirts and low-income neighbourhoods (see Figure 10.2). At the same level are the popular restaurants, sadly not as widespread as the vulnerable low-income population need (Gonçalves et al. 2011, 108). At the neighbourhood level are the open-air food markets, which are historically

rooted in the planned city and later spread according to people's needs, as Figure 10.3 confirms.

Lastly, I would underline how Belo Horizonte's food system today is institutionalised by means of public policies. Activities such as the permanent covered markets, the food stores and one of the popular restaurants began before this institutionalisation. Moreover, the city's open-air food markets began with its foundation according to Aarão Reis's city plan. I believe that Belo Horizonte's food policy was institutionalised because people's needs justified its formalisation through public policies in almost half of the activities.

Free fairs, permanent covered markets and popular restaurants were Belo Horizonte's pioneer food distribution channels. With the exception of the permanent covered markets, they were also the last to be institutionalised. All the new channels are part of the SMASAN programme and for that reason have been institutionalised more or less since their inception.

10.5. The food supply and distribution system: origins and evolution over the last 50 years

10.5.1. The origins

The foundation plan for Belo Horizonte designed by Aarão Reis in 1895 included a productive rural belt (and indicates as *sitios* where food is normally produced and animal are raised). This is almost unique for nineteenth-century city planning in Brazil. Such productive zoning has long been eaten out by the early expansion of the city. Reis's plan is referred to as the centre of the city (see Figure 10.4) and covers less than one per cent of the 331.4 km² the city encompasses today.

10.5.2. First initiatives in the 1940s

The city's expansion beyond Reis's plan continued to eat up arable land, bringing a dramatic impact on food production around the city, which was essentially supplied through informal distribution channels, mainly open-air food markets. The need to feed hungry people was always present. This situation echoes what Josué de Castro says in his book *The Geography of Hunger* (1946). It was in such a context of hunger that a first municipal initiative to improve food supply and increase access to
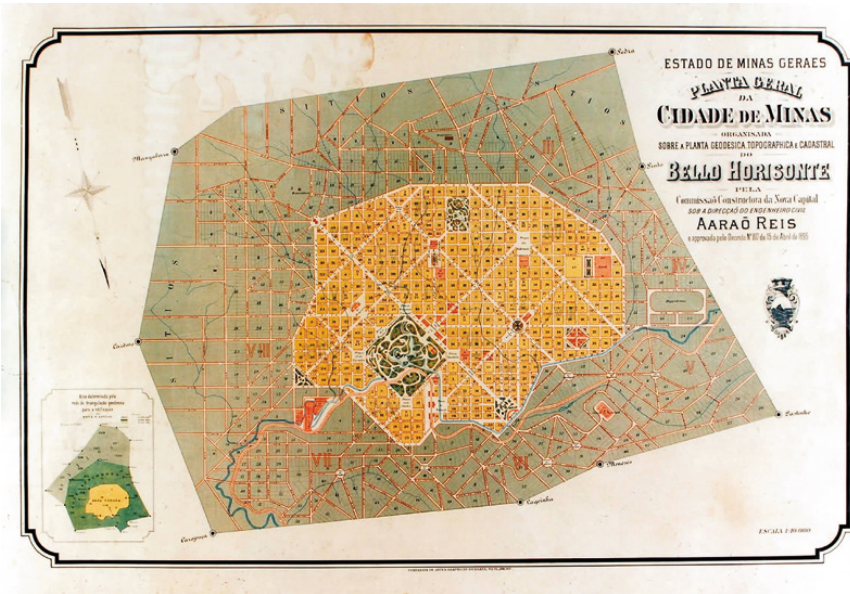
Figure 10.4 Aarão Reis's Belo Horizonte 1895 city plan. (*Source*: Open public archives from APCBH)

nutritious food took place in 1943, when the first popular restaurant was opened under Juscelino Kubitschek's mandate. At that time the future president of Brazil (1959–61) was the mayor. It is interesting to note how Belo Horizonte has been for years a vivid place of experimentation in food supply distribution, which can be seen in the institutionalisation of its open-air food markets association, which has had impact on the national context. Besides the opening of the public restaurant, other initiatives such as city food warehouses to regulate food prices and an itinerant food truck were introduced in the 1950s and 1960s. In the early 1960s, before the military coup, Belo Horizonte municipality was already committed to improving food access for low-income people.

Unfortunately, such initiatives became less visible after the 1964 coup and during the dictatorship (1964–85). Little information about that time exists today beyond the precious Belo Horizonte municipal archives that were accessed in researching this chapter. But two valuable studies[6] complement the archives, providing records of street fairs (*feiras livres*) and permanent covered markets under public supervision from 1971 to 1977. This clearly indicates the permanence of a strong food supply and distribution tradition.

10.5.3. After dictatorship period

At the end of the 1980s, Brazil's first Federal Constitution enunciated food as a social right (Chapter 2, Article 6º). Two years later, Belo Horizonte framework legislation declared food supply to be a municipal duty (Chapter 2, Article 13º, point 8). Food, considered in terms of production, supply and price regulation, was at that time as important as public transport or housing. Article 211 declared that, owing to poverty and inequity, the municipality, within the limits of its competence and in cooperation with the union and the state, would organise the food supply to improve access to food among the population, especially those on low income.[7]

That was the political and social agenda for setting up a municipal food supply system under the Workers Party mandate in 1993. The first decision was to formally set up a municipal food supply programme and to create an independent department (Law 6.352/1993) to be in charge to manage food production, distribution, supply and education. Belo Horizonte was moving from an informal system of food supply and distribution to a formal, institutionalised food policy. A municipal council for food security, rooted in the civil society and the economic and political sectors, mediated the process, performing what Healey describes as 'systemic institutional design for collaborative planning' (2006, 284).

Belo Horizonte's model was at that time a unique and ground-breaking practice in Brazil and probably in the developing world as a whole. According to Rocha (2014), BHFSP galvanised the leadership of Brazil's Zero Hunger programme, launched at national level 10 years later, again under the Workers Party. The Zero Hunger programme germinated from the upbeat trend in food security, strong social mobilisation and the creation of the national food security council in 1993 (Silva et al. 2011); the same popular engagement and political umbrella that was at the heart of the food security programme in Belo Horizonte. From the spatial perspective Zero Hunger programme went a step further in making for the first time a distinction between food accessibility in urban and rural areas, a question still ongoing. The programme adopted three levels of food policy: (1) structural, (2) specific and (3) local; disaggregating the latter by the following profiles: rural areas, small and medium-sized cities. To the metropolis of Belo Horizonte the Zero Hunger programme proposed such amenities as subsidised restaurants as well as supply facilities like food stores and the food bank. A closer look confirms that such amenities already existed in Belo Horizonte, but not all of them were formalised by public policy or spatial planning.[8] Conversely, the Belo Horizonte Zero Hunger programme was vital to upscaling Belo

Horizonte's food security programme, and to the shift from one merely consultative municipal council for food supply and security – COMASA (1993–7) – to its institutionalisation under COMUSAN (2003–) (Decree 11341/2003), which has deliberative power, a subject to be detailed in the next section.

10.6. Food policy planning as a collaborative planning process

This section summarises the key steps that were taken by the municipality on food distribution planning and why I claim Belo Horizonte's innovative collaborative systemic planning process to be the key to its success.

The collaborative planning process is a concept introduced by Patsy Healey in 1996; broadly speaking, it differs from traditional planning by considering planning as a social process. Healey claims that collaborative planning implies a systemic institutional design approach to a particular policy field with respect to a particular phenomenon in question and social values about it (Healey 2006, 287). Since this concept breaks from neo-liberal policies, Healey has been heavily criticised. Indeed, some limits to collaborative planning were claimed, such as ideological or value differences among stakeholders, institutional reluctance, lack of trust, and power imbalances among stakeholders (Day et al. 2003, 24), to name a few. Today, however, both academia and practitioners reference many of Healey's ideas.

Belo Horizonte municipality undertook in 1994 a collaborative planning process. That was a time of strong social engagement in Belo Horizonte and Brazil. First, the Federal Constitution (1988) had defined popular participation as mandatory. Second, the number of neighbourhood associations in Belo Horizonte had risen from 70 to 534 in the 1980s. Third, participatory budgeting had started in 1989 in Porto Alegre and made its way to Belo Horizonte in 1993, creating a new local democratic sphere keen to satisfy social needs and distribute welfare.

Although only consultative, which may be seen as a weakness, COMASA was a municipal council in charge of food security advocacy and headed by a ground-rooted expert with a background in urban and regional economy – Maria Regina Nabuco. The council was composed at that time of 19 members including the municipal executive and representatives of civil society (consumers' organisations, workers and residents) and the economic sector (entrepreneurs from the food production

chain) (Machado 2007, 122, 123, 233). COMASA was quite active until the beginning of 1998, when it was deactivated – according to Nabuco and Souki (2004) – because of low popular participation and operability. The year 1997 was also marked by a shift in municipal government. This point leads to a second argument.

At the same time, the city had under discussion its first municipal master plan, approved in 1996, when Mauricio Borges, an urban economics expert, was urban planning council secretary. To ensure popular participation, another municipal council, this one on urban planning policy – COMPUR – was created. The council, comprised 32 members from civil society, the municipal executive and economic and experts' organisations, convened the first municipal urban policy conference (1996) to discuss the municipal master plan in several public meetings around Belo Horizonte municipality over a period of nine months. Under the auspices of this strong intersectoral collaboration the municipal master plan set up a food supply and distribution subchapter, albeit under the umbrella of social policy, but nevertheless ensuring for the subsequent decades a spatial frame for food. Article 40º defined the location of the municipal distribution centre; the renewal of two permanent covered markets; the improvement of a food stores chain, ongoing since 1992; and further popular restaurants[9] additional to the one operational since 1994. It also declared the expansion of open-air food markets.[10]

Between 1996 and 2015, two amendments to the 1996 municipal master plan were made, the first in 2000 (Law 8137/2000) and the second in 2010 (Law 9959/2010), both maintaining the food supply subchapter established in the seminal Belo Horizonte municipal master plan in 1996.

Why is the first city master plan so rooted in the BHFSP? A promising explanation comes from the strict collaboration between all the municipal departments, including SMASAN, and the municipal councils COMASA (1994–7, later COMUSAN) on food security and COMPUR on urban policy. Belo Horizonte developed a unique systemic institutional design approach involving decision-makers, civic society and entrepreneurs from the private sector in food policy planning from the 1990s till the present day. This unique approach is the key to its enduring success. However, political will was crucial to make it happen, as we shall see next.

A new municipal master plan is now under approval – Draft Law 1749/2015. It does not address food supply, leaving out one of the most innovative aspects of Belo Horizonte's planning proposal in 1996. I would like to believe that 20 years of food collaborative planning has

consolidated Belo Horizonte's food distribution and supply system as mainstream. Meanwhile, urban agriculture[11] is for the first time included in the city's master plan. Although this is at present only an urban planning policy, and so lacks zoning, it is exceptional and encouraging and therefore needs to be followed with careful attention.

10.7. Urban life quality index as a tool to reverse social and economic inequalities

The purpose of this section is to explore the contribution of Belo Horizonte's food supply system to reversing inequities in access to nutritious food. This assessment will use a tool designed in Belo Horizonte, the IQVU, and put into use in the early 1990s. The first set of data, based on data from 1994, were made public in 1996; the last set were made public in 2012.

In a nutshell, IQVU consists of a set of dimensions – comprising culture, education, housing, infrastructure, environment, health, urban services, urban safety and sport (the new IQVU set) – giving a spatial image of the access to services that is enjoyed by each of the 80 urban planning areas (UPs) that together cover the whole city. Once collected, the data corresponding to each of the dimensions are 'spatialised' and, when summed up, allow one to see which areas are better served and which need to be prioritised for improvement. The UPs and IQVU were extremely important planning tools to channel resources from the participatory budgeting – another planning instrument that Belo Horizonte developed in the 1990s.

In the IQVU set, the food dimension is scored by area of hypermarkets and supermarkets as well as local food markets, per 1000 inhabitants (the new IQVU set), and data come from the municipal finances service, measuring only formal food channels, even if informal channels still exist. The tool tells us nothing about who is buying or what they're buying – i.e. nothing about their social background – and this may be seen as a limitation. The most valued IQVU dimension is housing (0.18 points); the least valued dimensions are culture and sport (0.03 points). Access to food weighs 0.08 points on the total IQVU city outcome, which says much. Its inclusion in the IQVU is outstanding proof of the importance Belo Horizonte municipality gives to food as a contributor to the quality of urban life.

Figure 10.5 indicates the visual impact and use of the IQVU: the colour of each UP, here in grey scale, corresponds to low, medium or high quality of urban life. Subsequently, the municipality and the various
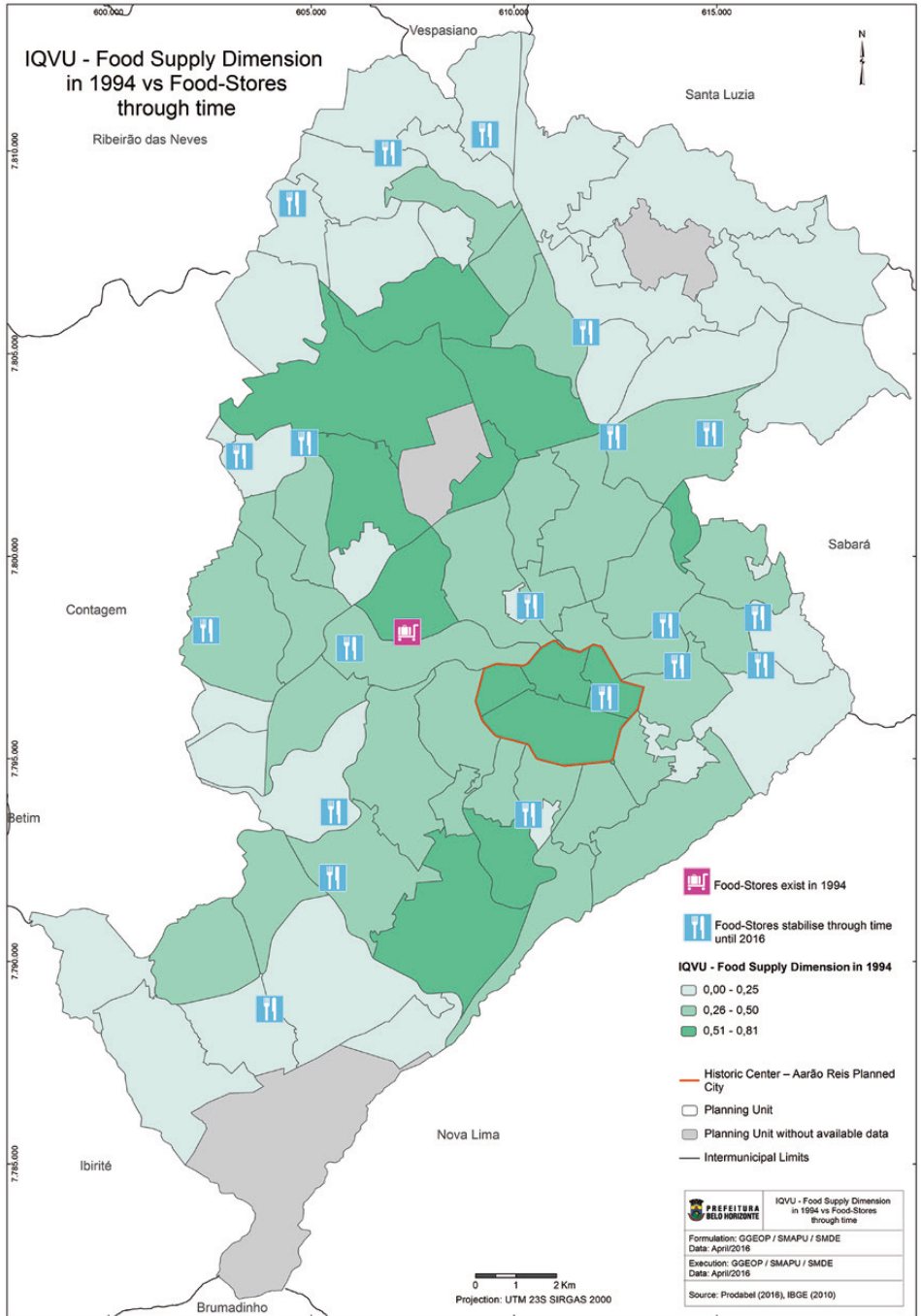
Figure 10.5 Urban life quality index – food supply dimension in 1994 versus food stores through time in Belo Horizonte. (*Source*: Based on SMAPU data (2016))
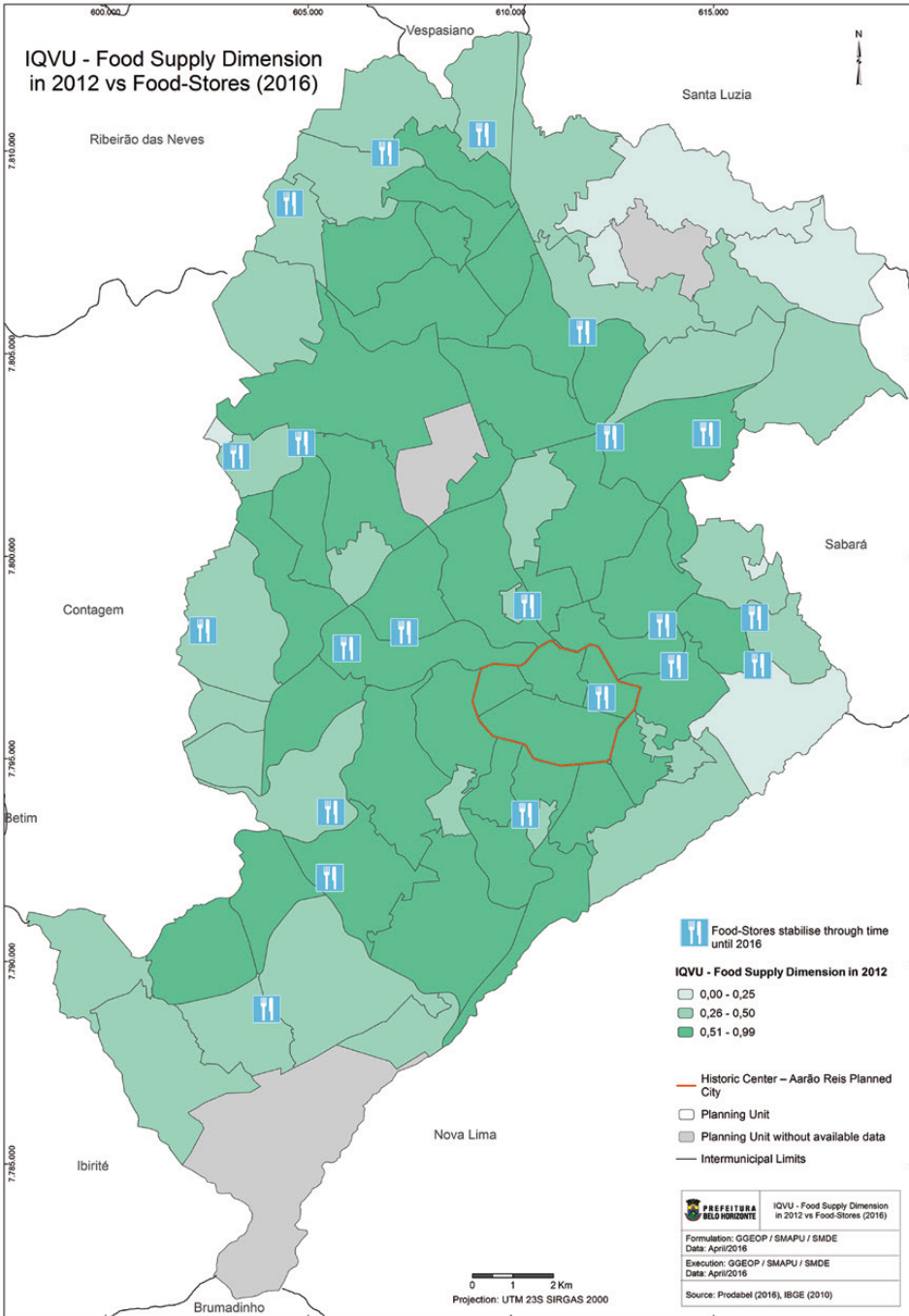
Figure 10.6 Urban life quality index – food supply dimension in 2012 versus food stores through time in Belo Horizonte. (*Source*: Based on SMAPU data (2016))

multi-stakeholder councils (*concelhos*) can debate where to prioritise channelling public resources in order to optimise their impact in terms of spatial justice.

This chapter has sought to assess to what extent the various components of Belo Horizonte's food policies have impacted on areas with lower levels of quality of urban life as measured with the IQVU. Lessons could be drawn on the validity of planning tools such as UPs and IQVU. Such research has already been done for the projects financed through participatory budgeting. The research used 1994 and 2012 IQVU maps. For the sake of simplicity, each of the 21 food stores functioning in 2015 (with prices controlled by the municipality) was located on the 2012 IQVU map. Figure 10.5 shows the IQVU food supply dimension in 1994 with the food stores that existed in 1992.

Figures 10.5 and 10.6 clearly show the great improvement in food supply, especially in the fringe's district/planning units, reversing social and economic inequities in food access. The area with a low food supply rate (less than 0.25) decreased from 48.45 per cent in 1994 to 15.36 per cent in 2012. The area with a high supply rate (more than 0.50) increased from 17.02 per cent in 1994 to 48.81 per cent in 2012. The area scoring a medium IQVU food supply rate (between 0.25 and 0.50) remained the same. Furthermore, from 1994 to 2012 the food supply score improved from 0.31 to 0.50 points, meaning that 54 of 80 planning units improved their food supply range (67.5 per cent), yet 10 still had the lowest level of range (12.5 per cent).

In the same time interval, Belo Horizonte's general IQVU improved from 0.54 to 0.65 points, confirming the city's progress in the quality of life enjoyed by its inhabitants. The cross-referencing of the number of controlled retail food stores with the quality of urban life index per UP reflects the city's attempt to distribute the 21 retail food stores to provide a mean ratio of 94 000 inhabitants per food store. However, this ratio is lower in low-IQVU planning units.

As key assets of Belo Horizonte's food distribution policy, food stores were mainly located in planning areas that had a very low or low IQVU, as on the city's periphery, and in ones that had a medium IQVU. In the latter cases, they were located close to slums and poor neighbourhoods occupying interstitial spaces of consolidated areas. Additional research at UP level might demonstrate whether the city has fulfilled its intention to reverse social inequalities.

10.8. Achievements and challenges of a Brazilian municipality: Belo Horizonte

We may conclude that 20 years of food planning and public policies sufficed to consolidate its distribution and food supply system by multiple means and channels. Under a 'systemic institutional design for collaborative planning' (Healey 2006, 284) the city was able to mainstream food in its planning system and policies, reversing some of the social and economic inequalities of the poorer segments of its society.

This unique step-by-step achievement involved the institutionalisation of various food distribution channels, according to people's needs, through public policies and the consolidation of evolutionary design. The key to this consolidation was a collaborative planning process rooted in social engagement and political will since the 1990s and the fair balance between all sectors involved, i.e. civil society, the economic sector and the political sector, the last one being the driving force.[12] At the same time, Belo Horizonte's collaborative planning should be perceived as a continuum in time, linking informality in the past to formalisation in the 1990s through the work of SMASAN in continuous exchange with the municipal city councils.

Why is this important? First, because public policies must be supported by stakeholder advocacy, and Belo Horizonte's municipal councils are an outstanding example of this. Second, political will is central, since collaborative planning is time consuming for all the parties involved; political awareness and goal permanence are key. Third, planning needs to be part of the question pushing the boundaries between a non-permanent and a permanent food supply system, and shifting from the informal to the formal. Fourth and last, assessment is essential to self-learning, and Belo Horizonte has done this since its beginning and continues to do so today by means of its municipal food council.[13] Belo Horizonte's innovative approach testifies in practice to what Healey (2006) called the flow between planning and practice.

Today, the city has a new challenge: to reduce its reliance on rural space. If the city has managed to find the channels to supply and distribute food, it has depended on harvesting from the rural fringes. Let's wait and see how the new municipal master plan (2016) will promote urban agriculture to feed the city, at least in part.

Acknowledgements

Notes

1. The opinions, beliefs and viewpoints expressed in this chapter do not necessarily reflect the opinions, beliefs and viewpoints of Belo Horizonte municipality.
2. Initially named the Municipal Secretariat for Food Supply (SMAB).
3. Municipal Council of Food Supply and Food Security.
4. Municipal Council of Urban Policy.
5. Since the formalisation of Belo Horizonte's food system only two of its multiple programmes ended: Workers Train, a programme that ran from 1993 to 2010, consisting of trucks delivering food into slums; and Popular Basket, running from 1995 to 2011, similar to Workers Train but functioning as an itinerant fair. Such a result over time demonstrates the resilience of the public programme as a whole.
6. Two relevant documents testify to the significance given to food supply: BH Supply Center, Study Report Conselho Estadual do Desenvolvimento de Minas Gerais, 'Estudo Para a Construção Do Centro De Abastecimento De Belo Horizonte', edited by Companhia de Armazéns e Silos do Estado de Minas Gerais Conselho Estadual do Desenvolvimento, Belo Horizonte, 1967; Minas Food Supply Program, synthesis and proposals, Fundação João Pinheiro, Diretoria de Planejamento, 'Programa Mineiro De Abastecimento: Síntese E Proposições', edited by Fundação João Pinheiro, Belo Horizonte, 1982.
7. Belo Horizonte organic law in 1990 established for the first time food supply as a municipal duty.
8. At the time, only one popular restaurant was running; the others were established in 2004, 2008, 2010 and 2014.
9. After the first municipal master plan (1996), the city rejuvenated two covered markets, Lagoinha and Cruzeiro, built the municipal distribution centre, reopened one popular restaurant and established 18 food stores. After 2003, the city opened four restaurants, the food bank and some more food stores.
10. Each open-air food market has its own regulation; however, all are under the Postures Code (Law 8616/2003, amended in 2012), a municipal law that defines the status and responsibilities of fairs.
11. It was preceded by the Municipal Policy on Urban Agriculture (Law 10.255/2011).
12. As Avritzer (2005) confirmed regarding participatory budgeting in Belo Horizonte, the decrease in participation is owed to stronger doubts about the continuation of the process. This happened in 1996/7, the same year that COMASA ended.
13. Under the Zero Hunger programme.

References

Aranha, A. 2004. 'Segurança Alimentar, Gestão Pública e Cidadania: A Experiência do Município de Belo Horizonte', in *Segurança Alimentar: Um Desafio Para Acabar com a Fome No Brasil*, edited by Marlene da Rocha, 147–66. São Paulo: Cadernos da Fundação Perseu Abramo.

Avritzer, L. 2005. 'New Public Spheres in Brazil: Local Democracy and Deliberative Politics', *Revista Direito GV* Especial 1: 55–74.

Castro, J. de. 1946. *A Geografia Da Fome: A Fome No Brasil*. Rio de Janeiro: O cruzeiro.

Day, J.C., Gunton, T.I. and Frame, T.M. 2003. 'Collaborative Planning and Sustainable Resource Management: The North American Experience', *Environments* 31: 21–38.

Fundação João Pinheiro. 1982. *Programa Mineiro de Abastecimento: Síntese e Proposições*. Belo Horizonte.

Gonçalves, M.P., Campos, S.T. de and Sarti, F.M. 2011. 'Políticas Públicas de Segurança Alimentar No Brasil: Uma Análise do Programa de Restaurantes Populares', *Revista Gestão & Politicas Públicas* : 92–111.

Healey, P. 2006. *Collaborative Planning: Shaping Places in Fragmented Societies*, 2nd edn, edited by Yvonne Rydin and Andrew Thornley. London: Palgrave Macmillan.

Machado, A.F.M. 2007. 'Belo Horizonte "Democrática-Popular" – Uma Análise Descritiva das Instituições de Participação Popular em Belo Horizonte', master's thesis, Universidade Federal de Minas Gerais.

Mörtenböck, P. and Mooshammer, H. 2015. *Informal Market Worlds: Atlas*, Volume 2. Rotterdam: NAI010.

Nabuco, M.R. and Souki, L.G. 2004. 'Segurança Alimentar – Modulo 11', in *Projeto BH Século XXI*, 82. Belo Horizonte. Brazil: CEDEPLAR, Universidade Federal de Minas Gerais.

Nahas, M., Esteves, O. de A., Vieira, C.M. and Braga, F.G. 2007. 'Qualidade de Vida Urbana em Belo Horizonte na Década de 1990: O Que Dizem Os Indicadores?', *Pensar BH/Política Social* : 8–17.

Rocha, C. 2014. *Belo Horizonte's Pioneering Contribution to Brazil's Zero Hunger Strategy*. Rockville, MD: Montgomery County Food Security Collaborative.

Rocha, C. and Lessa, I. 2009. 'Urban Governance for Food Security: The Alternative Food System in Belo Horizonte, Brazil', *Feeding the City* 14(4): 389–400.

Silva, J.G. da, Grossi, M.E. del and França, C.G. da (eds). 2011. *Zero Hunger Program – the Brazilian Experience*. Rome: FAO.

Thomas, G. (ed.). 2014. *Growing Greener Cities in Latin America and the Caribbean*: *An FAO Report on Urban and Peri-urban Agriculture in the Region*. FAO.

World Future Council. 2013. 'Sharing the Experience of the Food Security System of Belo Horizonte', in *Voice of Future Generations*. PDF presentation.

11
Making food markets work
Towards participatory planning and adaptive governance

Lily Song and John Taylor

As informal street vending has proliferated in many Indonesian cities, some local governments have sought to relocate food vendors from the streets to public purpose-built markets. A number of such relocations have received widespread recognition for being managed without conflict, through engagement and participation and with limited confrontation. However, further examination reveals that the success of such policies is limited, many relocated vendors returning to the streets within a few years.

This chapter examines four different vendor relocation processes in two different Indonesian cities, conducted between May 2015 and January 2016. It illuminates why informal food vendors return to the streets and how urban policies and planning might better incorporate informal food distribution activities into the formal market.

11.1. Literature review

Policy and planning approaches to street vending are deeply informed by ideological and normative assumptions about urban poverty and informality, which shape problem definitions as well as solutions (Cardoso et al. 2004; Bromley 2000). When street vending was associated with backwardness, degeneration and filth, the common response was eradication or removal. More recent problem definitions in terms of lack of urban amenities or services and of market opportunities prefigure prescriptions of urban upgrading and extension of property rights (Donovan

2008; Roy 2003; Deininger and Binswanger 1999). As critiqued by Ananya Roy (Roy 2004; 2005), the resulting public efforts often prioritise and legitimise physical and environmental improvements at the cost of vendors' livelihoods, rights and political participation. Further, such efforts unwittingly perpetuate inequality by giving advantage to the upper and middle ranks of low-income communities. Roy attributes informality to state planning and the workings of capitalist urbanisation and economic development, thus generalising the relationship between informality (as imbued in and practised by the urban poor) and the state in oppositional terms.

Yet, cities vary in their local governance formations and policy innovations, some undertaking progressive efforts to plan *with* informality, as illuminated by recent studies of participatory and collaborative street vendor relocations in Indonesian cities (Phelps et al. 2014; Bunnell et al. 2013). Despite initially 'successful' relocation policies, these efforts have struggled to produce enduring outcomes. This fact betrays underlying linear, means–end reasoning and traditional divisions of labour whereby local governments typically define the problem, determine goals and choose and implement courses of action, which then impact on various stakeholders. Although such approaches suit 'tame problems', street vending appears to be a 'wicked problem' – highly uncertain and dynamically complex, involving various causalities, interdependencies and unintended consequences of action (Rittel and Webber 1973). Because of vending's characteristic of multiple, interdependent and diverse stakeholders with their respective interests and demands, participatory and collaborative planning approaches that prioritise public engagement, multi-sector partnership and co-production might be more successful (Healey 1997; Forester 1999; Innes 1995). Moreover, the extended, shifting trajectories of street vendor policies beyond their immediate successes, complete with emerging needs and challenges, also calls attention to the critical importance of incorporating existing forms of collective action and provisions for continual policy learning and innovation as discussed by the growing scholarship on adaptive governance (Duit and Galaz 2008; Folke et al. 2005).

To study our relocation cases, we adopt Roy's 'planning epistemology of informality' to examine why certain food vendors may end up returning to the streets after being relocated to purpose-built markets. We also explore mitigating factors and transformative policy and planning alternatives involving differently resourced and abled partners, including local authorities. Though government is one among many decision-makers and actors, it nonetheless tends to set the rules that determine systemic interactions and emergent dynamics.

In what follows, we investigate the ways in which relocation efforts, which deliver improvements to public spaces including purpose-built markets, fall short of upgrading vendor livelihoods or even meeting their day-to-day needs. We also explore why simply extending property rights fails to address the sociospatial, economic and political disparities underlying urban poverty and informality. Finally, we study how relocation efforts can recognise and enhance the rights of street food vendors in the city or facilitate meaningful political participation to promote more sustainable policy outcomes.

11.2. Research methodology

We carried out a comparative study of four different vendor relocation cases in the 'sister' Indonesian cities of Solo and Yogyakarta in Central Java. While the two are similar in population – half a million within the city limits and four million in the metropolitan area – Solo is known for its traditional handicraft and textile industries as well as a series of progressive policies under Mayor Joko Widodo, also known as Jokowi, while Yogyakarta is a regional capital and art, education and tourism hub. The study focused on the market relocation sites of the Pasar[1] Notoharjo and Pasar Panggungrejo market projects in the city of Solo (see Figure 11.1) and Yogyakarta's Taman Kuliner and Gajah Majah University's Food Court.

These two cities received recognition in the national popular press for having undertaken broad-based, popular and presumably successful campaigns to remove street vendors from public spaces. They are notable because the approach adopted in three of the four market cases contrasts with the more widespread practice of employing physical force and coercion to relocate informal markets. However, despite the use of collaborative methods and fiscal incentives, many of the vendors abandoned the public markets they had been assigned to, and returned to the streets.

Our study was carried out by a team of five researchers from the local Indonesian NGO Yayasan Kota Kita. Researchers conducted in-depth interviews with a total of 40 current and former vendors, including food vendors, between May 2015 and January 2016. Those interviewed included vendors who had been involved in the relocation processes and decided to remain in the new facilities, as well as an equal proportion of those who had returned to the streets (typically, their original locations, but also including new street market locations). Interview questions sought to understand the backgrounds and experiences of food vendors;

Figure 11.1   Solo's largest market, Pasar Gede, in the centre of the city. Between 2007 and 2012, numerous street vendors were relocated from the streets of Solo into purpose-built public markets. One such example is Pasar Gede, which received a number of street vendors during the term of Mayor Joko Widodo. (*Source*: KOTA KITA / Dennie Ramon)

their perspectives on street vendor relocation policies; their reasons for and experiences of remaining in or abandoning the market facilities; and their thoughts and recommendations on how the city might better support food vendor relocation policies in the future.

11.3. Description of cases

11.3.1. City of Solo

Since 2005, Solo's long-term development plan has explicitly sought to improve the welfare of the people and to improve the city in accordance with the idea of Solo as 'cultural city'. The official mission to support the 'people's economy' (*ekonomi masyarakat*) as the first development priority translated into several policy programmes, including micro-economic development, support for cooperatives, street trader management, revitalisation of traditional markets, and promotion/capacity-building for market traders (business management). The city lacks an explicit vision or policy programme for street food vending and

food markets. However, general street trader management and support programmes also pertain to street food operations. These general programmes include government registration, relocation and integration from public space to purpose-built markets and the upgrading of mobile vending stalls at select locations. Despite the city's overarching vision and policy programmes with regard to street trading, actual policy processes and outcomes have varied.

11.3.1.1. Pasar Notoharjo, Solo

Informal trading grew dramatically in the aftermath of the Asian Financial Crisis of 1997 as many unemployed workers in Solo congregated in Banjarsari Park (a public space in the middle of the city) and became vendors. At its peak, the park was bursting with 1000 vendors, leading to complaints by nearby residents about noise, trash and lawlessness. This informal market was becoming the city's most visible public issue. Repeated attempts to force the vendors away, largely through the violent action of the police, were unsuccessful.

In 2005, a new mayor, Joko Widodo, tried a fresh approach. The Mayor (now President of Indonesia) invited the street traders and other stakeholders to over 50 open dialogue meetings. The rapport and personal relationships that he built were instrumental in convincing them to support his relocation plan, which was implemented within a year's time. The negotiations included significant concessions from the government, including the development of a new purpose-built market, the provision of stall ownership certificates, and access to business loans to support the vendors' businesses. The government also responded to vendors' concerns that the relocation site was too remote and disconnected from the city, by surfacing roads, installing signage, designing new bus routes and promoting the new market through the media.

With a parade of vendors through the streets to the new location called Pasar Notoharjo, the ceremonial fanfare and celebration helped to attract the attention of the public and raise the credibility of the move. Yet, during the first year, many traders complained they had lost their customers and were struggling to make ends meet as a result of the new location. Some sold their stalls and returned to the streets but eventually came back when the market started to attract more customers after the first year.

11.3.1.2. Pasar Panggungrejo, Solo

In the eastern part of Solo, a main road that runs alongside the Sebelas Maret University campus featured a high-density informal market. This
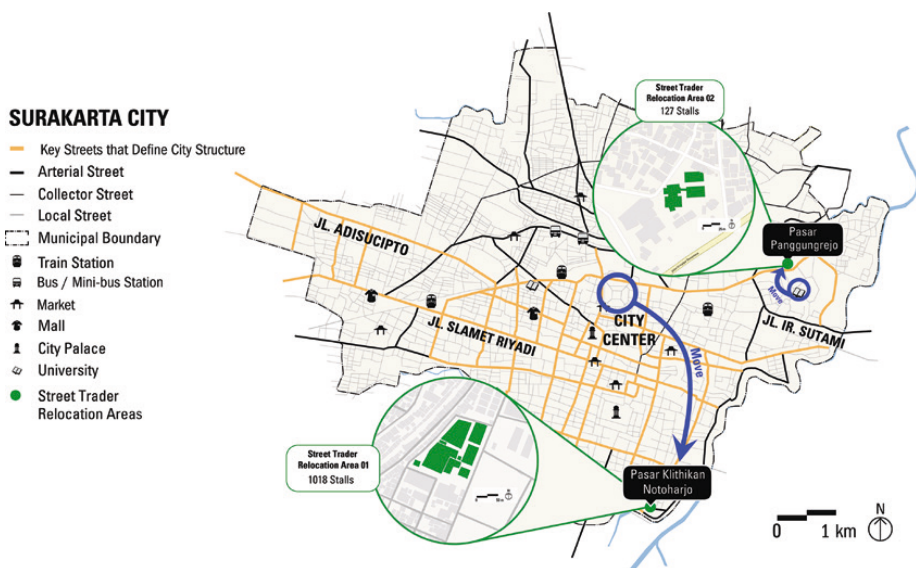
Figure 11.2 Map of where streets traders were transferred to – Pasar Klithikhan Notoharjo and Pasar Panggungrejo – the case study relocation sites in Surakarta/Solo. (*Source*: KOTA KITA)

market was started in the late 1990s by about 160 small-scale traders who had congregated there. As the city prepared for the construction of a strategic urban project, the Solo Techno Park, Mayor Jokowi sought to clear the vendors from the north side of the road. However, the density of existing land use in the campus area limited relocation options to a site that sat behind a government building, out of view of the main road.

Paguyuban Pedagang Sekitar Kampus (PPSK), an association of traders established in 2000, strongly opposed this relocation plan, contesting the proposed new location for the market, and sought concessions from the government such as stall titles at their existing locations. However, when the street vendors faced negative public opinion and pressure from the university, the PPSK conceded (see Figure 11.2).

Between January 2008 and December 2009, 201 traders were relocated to Pasar Panggungrejo. Just a few years later, almost *all* of these relocated traders had abandoned the new market for the streets. Those who sold food, phone credit and spare parts – drawing upon students as their primary client base and requiring convenient access points – were the first to go. Despite having gained stall certificates, vendors complained of having been forced into the move with no

Figure 11.3 After selling his stall, a street vendor returns to Jl. Dewantoro in Solo to sell sate. He never found success in Pasar Panggungrejo. (*Source*: KOTA KITA / Dennie Ramon)

government promotion of the market, technical assistance, or access to loans. Many felt that street vending would give them easier access to clients (see Figure 11.3).

11.3.2. Yogyakarta

Yogyakarta is a medium-sized city in Central Java comparable to Solo, but known as a city of students (200 000 attend a total of 140 colleges and universities). It has aimed to become a quality education city, a centre of cultural tourism, a people's economy and a place offering environmentally friendly services. However, its approach to street trader management has been somewhat ad hoc. Vendor policies were first couched as part of the post-earthquake infrastructural upgrades in 2007, then promoted under the auspices of cultural tourism in 2008. Next the city incorporated street vendor policy into efforts to improve human settlements and public facilities in 2010, followed by efforts to 'tidy up' the city in 2011. In its current plan, the city cites uncontrolled street trading in major city streets as an acute problem requiring active street-to-market relocation efforts and zero tolerance of further growth of street trading. So far, the local government has exercised a high level of discretion in regulating street trades, including street food vending (see Figure 11.5).

Figure 11.4   Challenging conditions made it difficult for relocated vendors to thrive. The site planning and design of Pasar Panggungrejo, Solo, have made it a challenge for relocated food vendors to operate there. Three storeys, narrow corridors and a location removed from the main road meant that many vendors didn't find success and have since moved out. (*Source*: KOTA KITA / Dennie Ramon)

11.3.2.1. Gajah Majah University, Yogyakarta

Many informal vendors congregate in public spaces and streets nearby and within universities like Gajah Majah University (UGM) to draw patronage from students and the wider public. In 2005, the university, with support from the city government, sought to improve circulation by banning vehicular traffic and street vending and relocating existing vendors to three on-campus, purpose-built facilities.

Initially the vendors demanded in situ upgrading instead of the move. But, as a result of negotiations with the public authorities, the vendors agreed to relocate upon gaining assurance that the process would be inclusive and the new site would be improved with needed amenities. Staggered over time, the relocation of the southern area was completed in 2009, the eastern area in 2012 and the western area in 2015. Each
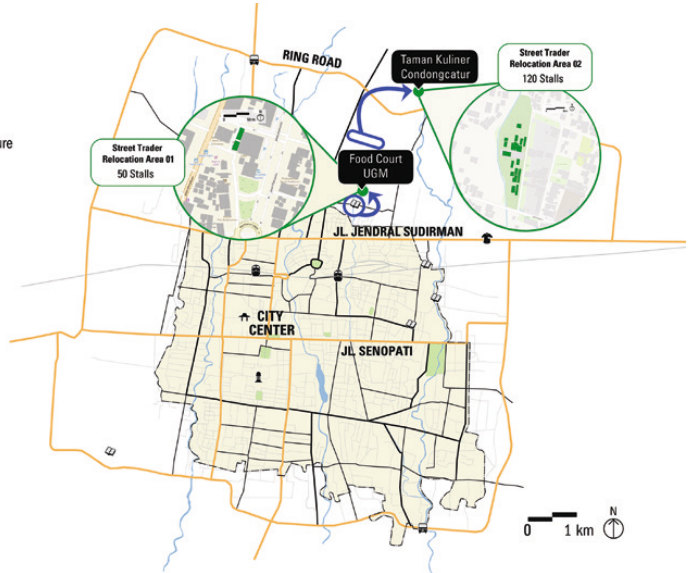
Figure 11.5 Map of where street traders around the Gajah Majah University were transferred to – UGM Food Court and Taman Kuliner, Condongcatur – the case study relocation sites in Yogyakarta. (*Source*: KOTA KITA)

site offered a food court for exclusive use by food vendors. Each vendor received a stall with a kitchen area, plumbing and sewerage. The food courts also featured eating areas for students with wi-fi and public toilets. However, the food courts remained cut off from the main streets as part of the closed campus policy (see Figure 11.6).

Supported by advertising and promotions, the food courts initially enjoyed high levels of popularity. Yet, over time, the clientele declined. Although almost all the food vendors remain on site, they do so for lack of other options.

11.3.2.2. Taman Kuliner, Yogyakarta

A second relocation occurred immediately outside the gates of UGM, this time along the Selokan Mataram, a popular location for students, passing motorists and pedestrians seeking food and school supplies. Blaming street vendors for traffic congestion and littering, the local government decided to relocate the vendors, but without the negotiation and participatory planning processes of the earlier UGM relocation.

Figure 11.6 The UGM Campus Foodcourt has been considered a success for relocated street vendors. It is well located in the university grounds, is clean and has enjoyed plenty of promotion to attract students. (*Source*: KOTA KITA / Dennie Ramon)

After the announcement of the need to move street vendors, the actual relocation took another three years to be implemented, during which time the vendors were kept in a state of limbo about their future location. Moreover, the vendors were not involved in the site selection or the design of the purpose-built market. Eventually, 120 vendors – 40 of whom were food vendors – were relocated to Taman Kuliner, Condongcatur.

This new location was promoted as a destination for domestic tourists, despite being significantly removed from major roads and having little visibility. Although the site came equipped with electricity, clean piped water, sinks, sewerage, and public spaces for eating and for children to play, the design was problematic because many of the stalls were not facing outwards and were hidden from sight and difficult to access.

Taman Kuliner was initially successful, partly thanks to promotional events organised by the management, such as arts festivals and traditional bird calling competitions. These events declined in frequency as time went on and finally stopped as more and more vendors closed their stalls. Nine years after the relocation, only four out of the 120 vendors remained, the rest having returned to the streets.

11.4. Findings

This section summarises our findings as to why informal street food vendors from the four market sites returned to the streets after 'successful' relocation and upgrading efforts. We also comment on how policy and planning interventions might prevent such unfavourable outcomes in the future.

11.4.1. The new markets offer aesthetic solutions with little functionality

Many street food vendor relocations delivered improvements in the visible quality of public spaces and purpose-built markets but failed to pay comparable attention to physical functionality and locational factors – key concerns of vendors. Respondents repeatedly indicated that markets better accommodated their needs around food preparation, storage and waste disposal as well as offering parking areas, public toilets, wi-fi access and even places to pray, all of which helped attract customers. But such improvements were offset by shortcomings in site design and infrastructural factors such as low visibility from the street and lack of integration of the market with the urban surroundings, which inhibited client access and patronage.

In interviews food vendors expressed most concern about issues of visibility and access, since their businesses were highly reliant on selling food to people on the go. At previous locations, food vendors used tarpaulins or sheets both to separate eating customers from the street and to advertise their business. Located away from main roads, central or busy areas and, most importantly, the sight of potential customers, the purpose-built markets overlooked the critical requisites of marketing and access for successful food vending. Purpose-built markets such as Taman Kuliner or Pasar Notoharjo were located on, respectively, government-owned properties off main roads and on the outskirts of the city. Solo's Pasar Panggungrejo was imperceptible from the road because the location was set back from the main road and required customers to enter through a narrow lane (see Figure 11.4). Eko, a trader who left Panggungrejo for the streets, remarked:

> The market is not accessible for students … I only had a limited number of regular customers, who knew me from my previous location. When they graduated, it was very difficult to find new customers due to the non-strategic location. So I had to move out.

Interviewed food vendors also commented that site designs failed to consider internal circulation and access. In Pasar Klithikhan Notoharjo, relocated vendors complained that they were positioned on upper floors of two- or three-storey buildings where few customers ventured. Moreover, food vendors were arranged in long narrow rows alongside non-food stalls and were made to use concrete benches for food preparation. Food vendors preferred 'food court' arrangements where stalls face clients and provide food preparation areas, storage and drainage for better hygiene and presentation.

Finally, food vendors highlighted locational considerations such as market proximity and access to large customer bases, whether in residential or commercial areas. Whereas mobile vendors can control their location and visibility by moving to strategic areas, vendors in purpose-built markets face more enduring circumstances. In Taman Kuliner, the lack of dialogue between vendors and the city precluded opportunities to troubleshoot the site's remoteness. The Pasar Notoharjo relocation of 2007 was a contrasting story. During this project, Mayor Jokowi listened to the vendors' concerns about the site's remoteness from the rest of the city. As a result, his administration extended bus routes, surfaced streets and undertook a promotional campaign to integrate the area with its surroundings and improve its reputation and popularity. This finding indicates that locational variables can be more or less maximised depending on the extent to which vendor relocation and site planning processes prioritise dialogue, negotiation and a commitment to finding mutual benefits for street vendors and the local authorities.

11.4.2. The relocation policies fail to prepare vendors for changing clientele and business environments

For street food vendors, relocation goes far beyond moving to a new location. The fixed market location means that vendors need to accommodate the tastes and preferences of a changed clientele and adjust to a more competitive business environment. The failure of relocation policies to prepare vendors for such wide-ranging demands limits their effectiveness and durability.

Most relocated street vendors lost their previous customer base, since food patronage tends to be highly location specific. For instance, some interviewed vendors previously served students from certain universities whereas others catered to taxi drivers on particular roads. At the relocation sites, customers often demanded a higher quality of food, wanted more choices and were willing to spend more time eating than those eating at street stalls. As relocated vendors had to adapt to their

new clientele, those specialising in one type of food and cooking style struggled much more than those able to diversify offerings and accommodate the different tastes of new customers.

Among vendors who enjoyed success after relocation, recurring themes included the adoption of a competitive mindset, adaptability to new customer demands, and continuing relationships with existing clients. Whereas success in street vending can result from simply offering a product or service when and where it is needed, bricks-and-mortar businesses succeed through developing a brand or reputation and winning repeat patronage, whether owing to the quality or reliability of the offering or to strengthening relationships with customers. Given the difficult challenge for food vendors in public markets of differentiating products from one another, many purveyors respond by offering distinct dishes, in terms of flavour or regional origin. As Antok, the head of a Solo-based traders' association, put it:

> There are some reasons people fail or succeed here: level of tenacity, type of commodity, amount of capital, extent of knowledge based on experience and education, and social links or networks. To win competition, first we should become distinct in the quality of our product, service delivery, and price because the competitors are not just those in this site but also the many new street vendors who have not been relocated.

On the streets, food vendors can gain competitive advantage through mobility and outperform competitors by finding superior sites. But at fixed sites competition is more direct. Some vendors have adapted by offering special deals to customers to generate new business and otherwise exploring creative and enterprising marketing strategies. According to Bu Mukti, one of the very few who stayed at the Taman Kuliner site, 'To be a food trader in this empty market, I have to be creative in selling my food, including giving bonus to someone who can bring me a big order.' As most of her peers have returned to the streets, the implication is that vendor preparedness to adjust to a more competitive business environments within fixed locations not only varies considerably but also tends to be sorely lacking.

11.4.3. Policy and planning processes neglect the ongoing and emerging needs of vendors

Our findings indicate that government commitment to vendor outreach and participatory planning is instrumental to the relocation process, but

that maintenance and support are also needed beyond the transition phase. At present, policy and planning processes neglect the ongoing and emerging needs of vendors following relocation.

In the relocation of street vendors from Solo's Banjarsari Park to Pasar Notoharjo in 2007, Mayor Jokowi's deep engagement was critical to building trust, obtaining mutual concessions and producing a satisfactory outcome. The Mayor employed dinner invitations, site visits and participatory planning processes involving the vendors, their associations and intermediary non-governmental and community-based organisations.

On the other hand, street-to-market transfers have been less successful in cases of vendor exclusion from planning processes and inconsistent or stalled implementation. In Solo's Pasar Panggungrejo, the government relocated one group of traders while allowing others to remain in the streets. This resulted in increased tension among vendor groups and diminished faith in government. In Yogyakarta the three-year delay in relocating vendors from outside UGM, in addition to their exclusion from decision-making processes, exacerbated their dissatisfaction with the eventual selection of a site.

Once markets have been inaugurated, consistent maintenance is instrumental to continued operation and success. This follow-up includes the regular provision of basic services (e.g. clean water, sewerage, trash collection) and the initiation of promotional campaigns. In Panggungrejo, the accumulation of trash and inadequate maintenance led to falling hygiene levels, site deterioration and eventual decisions of many vendors to depart. In the case of both Yogyakartan city markets, the discontinuation of promotional campaigns resulted in falling customer volumes. The importance of factors like adequate parking and hygiene levels should also be noted.

Moreover, relocated vendors require ongoing training and support with their acquisition of financial literacy, management skills and other capacities to succeed in business in a fixed-location, formalised market environment. In relocating street vendors from Solo's Banjarsari Park to Pasar Notoharjo in 2007, the Jokowi administration offered concessions of stall ownership certificates and access to business loans. In so doing, it unwittingly presented added economic risks and burdens to the poorest vendors, who lacked finance know-how and were often seduced into selling their certificates in times of unexpected hardship.

Rizal, a trader from Solo's Panggungrejo market, remarked, 'Many traders have low education levels. Most of us are afraid to borrow money from the bank. We don't really have a clear understanding of how it works and feel insecure about the risk.' Some commented on feeling

trapped in their new positions because competitive concerns led them to obtain loans in order to enlarge their stock, which newly exposed them to financial risks. The vendor Purman, of Solo's Pasar Notoharjo, explained, 'Immediately after I got the stall from the government, I borrowed money from the bank [with stall as collateral] just to add commodities, but after a year I didn't have enough revenue so I abandoned the stall and went back to the street and the bank seized it.'

Given the limits of government capacity, non-governmental organisations, trade associations and micro-credit financial institutions can step in to provide targeted training and technical assistance as well as to mediate further negotiations with local authorities. Reflecting on the potential of self-organisation and more sustained engagement by civil society organisations, Aa, a community-based organiser said, 'After relocation, the government should empower the vendor association to protect themselves legally, run soft saving and loan programmes, get better leverage, and run mutual help associations to counter adversity.' In the case of Solo's Pasar Notoharjo, such local organisations played an instrumental role in allowing the vendors to address common concerns as they arose and correspond with the Mayor in a coordinated manner. On the other hand, the city exploited differences among vendors in Pasar Panggungrejo to weaken their bargaining position.

11.5. Policy and planning implications

Our study also suggests lessons for improving urban policies and planning with respect to relocating street food vendors and promoting their long-term success at new sites.

11.5.1. The need to deliver pro-poor and inclusive spatial interventions

Current street food vendor relocation policies appear to focus on reclaiming public space from low-income street vendors and relocating the vendors into aesthetically pleasing new markets. We suggest that spatial interventions also need to improve the economic prospects of the vendors and address the socioeconomic, political and spatial disparities underlying urban poverty and informality.

Certainly, relocated food vendors could benefit from designated spaces for food preparation, storage and waste disposal within markets as well as the provision of parking areas, public toilets, wi-fi access and

places to pray. However, upgrading vendor livelihoods to ensure vendors remain in the markets long term requires effective site designs, such as ones that arrange food stalls in visible and accessible ways within market sites. Given the practical experience and grounded knowledge of food vendors, incorporating their perspectives and preferences on stall arrangements and locations within markets is likely to advance the viability of new facilities. Programmes also need to be initiated which promote the visibility of markets from the street and integrate the markets with the urban surroundings. Aside from infrastructural elements that strengthen connectivity between market sites and major circulation routes or pedestrian access paths, locating markets in proximity to large customer bases, whether in residential or commercial areas, is likely to promote their long-term viability.

What is ultimately needed is an explicit commitment to pro-poor and inclusive spatial interventions. In Solo, vendor relocation efforts were part of a larger local campaign of economic empowerment (of the urban poor) and building a people's economy, which partly entailed campaigns promoting the reputations of public markets. Pro-poor and inclusive spatial policy and planning should go far beyond persuading informal food vendors to abandon public spaces for designated marketplaces. It requires attention to vendor rights in the city, including their proximity and connectivity to major residential and commercial clusters as well as major transport networks. Within the markets, pro-poor and inclusive processes of strategic spatial planning and management might engage food vendors in thinking through their particular offerings and the complementarity between products and services so as to apportion space and assign stalls in ways that promote success for everyone.

11.5.2. From market-centric approaches to community-based wealth generation

Relocation policies are more likely to have lasting results if they incorporate technical assistance and training for food vendors. Vendors should be taught to adapt to customer demands and to expand business through branding and marketing strategies. Food vendors might also benefit from coordinated bulk purchases of ingredients and supplies or complementary menu offerings within a food court or marketplace.

Awarding relocated vendors certificates of perpetual stall ownership, though intended to advance their economic prospects, often has the opposite effect. The exposure of street vendors to a new market environment and competition can make them economically vulnerable. The

provision of stall ownership certificates, which in turn enable access to bank loans, presents new economic risks and burdens in the absence of technical assistance and training. Vendors clearly require more support than the provision of new facilities, even with a formal certificate, given their lack of experience of working in formal conditions and, in some cases, of paying taxes and monthly rent. Being poor, they also have generally low levels of education and are often reluctant to take out loans.

11.5.3. From the policy cycle to collaborative, adaptive governance

Local governments should enable vendors to resolve emerging issues and engage with government planners when they need to. For instance, vendors' associations or other non-governmental organisations could oversee maintenance, including the provision of basic services (e.g. clean water, sewerage, trash collection), skills training and promotional campaigns, to ensure the enduring success of public markets. Meanwhile, government could focus on consistently enforcing rules and regulations to ensure fair competition or on improving the public accessibility of markets, for instance, through subsidised bus fares or modifying infrastructure to improve circulation and walkability in the markets' vicinity.

On site, vendors are more likely to support stall reapportionments that are based on the varying profiles and the needs of the different vendors if there are mechanisms for shared decision-making and the distribution of collective gains. Vendors may form a cooperative, in which each member owns shares, contributes business revenue as a share of their profits and takes out dividends (perhaps based on a combination of individual and group performance as well as number of shares). Moreover, vendors could participate in shared decision-making about product and service placement within markets, improvement of common spaces, and marketing campaigns. They should proactively engage the city to deliver infrastructural improvements and other public works and services that will improve market sites' connectivity to the rest of the city and the resulting public patronage.

Note

1. *Pasar* in Bahasa Indonesia means 'market' in English.

References

Bromley, R. 2000. 'Street Vending and Public Policy: A Global Review', *International Journal of Sociology and Social Policy* 20(1–2): 1–28.

Bunnell, T., Miller, M.A., Phelps, N.A. and Taylor, J. 2013. 'URBAN development in a Decentralized Indonesia: Two Success Stories?', *Pacific Affairs* 86(4): 857–76.

Cardoso, R. de C.V., Companion, M. and Marras, S.R. 2014. *Street Food: Culture, Economy, Health and Governance*. New York: Routledge.

Deininger, K. and Binswanger, H. 1999. 'The Evolution of the World Bank's Land Policy: Principles, Experience, and Future Challenges', *World Bank Research Observer* 14(2): 247–76.

Donovan, M.G. 2008. 'Informal Cities and the Contestation of Public Space: The Case of Bogotá's Street Vendors, 1988–2003', *Urban Studies* 45(1): 29–51.

Duit, A. and Galaz, V. 2008. 'Governance and Complexity – Emerging Issues for Governance Theory', *Governance* 21(3): 311–35.

Folke, C., Hahn, T., Olsson, P. and Norberg, J. 2005. 'Adaptive Governance of Social–Ecological Systems', *Annual Review of Environment Resources* 30: 441–73.

Forester, J. 1999. *The Deliberate Practitioner: Encouraging Participatory Planning Processes*. Cambridge, MA: MIT Press.

Healey, P. 1997. *Collaborative Planning: Shaping Places in Fragmented Societies*. Vancouver: University of British Columbia Press.

Innes, J.E. 1995. 'Planning Theory's Emerging Paradigm: Communicative Action and Interactive Practice', *Journal of Planning Education and Research* 14(3): 183–9.

Phelps, N.A., Bunnell, T., Miller, M.A. and Taylor, J. 2014. 'Urban Inter-referencing within and beyond a Decentralized Indonesia', *Cities* 39: 37–49.

Rittel, H.W.J. and Webber, M.M. 1973. 'Dilemmas in a General Theory of Planning', *Policy Sciences* 4(2): 155–69.

Roy, A. 2003. *City Requiem, Calcutta: Gender and the Politics of Poverty*, Volume 10. Minneapolis: University of Minnesota Press.

Roy, A. 2004. 'Transnational Trespassings: The Geopolitics of Urban Informality', in *Urban Informality: Transnational Perspectives from the Middle East, Latin America and South Asia*, edited by Ananya Roy and Nezar Al Sayyad, 289–317. Lanham, MD: Lexington Books.

Roy, A. 2005. 'Urban Informality: Toward an Epistemology of Planning', *Journal of the American Planning Association* 71(2): 147–158.

12

Formalisation of fresh food markets in China
The story of Hangzhou

Shuwen Zhou

Fresh food markets are markets where grocers gather to sell vegetables, fruit and meat, among other things. The formalisation of fresh food markets is the process of replacing informal street food markets with markets accommodated in a fixed and organised space where only licensed food dealers are allowed to sell food. Today, formal food markets are typically designed with up-to-date equipment for food transportation, storage and processing, and operated by modern business management.

In China, the formalisation of fresh food markets started in the late 1980s when the Chinese economy had transitioned from a planned economy to a market economy. The population of Chinese cities began to grow quickly at that time. The management of public health and traffic in cities became matters of increasing concern to local governments. In some cities, cleaning up street markets became one of their priorities.

Hangzhou is a provincial capital city, famous for its tourist attractions, and was one of the Chinese cities that led the wave of formalising street food markets. Though the efforts to clean up street markets failed in many other Chinese cities, Hangzhou completed this process in its urban core districts in the 1990s. It then completed two rounds of renovation of food markets under the requirements of the Shopping Basket Programme (SBP), and constructed two wholesale markets for agricultural products, which eventually established a more accessible, healthier, safer and more affordable food distribution system in the city. This pleased the old and middle-aged people who had lived in this city for their whole life and

witnessed the changes. Based on interviews with residents, government officials, planners and food traders, this chapter will discuss Hangzhou's experiences and the impact of its fresh food market formalisation.

12.1. Street markets in China and their formalisation

Street markets in Chinese cities have played a significant role in food distribution. During the planned economy period, between 1949 and 1978, resource distribution was stringently under government control, and so was food. In cities, the government managed formal food markets. People working in food markets and selling food were employed as staff by the government. Individual groceries were illegal. During the 1980s, after China started opening up its policies and freed up control of food distribution, street markets emerged rapidly to fill the supply–demand gap in quantity, variety and location that had been generated by the food distribution system under the planned economy.

However, with the development of Chinese cities, a desire for better shopping environments and for a better city image developed among city managers. Traffic issues caused by shopping crowds and food sellers made street markets potential eyesores in the eyes of many city managers. Moreover, food traders' dishonesty in doing business caused accumulated resentment among local people. Many Chinese cities started to clean up street markets and expel street food dealers. But, for a lack of alternatives and strong enforcement, many of these efforts failed. Street markets still have strong footholds in many cities.

12.2. Fresh food market formalisation in Hangzhou

12.2.1. City profile of Hangzhou

Hangzhou is the capital city of Zhejiang Province. It is located 202 km south of Shanghai. Although it is the economic, political and cultural centre of the province, it is also a national tourist destination, famed for its scenic and historical attractions. Its metropolis encompasses nine urban districts, two county-level cities and two counties, covering 16 596 km² (see Figure 12.1). Its five core urban districts – Shangcheng, Xiacheng, Jianggan, Gongshu and Xihu – constitute Hangzhou City, covering 610 km² (Hangzhou Statistical Information Net 2018). As of 2017, Hangzhou has long-term residents of 9.19 million, among which seven million live in urban areas (Hangzhou Statistical Information Net 2018).
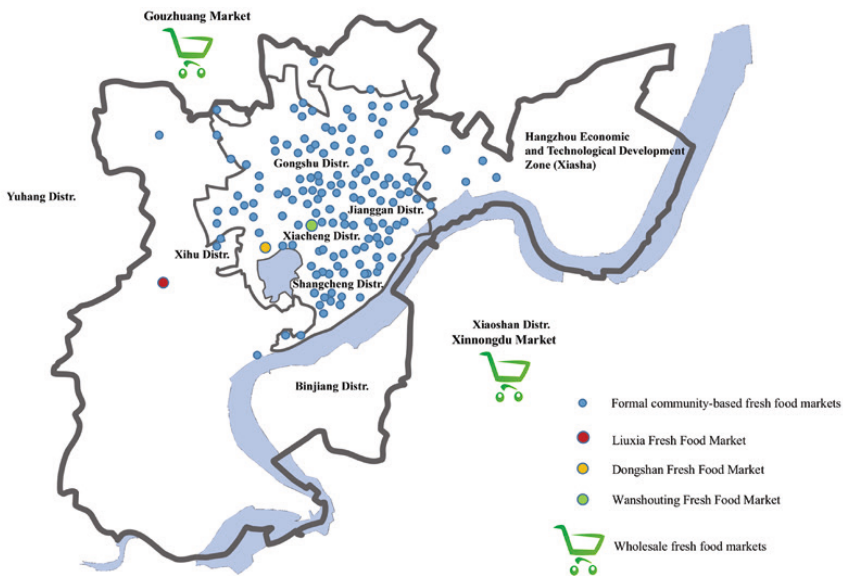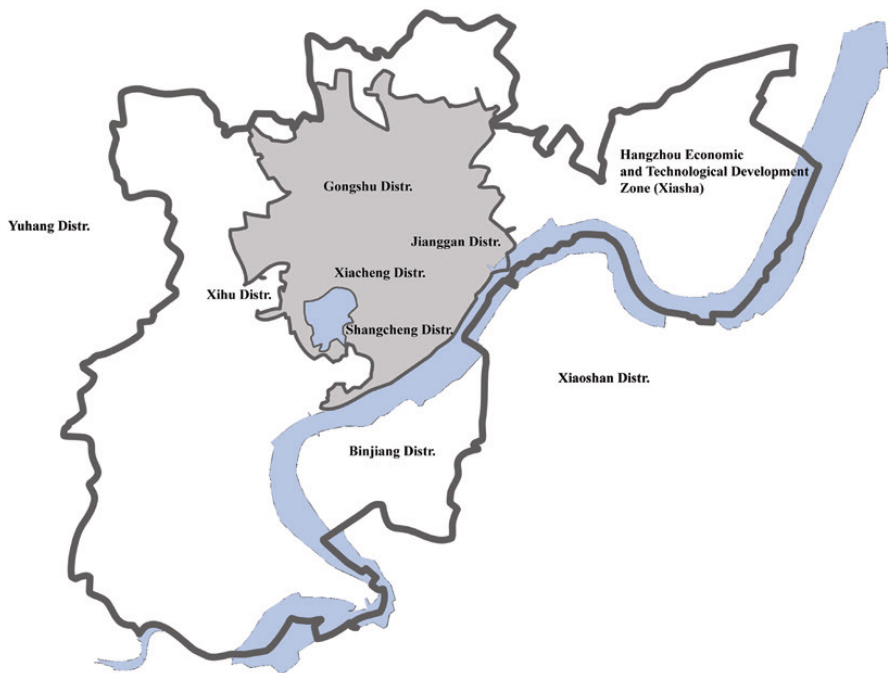
Figure 12.1 Hangzhou urban core districts and the distribution of fresh food markets after formalisation. (*Source*: Shuwen Zhou)

Hangzhou's GDP growth rate has long been maintained above eight per cent, placing the city in the lead of the country's economic development. Its annual fiscal revenue increased by 14 per cent in 2016 to reach US$39.4 billion. Urban residents in Hangzhou earn a mean annual disposable income of US$8039. Annual per capita living expenditure exceeds US$5500. Average life expectancy in Hangzhou has reached 82.08 years (Hangzhou Statistical Information Net, 2018). The unemployment rate was 1.72 per cent at the beginning of 2017 (Hangzhou Statistical Information Net, 2018).

12.2.2. Formalising street markets and Hangzhou's development goal

In the early 1990s, Hangzhou set a development goal of becoming an internationally well-known tourist city while improving its capacity as a provincial capital city. It started making considerable efforts to improve the city's image in order to boost its tourism industry. Between 1992 and 1995, Hangzhou competed for title of 'National City of Cleanliness';[1] it received the title in 1995. In 1996, Hangzhou Municipal Government (HMG) initiated the project 'A More Beautiful Westlake, A Better Hangzhou', dedicated to building a cleaner, greener and more inhabitable city. In 1998, HMG launched another project named 'Better Environment, Lovelier Hangzhou', which aimed to speed up urban infrastructure improvement and urban renewal.

Against this backdrop, the formalisation of food markets in Hangzhou was part of the strategic plan to achieve the city's development goal, because street markets, which were often smelly, flooded by muddy water, and a cause of traffic problems, had been seen as a bane of the city. In the mid 1990s, HMG listed food market formalisation in its 'Projects for People's Livelihood' and appointed Hangzhou Municipal Commission of Commerce (HMCC) (formerly Hangzhou Grain Bureau) as the leading and coordinating institution. Involved governmental agencies included Hangzhou Planning Bureau, Hangzhou Municipal Bureau of Market Supervision and Administration, Hangzhou Municipal Bureau of Public Health, Fire Department of Hangzhou Municipal Public Security Bureau and Hangzhou Municipal Bureau of City Management and Administrative Law Enforcement.

Three strategic components were directed towards food market formalisation: cleaning street markets, reforming and enlarging state-owned markets and building spacious new fresh food markets. These

three elements applied in different ways to different areas of the city. Cleaning street markets was a citywide project. In the oldest downtown area, where facilities were already well established, the strategy was to reform and enlarge state-owned food markets and let the space to street food dealers. In the newly developed areas, the strategy was to build new markets and rent out the slots.

It was necessary to expand the state-owned fresh food markets because the city's population growth demanded larger spaces where food was on sale than the old markets could provide. Before the 1990s, in downtown Hangzhou the distance between two state-owned markets was around 500 to 1000 m, and easily travelled, but the markets were small in size. Neither the quantity nor the diversity of food in these markets could meet people's needs. Street markets were complementary to the state-owned markets in this sense.

The citywide formalisation of the food markets in practice needed larger formal spaces. This was facilitated by the citywide urban renewal during the late 1980s and the 1990s, which literally flattened pre-existing residential areas and relocated or temporarily relocated hundreds of thousands of residents, and thereby allowed the spatial organisation of basic urban facilities to be standardised as required to develop a modern city. By 1999, Hangzhou had cleaned up all the street food markets in its urban core districts.

12.2.3. The Shopping Basket Programme and two rounds of food market renovation

After formalising the street markets, Hangzhou carried out two further rounds of renovation, which were oriented by food safety issues and responded to the SBP initiated by the central government. SBP is a comprehensive programme launched by the Ministry of Agriculture (MoA) in 1988 to deal with food production, supply, trading and distribution, as well as food safety. Its objectives are to bring up food production to meet demand for quantity and nutrition, to stabilise prices, to improve hygiene in distribution and to prevent disease. City mayors are the only persons accountable to this initiative.

Since its initiation in 1988, SBP has experienced four stages. The first stage was between 1988 and 1994, when filling the supply–demand gap in urban areas was the primary task. China having been a planned economy before 1978, when the government strictly controlled the distribution of food in urban areas, in 1988 the food supply fell far short

of the demand in Chinese cities. In 1994, five years after the initiation of SBP, 2000 food wholesale markets were built over the country, and food distribution systems were set up connecting farmers, dealers and consumers. The second stage was between 1995 and 1999, when coverage was extended from urban to suburban areas. At the end of 1999, the food supply in China as a whole attained a balance of supply and demand. From 1999, SBP entered its third stage, when food safety was highlighted.

Food safety issues pushed China to standardise and modernise its food markets under the SBP framework, which meant equipping food markets with standard design and examination, preservation and processing facilities. Besides offering distributive space to supply food, food markets became a battlefield for food safety. Progress has varied among cities owing to different development contexts. Two Chinese cities in coastal developed areas pioneered the transformation and become models for the rest of the country. The Fuzhou model essentially means introducing supermarkets to replace traditional food markets (Zhang 2007) whereas the Shenzhen model means renovating and modernising existing fresh food markets in downtown areas and introducing supermarkets in newly urbanised areas (Zhang 2007). The Hangzhou model emphasises improving and upgrading the infrastructure of fresh food markets in urban districts and introducing supermarkets as an alternative.

The two rounds of food market renovation were between 2006 and 2009 and between 2013 and 2014. There were four key elements. The first was improving and standardising the design of sewerage and ventilation systems. The second was devising markets with food preservation equipment. The third was installing electronic screens publishing daily food prices. The fourth was setting up a chemical residuals examination office in all markets.

In the two rounds of renovation, 147 fresh food markets were renovated. The total floor area under operation that was completed was 352 650 m^2. The average business floor areas was 2399 m^2 (Hangzhou Grain Bureau 2015). Additionally, a rating system was introduced to review fresh food markets, which gave incentives to each food market to maintain and improve its service, environment and management (see Figure 12.1).

HMCC was again the coordinating organisation during the two rounds of renovation. Extensive public participation was integrated into planning processes, as well as the relevant government departments. In the second round of renovation, for example, to make a plan HMCC carried out a citywide survey and resource mobilisation and organised several consultations about locations and designs of food markets. Besides

specialists from relevant government departments, representatives from existing markets (state-owned food markets) and community committees, as well as residents' representatives, were invited to participate in the planning process. They together made a specific innovation plan for each market. Local community members were involved in the supervision of renovation projects. One hundred and forty-one people, in total, living in neighbourhoods close to the renovated food markets were organised as a team that was invited to supervise the process of renovation and market operation (Hangzhou Grain Bureau 2015). Members included staff from community committees, residents' delegates, representatives of people's congresses and members of the local democratic deliberation committee.

12.2.4. New city master plan and two giant wholesale markets for agricultural products

In 2001, Yuhang and Xiaoshan – two county-level cities in Hangzhou Metropolitan Area – were merged into Hangzhou City as two districts. In the same year, Hangzhou's new 20-year master plan, from 2001 to 2020, was published, covering nine urban districts, 3068 km². In the new plan, Hangzhou set three new development priorities: (a) the economic, cultural and education centre of Zhejiang Province; (b) a core city of the Yangtze River Delta Urban Agglomeration; (c) a national historical and cultural city and an important tourist destination (Hangzhou Planning Bureau 2001). The name 'Greater Hangzhou' was proposed to symbolise the expansion of Hangzhou's core urban districts and the strategies for accelerating urbanisation. The new plan estimated the population would reach 4.45 million in the urban districts by 2020, accounting for 83 per cent of the metropolitan area's total population.[2] An area of 369.92 km² of land was to be converted from rural to urban use.

To provide an efficient and safe food distribution system for the forthcoming high-density urbanisation to be accommodated in the expanded urban area, between 2005 and 2012 Hangzhou constructed and opened two giant wholesale markets – Hangzhou Logistics Centre for Agricultural Products ('Gouzhuang Market') and Zhejiang Xinnongdu Logistics Centre ('Xinnongdu'). Some old markets were relocated and merged as part of the aim that the food distribution system should support community-based fresh food markets all around the city.

Gouzhuang Market was opened in 2008 (see Figure 12.2). It is located at the northern gate of Hangzhou, next to the Nanzhuangdou Toll Gate of Hangzhou–Ningbo Motorway, and is the largest agricultural

Figure 12.2 Gouzhuang overview (1:25 000). (*Source*: Shuwen Zhou)

products trading market in China, occupying over 400 hectares. The market is composed of nine special zones, of which seven are specialised markets for meat, fruit, vegetables, aquatic products, grain and oil, non-staple foods and frozen foods. Besides wholesale, the other two accommodate storage and processing, as well as delivery services. In 2013, over 70 per cent of the food in the dishes of Hangzhou's residents was distributed from there (Hangzhou Daily Press Group 2013).

Xinnongdu was opened in 2012. It is located on the southern periphery of Hangzhou City, occupying 30 hectares. The centre comprises a non-staples market, an aquatic products market, a market for vegetables and grain, a market for branded products, a conference and exhibition centre and a supporting service zone. Whereas Gouzhuang Market serves the food distribution needs of the north of the city, Xinnongdu offers easier access for the southern part of the expanded Hangzhou.

A monitoring system has been introduced in both of the wholesale markets to ensure food safety. The two wholesale markets import food directly from food producers, record and examine everything entering or transferring through the market and distribute the certified and tagged products to food markets in the community. Testing results for most goods are retrievable within 24 hours.

12.2.5. Formalisation and regulatory plans

As we have seen, the strategies of formalising the fresh food markets in Hangzhou consist of cleaning up the street markets, reforming and enlarging the state-owned ones and developing new facilities. The last two strategies require a substantial amount of new space. As land use in Chinese cities has to comply with city regulatory plans, which are consistent with city master plans and other planning guidelines, and are de facto laws, complexities often arise during implementation.

One of the planning guidelines is the Norms for the Planning and Design of Urban Residential Areas (hereinafter 'the Norms'). The first Norms was issued by the Ministry of Housing and Urban–Rural Development (MOHURD) [3] in 1994. It suggests that 1500–2000 m² be prepared for food markets in neighbourhoods with populations of 30 000 to 50 000, and 500–1000 m² in neighbourhoods with populations of 10 000 to 15 000 (Hangzhou Grain Bureau 2015).[4] This standard was to ensure that people in cities would have easy access to food markets after the formalisation of fresh food markets. Such standards are reflected in the regulatory plans that land developers have to follow.

The expansion of old markets and the new developments have to employ different methods to meet the standards. The implementation of expansions in Hangzhou is commonly led by the *jiedao* (neighbourhood/ward offices). As little space is available in the old city centre, the expanded spaces usually use land allocated in regulatory plans for public use, such as public green spaces and roads. The development of new markets, typically in areas that will soon be developed according to the government's development plan, is led by private developers who have procured land development rights. As the development of public service facilities is not so profitable to private developers, HMG subsidises such development in various ways, such as the relaxation of restrictions on floor area ratio (FAR) – i.e. the ratio of a building's gross floor area to the area of the land upon which it is built – or the use of side-street residential spaces for business. Upon the completion of construction, developers hand over the management of the facilities to the government.

12.3. Changes brought by the formalisation of fresh food markets

12.3.1. Improvements in markets' accessibility and capacity as well as food variety and safety

The formalisation of food markets in Hangzhou brought a set of changes which include better accessibility and greater market capacity. Food markets became easier to access from both a locational and a temporal perspective. The number of food markets in Hangzhou's urban core districts increased to 177 from approximately 100. On average, every 5 km² has one formal food market, which means that a resident of Hangzhou need walk for 10–15 minutes at most to buy food. The changes were significant in areas that later became urban core districts, where the development of infrastructure was lagging.

Meanwhile the time during which it is possible for people to buy food has been extended. The opening hours of street markets were short. There were normally two opening periods: morning peak time and afternoon peak time. Usually, the food dealers came to sell food at around 6.00 a.m. They left at around 10.00 a.m. after most people had started working. In the afternoon, street markets did business from 3.30 to 6 p.m. Since formalisation, food markets have opened from 6 a.m. until 6.30 p.m. This has made food shopping easier for people of different age, gender and occupation.

The capacity of food markets increased considerably as well. After formalisation, the average floor area of the food markets in Hangzhou reached 2399 m² (Hangzhou Grain Bureau 2015), which exceeded national standards. At the end of 2006, there were 171 food markets with 42 996 slots under operation, run by 27 363 food traders. The total floor area was 589 538 m² (Hangzhou Grain Bureau 2015). Correspondingly, the amount of food that could be sold in markets increased. Street food markets have less quantity and variety because of the limits of space. As the food can only be laid out in a limited space in the street, for which the sellers compete, each seller is unable to buy in very much food or offer much variety. Formalised food markets offer fixed spaces for food retailers. They can buy in larger amounts of food to fit into their prepared space (see Figure 12.3).

The variety of food significantly increased after the opening of the wholesale food markets. In Gouzhuang Market, 40 per cent of the products are from Hangzhou Metropolitan Area and neighbouring areas within a radius of 200 km. The other 60 per cent are transported from more distant parts of China or even from overseas. For instance, leeks are from Shandong Province, peppers from Haiyan in Henan Province and seafood from Zhoushan, a seaside city 250 km to the north of Hangzhou.

The assurance of food safety has also been remarkably improved by market formalisation. First, the testing and monitoring system introduced in the wholesale markets makes it possible to control food safety at the primary stage of distribution. Second, formalisation of fresh food markets at the community level has helped to enforce laws and regulations about

Figure 12.3 Vegetable zone of Dongshan Fresh Food Market. (*Source*: Shuwen Zhou)

Figure 12.4   Food safety testing in Dongshan Fresh Food Market.
(*Source*: Shuwen Zhou)

food security, hygiene, sanitation, disease management and trade fairness. After market renovation, each food market is equipped with a special office to test chemical residuals in fresh food (see Figure 12.4). Consumers can just walk in to check whether the food they have bought and put in their basket is safe. This facility fills the gap for testing and monitoring the food produced on local farms, which does not have to pass through the wholesale markets. Every market is also equipped with an electronic scale. This is to combat some cheating tricks practised by food dealers. And every market regularly provides reviews of food traders. Consumers participate in monitoring food safety. Furthermore, since the second round of renovation, fresh food markets in Hangzhou have not been allowed to sell live poultry. Poultry must be well cleaned and preserved before being sold.

12.3.2. Social costs of market formalisation

Though the formalisation of fresh food markets in Hangzhou has achieved great success in general, it has not been exempt from adverse consequences. Higher financial and time costs, and exclusion of economically and physically disadvantaged groups are the key issues.

12.3.2.1. Higher economic cost

Food in formalised neighbourhood fresh food markets is in general 50 per cent more expensive than in informal ones. For instance, bean

sprouts priced at US$1 per kilo in street markets may be sold at US$1.50 per kilo in formal fresh food markets. The increase in food price reflects the cost increase in market management and human resources. The retailers have to pay rent to the formalised markets to cover the cost of market maintenance and the market manager's staff. The scale of price change depends on the management and ownership of the markets. In Hangzhou, formalised fresh food markets are owned by local community committees (*jiedao* – governmental entities at neighbourhood level), but often the operation rights are subcontracted to individuals, or owned by multiple stakeholders including the *jiedao*. Subcontracts allow the professional management of fresh food markets, but substantially raise the cost of renting.

Besides the cost of market management, expenditure on human resources and transport also increases in most cases. Many of the retailers who could be part-time traders selling food only during the morning and afternoon peak times have had to be full-time workers to look after their slots since formalisation. Some have to employ more people. Transport cost has grown because of changes in means of transport. Among street market traders, man-powered tricycles or carts are popular. The retailers can use cheap man-powered carts to carry food, and they can sell food from their carts in the streets. Since formalisation, the traders have had to use fuel-powered vehicles. Consequently, the consumers have to absorb increased prices.

12.3.2.2. Increased time cost

Besides bearing price increases, consumers also face increases in time cost. Before, consumers could buy food while they were walking or cycling home. Since formalisation, shopping time has increased owing to the need to find somewhere to park and to food being scattered in different corners, or even on different floors, of the markets. Moreover, life has got less convenient for some communities that have had to endure market relocation during processes of formalisation and renovation. As fresh food markets attract a flow of people, their surroundings are often the hub of various commercial facilities such as shoe repair, laundries, restaurants and so on. Relocations destroy the previous business ecosystem of a neighbourhood. Hangzhou's Sanliting Fresh Food Market is one example, which was relocated in 2008 after more than a decade of history. In Sanliting, after the relocation the nearby shops spontaneously closed down, including many restaurants. Local residents have had to find their own solutions and to walk further to buy food.

12.3.2.3. Exclusivity

Increased financial and time costs, in the end, lead to the exclusion of economically and physically disadvantaged groups, among both traders and consumers. From the economic perspective, higher rent excludes low-income traders, and higher price excludes low-income families. For the retailers, informal fresh food markets are exclusive in their own way, but the formalisation of fresh food markets led to 'formal exclusion'. In Hangzhou, as the space available in the street is limited, street markets often have their own informal rules set by some traders to exclude others. It was observed that food retailers who had arrived early on in a market's history would ask for occupation fees from latecomers. The formalisation of fresh food markets generated more space and institutionalised the renting of space; however, it produced fee-based formal exclusion. Retailers who have found renting and full-time business too expensive and chosen to stay in streets have had to be alert to urban management officers (*chengguan*). Often, evictions end with violence. For low-income consumers, food has become less affordable. This is especially true in the urban core, where the elderly and low-income residents are concentrated but lower-cost alternatives are absent.

From a temporal perspective, higher time costs make shopping experiences worse for the elderly and the physically challenged. Equipping markets with ancillary staff helps, but does not remove the problems.

12.3.3. Emergence of different forms of food markets

The formalisation of food markets in Hangzhou continued with the introduction of supermarkets, hypermarkets and greengroceries. Outside urban core districts, as the enforcement of erasing street markets is relatively weak, informal food markets still exist, besides the above-mentioned kinds of food markets. They complement the formal fresh food markets with respect to freshness, variety, location, mode of shopping and, among other things, the needs of different social groups.

The freshness of food depends on the time of the day. In general, food is fresher in formal fresh food markets than in supermarkets or greengroceries, owing to a faster cycle of selling and supply. Formal fresh food markets are more likely to sell out of something the same day it is delivered, whereas supermarkets and greengroceries have a longer stocking cycle.

The variety of food generally improved in urban core districts after food market formalisation, but in the suburban areas where street food

markets still exist the latter provide more choices. At Liuxia Fresh Food Market, where a street food market occupies the market's outdoor space, fresh food that is not sold in the formal market can be found outside in the street market – produce such as Chinese yam and coriander leaves. Formal fresh food markets tend to sell food that is procured from the wholesale market. But street markets allows peasants who live in nearby villages to sell food themselves. Supermarkets attract people by selling a very wide range of products and food, especially processed ones such as pizza, noodles, juice and milk.

Location and walking distance play a significant role in people's preference for the types of food markets they use. When the nearest place is a greengrocery rather than a fresh food market, people sometimes trade off freshness for a shorter distance to travel. When the closest is a supermarket, people tend to prefer the supermarket for everyday food. Residents who have a car are less constrained by location.

With the rapid development of e-commerce in China, especially in Hangzhou – the home of Alibaba, the largest e-commerce company in China and the second largest in the world – buying fresh food through e-channels is becoming popular. According to in-app data, before mid January 2018 87 supermarkets had registered on E'lema, one of the most popular e-platforms for food delivery. Seven of them are fresh food markets. The vender holding the highest monthly sales record received an average 5964 orders per month in 2017.

12.4. Conclusion

The formalisation of fresh food markets in Hangzhou has significantly changed everyday life in the city. From cleaning up all the street markets in the core urban districts, to renovation, and finally the completion of wholesale food markets connecting food production and distribution, it has incrementally transformed the city's food distribution system to one providing greater accessibility, capacity, variety and safety. Today in Hangzhou, formalised fresh food markets are the primary locations where residents buy food, complemented by other kinds of food markets that differ on location, price and variety.

To achieve this, a firm political will may be seen as key. In the early stages of formalisation, improving the city's image provided the momentum. In the later stages, SBP and ambitious new city development goals played a significant role in mobilising the local governor's political will.

Backed by political will, the involvement of different actors pushed the transformation to go further. Especially in the second round of renovation, a specific renovation strategy formulated for each market, through consultation with different governmental departments and residents, facilitated implementation and finance. The good balance between rigorous enforcement of the regulatory plan and flexibility in land use approval eventually created a success story.

However, a social cost was not avoided. Higher financial and time costs led to some exclusion of economically and physically disadvantaged groups. Both food traders and consumers are affected. For the traders, there has been an increased financial burden to fund market management, human resources and transport. The city's residents have had to absorb this cost. Traders who have less initial capital are thereby excluded from opportunities to earn a living. Those who choose to carry on selling food in the streets suffer confronted eviction from time to time. Low-income people are now able to buy fewer types of food and obtain less daily nutrition.

Although there is indeed a need for alternatives to compensate this social cost, new issues emerging in Hangzhou need equal attention in order to prevent any regression in the battle to maintain food safety. As rents are increasing in Hangzhou's urban core districts, and as the widespread practice of subcontracting in the operation of formal fresh food markets is pushing up management costs, food prices are expected to continue rising in the coming years. Online shopping for fresh food has emerged as an alternative responding to the increasing financial and time costs of using the formal food markets. Some fresh food markets even face the possibility of shutting down because of decreasing profits. On the one hand, urban residents enjoy the convenience brought by e-commerce; on the other hand, food safety may be at risk owing to the lack of monitoring system. Government regulations on food safety must catch up with the rapid growth of the online fresh food shopping sector. Otherwise, Hangzhou may eventually regress in both market accessibility and food safety.

Notes

1. 'National City of Cleanliness' is hosted by the Department of Diseases Control, Ministry of Health. The first award of this title went to Weihai City, Shandong Province, in 1990.
2. The estimation is based on the calculation adopted by the Fifth National Census.
3. MOHURD's predecessor was the Ministry of Construction of the People's Republic of China (MoC), which was reconstructed and renamed in March 2008.
4. Hangzhou's local standards are consistent with national ones.

References

General Office of Hangzhou Municipal Government. 2018. *An Overview of Hangzhou*. Last modified 10 July 2018. http://tjj.hangzhou.gov.cn/pages/external/gallery/gallery.jsp

Hangzhou Daily Press Group. 2013. 'Hangzhou Logistics Centre for Agricultural Products Is Five Years Old'. Last modified 31 January 2018. http://hzdaily.hangzhou.com.cn/dskb/html/2013–04/28/content_1484994.htm (in Chinese).

Hangzhou Grain Bureau. 2015. *Hangzhou Fresh Food Market Development Report*. Hangzhou (in Chinese).

Hangzhou Municipal Government. 2001. *Urban Master Plan for Hangzhou Metropolitan Area*. Last modified 10 July 2018. http://www.hzghy.com.cn/index.php/project/info/45/51 (in Chinese).

Zhang, Q. 2007. 'Research on Transformation from Markets of Agricultural Products to Supermarkets of Lifelike Products in Hangzhou', master's thesis, Guangxi University. Last modified 31 January 2018. http://xuewen.cnki.net/ArticleCatalog.aspx?filename=2007142115.nh&dbtype=CMFD&dbname=CMFD2007 (in Chinese).

13

Food asset mapping in Toronto and Greater Golden Horseshoe region

Lauren Baker

The City of Toronto is the largest city in Canada with a population of 2.8 million people. The city is one of the most multicultural cities in the world, with over 140 languages spoken. Immigrants account for 46 per cent of Toronto's population, and a third of newcomers to Canada settle in the city (Statistics Canada 2016). Needless to say, diets are extremely diverse. This represents an opportunity for the food and agriculture sector in Ontario, one that many organisations are seizing.

The region surrounding the City of Toronto, known as the Greater Golden Horseshoe (GGH), is made up of 21 upper- and single-tier municipalities. This region is Canada's fastest growing, with a population of 9.4 million in 2016, projected to grow to 13.5 million by 2041. The region is plagued by traffic congestion, inadequate infrastructure, loss of agricultural land and natural spaces to urban development, and stormwater management challenges. Efforts to densify the built environment and plan urban communities better could lead to healthier, sustainable and resilient communities.

In this same GGH region 42 per cent of Ontario's best-quality farmland is also located, accounting for approximately half of the land area. The region produces a mix of crops including grain and oilseed, fruit and vegetables, flowers, livestock and other speciality crops. Two provincially designated speciality crop areas define the region: the Niagara Peninsula, known for tender fruit production, and the Holland Marsh, known for vegetable production. The GGH is the third-largest food processing and manufacturing cluster in North America; it uses over 60 per cent of the agricultural products grown in Ontario (Golden Horseshoe Food and Farming Alliance 2014). Agriculture and the broader food

system contribute US$11 billion and 38 000 jobs to the provincial economy, generating US$1.7 billion in tax revenue (Golden Horseshoe Food and Farming Alliance 2014).

In 2005 a green belt was created to contain urban growth and protect the natural and cultural heritage of the region. The green belt protects seven per cent of Ontario's farmland, approximately 346 600 hectares and 5501 farms (Friends of the Greenbelt Foundation 2014), mostly outside the urban communities clustered in the Golden Horseshoe and around the City of Toronto.

In Canada, the agricultural policy framework is established by the federal government. Land use policy is under the jurisdiction of the province (Ontario) and administered by the municipal government. This framework and the resulting policies and programmes directly shape agricultural production. While land use policy is directed and defined by the province, the way those definitions are interpreted across municipalities can vary.

The regulation of food and agriculture involves over 19 ministries, including Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Ministry of Municipal Affairs and Housing, Ministry of Economic Development, Employment and Infrastructure, Ministry of Health and Long-Term Care and Ministry of Environment and Climate Change. The provincial land use policy statement has recently been revised to accommodate new forms of agriculture, in particular to support on-farm, value-added activities. However, farmers state that the current provincial land use policy framework favours urban development over farmland preservation, inhibiting the viability of the agricultural sector (Ontario Federation of Agriculture and Environmental Defense 2015).

Little is known about the historic changes and shifts in food assets over time in the City of Toronto and GGH region. The flow and diversity of the population's impact on farming, changes in food processing and manufacturing, as well as shifting dynamics of the food retail environment, including neighbourhood markets and greengrocers, are not well documented. What is known is that agricultural production has shifted over time to access new markets and market opportunities. Overall, the number of farms has diminished greatly over the past 50 years, as has the number of food processing outlets (Carter-Whitney and Miller 2010). Food manufacturing and processing have been centralised and consolidated in the Greater Toronto Area and over half of Ontario's food processing facilities are located in the Golden Horseshoe.

Food insecurity is a persistent problem in the Golden Horseshoe, over 12 per cent of the population in Toronto reporting insecure access to adequate food because of financial constraints (Tarasuk et al. 2016). Over time, Toronto's food advocates have actively built a network of community food programmes to enhance food security and increase access to healthy food. These initiatives directly connect to the City of Toronto's diverse communities and priorities relating to health, poverty reduction and social equity.

13.1. What are food assets?

Food asset planning is an emerging field. Food assets relate to the growing interest in food environments emerging from both the planning and public health literature, as well as the literature on strengthening regional value chain connections. For example, the American Planning Association's (APA's) Policy Guide on Community and Regional Food Planning, published in 2007, recommends that planners 'provide data and mapping support to community and regional food assessments, including the incidence of food insecurity and location of diverse food assets' and develop policies and plans to enhance these assets (APA 2007, 15).

Food assets are a key component of integrated food planning and have not been fully considered in planning practice or literature. Food assets include the local food infrastructure that maintains food-secure communities and regions – farms, processing and distribution capacity, food enterprises, markets, retailers, community gardens, urban farms, community gardens, community kitchens, student nutrition programmes, emergency food distribution and community food organisations and centres. The concept of food assets can be expanded to include waste facilities, agricultural inputs, urban orchards and non-physical assets such as funding, investment opportunities, services, and political support.

13.2. Food asset mapping by the Golden Horseshoe Food and Farming Alliance

The development of the Golden Horseshoe Food and Farming Action Plan 2021 created a framework for action to keep food and farming a strong economic driver in this highly urbanised area. The plan identifies pathways for a more integrated and coordinated approach to food and farming viability

in the area to ensure that the Golden Horseshoe retains, enhances and expands its role as a leading food and farming cluster (Golden Horseshoe Food and Farming Alliance 2012). The next event was the establishment of the Golden Horseshoe Food and Farming Alliance. The Alliance was established in 2013, after the development of the Action Plan. The Alliance is composed of the Niagara Agricultural Policy and Action Committee, the Toronto and Region Conservation Authority, the Friends of the Greenbelt, the Ontario Ministry of Agriculture, Food and Rural Affairs, Vineland Research and Innovation Centre, Holland Marsh Growers' Association, Durham College, Niagara College, Country Heritage Park, Ontario Federation of Agriculture, Ecosource, Food and Beverage Ontario, the Regions of Durham, Halton, Niagara, Peel and York and the Cities of Hamilton and Toronto, as well as local representatives from the food and farming value chain. This group acts as a regional governance and coordination body supporting initiatives that enhance agriculture and the economic, social and cultural viability of the food and agriculture sector. The first effort at asset mapping was undertaken by the Alliance in 2013.

The purpose of the mapping project was to provide a baseline for planners and policy-makers to (1) understand, promote and strengthen the regional food system; (2) provide information to enable analysis to inform decision-making; and (3) plan for resilience in the face of climate variability and socioeconomic and political vulnerability. Mapping also provides a method to assess and track local food assets as a way to strengthen the 'food cluster' and connect farmers with processors, manufacturers and new markets. Planners hope to use the information to understand how land use policy and economic development programmes can best support the agri-food sector and the implementation of the Food and Farming Action Plan 2021.

The Alliance asset mapping project was guided by a steering committee of regional planners and economic development officers. A workshop about sharing the results of the asset mapping project attracted economic development officers, policy/land use/GIS/environmental planners, public health staff and staff from the Board of Trade and OMAFRA. Workshop participants identified the following ways they would use the asset mapping data:

- to understand value-added opportunities and link up value chains
- as an investment tool
- to increase efficiencies in the food system
- to understand strengths/weaknesses and opportunities/challenges of the food and farming sector

- to move from anecdotal to quantifiable understanding of the sector
- to identify where government can best support industry and policy development
- for reporting
- to increase viability of agriculture in the green belt
- to work collaboratively across the region and across the food system municipality by municipality
- for regional food system assessment
- to define a new economic cluster for the region
- to compare municipality with municipality
- to collaborate, find synergies and enhance communication
- to apply the methodology to other sectors
- to enhance employment survey data
- for analysis and planning
- to protect agricultural land and protect livelihoods
- to compare data over time

Two phases of asset mapping have been undertaken by the Alliance. The first involved the seven regional and municipal governments engaged in the Alliance. In the second phase, the project was expanded to include the GGH, 14 additional regional governments and Eastern Ontario. Future plans include expanding to the province as a whole. Funding for the asset mapping project was provided by the Alliance partners Agricultural Adaptation Council and OMAFRA.

Across the GGH, over 50 000 asset points have been mapped using the following approach (see Figure 13.1). Assets were identified through municipal data (44 per cent), open source data (32 per cent) and third party data (24 per cent) (Golden Horseshoe Food and Farming Alliance 2015). For example, municipalities provided data collected by economic development for business retention and expansion analysis. Many municipalities had previously collected data to map farm gate sales. OMAFRA provided access to farm business names, type of farming conducted, and locations. Each asset was assigned a North American Industry Classification System (NAICS) code, a data inventory was created, consensus was reached by the steering committee on common data attributes, and a data model was developed to reflect the temporal, spatial and business relationship of the agri-food asset records and to identify relationships between the data elements and attributes. The data were imported into a central database, and visualisation and web presentation tools were developed. The tool has been designed for the use of the partnering municipalities and will not be available for public use.
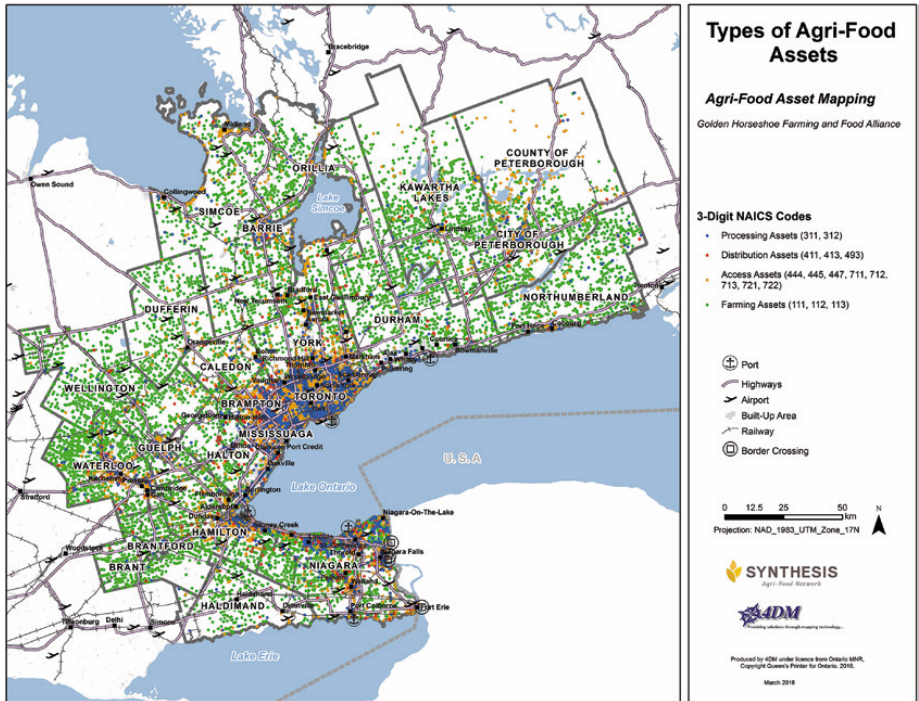
Figure 13.1 GGH assets map: a map of Golden Horseshoe farming, processing, distribution and access assets. (*Source*: Golden Horseshoe Food and Farming Alliance 2015)

Challenges included sharing data across municipalities, building confidence in the data and maintaining data integrity. Moving forward, the group will update data, maintain data integrity, review assets and confirm locations, update the NAICS agri-food inventory, create guidelines on NAICS classification, add GPS locations and facilitate new web functions. A longer-term goal includes automation and synchronisation of employment data and business retention and expansion surveys across the region for ease of updating.

13.3. Food asset mapping by the Toronto Food Policy Council

The second approach to asset mapping, undertaken by the Toronto Food Policy Council (TFPC), complements the work of the Golden Horseshoe Food and Farming Alliance by adding in community food assets.

The TFPC was established by the Toronto City Council, in 1991, to bring a food systems approach to the growing problem of rising hunger and food insecurity. The TFPC's mandate is to: advise and support the City of Toronto and Toronto Public Health in the development of inclusive and comprehensive food security policies and programmes; advocate for innovative community food security programmes; foster dialogue with Toronto Public Health, community groups, social agencies, educational institutions and businesses; and act as the community reference group for the Toronto Food Strategy. TFPC members include three elected officials, three farmers from the surrounding rural communities, two youth delegates from the Toronto Youth Food Policy Council and 22 citizen stakeholders representing diverse food system perspectives and sectors. Over the past 25 years, the TFPC has made significant contributions to the Toronto Food Strategy, Toronto Environmental Plan, Toronto Food Charter, Official Plan and Toronto Food and Hunger Action Plan, and facilitated city engagement with the Greater Toronto Area Agricultural Action Committee and Golden Horseshoe Food and Farming Alliance.

The TFPC food asset mapping initiative is called 'Food by Ward: Food Assets and Opportunities Ward by Ward'. Data began to be compiled several years ago, and include neighbourhood food assets such as community gardens, urban agriculture initiatives, farmers' markets, healthier food retail, emergency food distribution, community kitchens and other community food organisations/programmes. A central database was formed, data were mapped, ward resources were developed for Toronto's 44 wards and the resources were verified by community food advocates and launched at City Hall. Funding has been provided by Toronto Public Health (see Figure 13.2).

The asset mapping project is guided by a working group of community food advocates and professionals. A workshop to share the results of the asset mapping project attracted city staff, public health professionals, academics, planners, community gardeners, people working in the emergency food distribution sector, urban farmers, farmers' market coordinators, community volunteers, funders and social service agency professionals. Workshop participants identified the following ways they will use the asset mapping data:

- to understand how to improve the neighbourhood food environment
- to advocate for better services
- to build relationships with elected officials
- to understand and rectify the uneven distribution of food assets across the city
- to find land for urban agriculture

- to understand the link between poverty, access to public transportation and food access
- to find space for community food programmes
- to communicate how food is an important part of the city's social, cultural and economic infrastructure
- to engage planners and other city staff

Across the City of Toronto, 3500 asset points have been mapped using the following approach (see Figure 13.3) (TFPC 2016). Assets were identified through municipal data (all of Toronto's data are open source) and third party data. For example, the City of Toronto provided data collected by the Parks, Forestry and Recreation Division on community and allotment gardens. Toronto Public Health provided data on healthier food retail collected by food inspectors and student nutrition programmes. The Greenbelt Foundation supports a Greenbelt Farmers' Market network that provided data on farmers' markets.

Assets were categorised according to access to healthy food, emergency food assistance programmes, community food programmes and food festivals and events. Assets were mapped in these categories with

Figure 13.2 Food by Ward image: a graphic accompanying the Food by Ward resource. (*Source*: TFPC 2016)
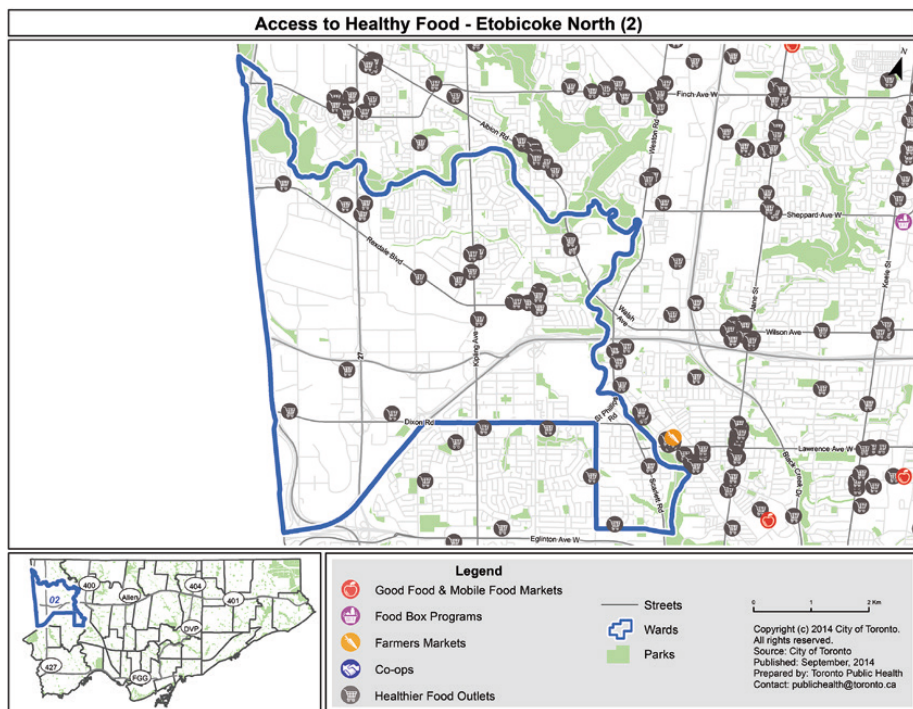
Figure 13.3 Toronto food assets map: an example from the Food by Ward asset map, focusing on assets relating to access to healthy food. (*Source*: TFPC 2016)

definitions provided as well as a narrative about how these assets support a healthy, equitable and sustainable city. The maps were verified by community food advocates and the data were updated.

This approach to mapping reveals the inequitable distribution of assets across the city, connecting food access to broader issues of health and social inequality (see Figure 13.4). Community food advocates and municipal staff involved are using the information to understand how the neighbourhood food environment can contribute to a healthy, equitable and sustainable city. The data collected will now be integrated into the City of Toronto's data set and regularly updated. Challenges included building confidence in the data and maintaining data integrity. Moving forward, the TFPC and city will work together to maintain data integrity, review and add assets, and develop web-based maps and functions.
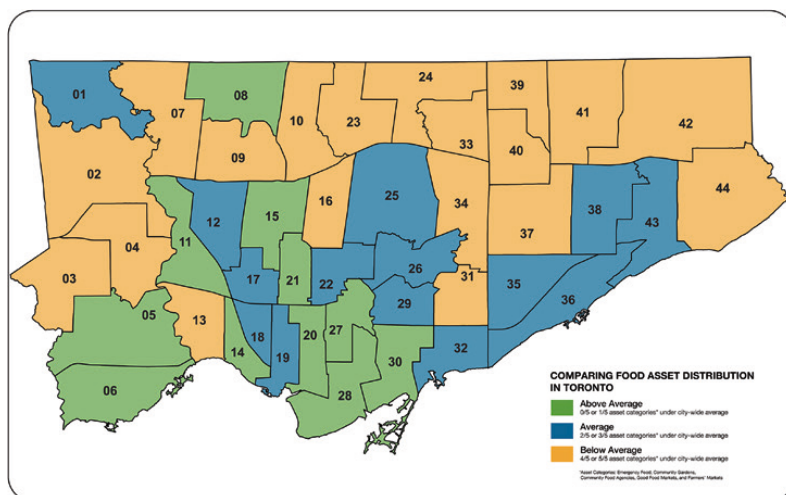
Figure 13.4 The distribution of food assets across Toronto. (*Source*: TFPC 2016)

13.4. Discussion

Food asset mapping can provide an important baseline of information to understand how the agriculture and food sector changes over time. It is both a quantitative and qualitative indication of what is important to those making decisions and about what to include (or not) as a food asset. The asset mapping, however, is only one step – points on a map or entries into a database. The real work comes in putting the tool to use to strengthen food systems connections, networks of advocates and stakeholders, value chains, policy and governance. Over the years, the tool will change and evolve and its contribution to food system sustainability and equity may be evaluated. With both asset mapping initiatives, it is too early to see how they will be used by advocates, professionals and policy-makers.

Already, however, the maps are a catalyst for discussion and organising. For example, the Golden Horseshoe Food and Farming Alliance municipalities are considering extending their mandate beyond their political boundaries to make food system connections. In another example, one economic development officer suggested he would use the mapping tool to help local businesses to make value chain links with local suppliers. Another noted that understanding assets could leverage investment in a sector. Environmental policy planners were interested in seeing how agricultural landscapes could link to natural heritage areas to improve stormwater management.

In Toronto, the asset mapping resource mobilised 'food champions' to create priorities that were embedded in the city's poverty reduction strategy. The food asset mapping catalysed a discussion about neighbourhood or ward food priorities that will be communicated to city councillors and decision-makers. A longer-term plan is to strengthen local food networks to realise their priorities. These networks link social service organisation staff, city staff and community advocates, building community resilience and political agency.

13.5. Next steps

The food asset mapping initiatives will continue to evolve. A few opportunities for next steps are on the horizon. Toronto and region was selected in 2015 to participate in the CityFoodTools initiative led by the RUAF, the Food and Agriculture Organization of the United Nations (FAO) and the Wilfred Laurier Centre for Sustainable Food Systems. Toronto is one of seven cities worldwide that will be undertaking a food system assessment.

The asset mapping work will be invaluable for this project. One identified possibility, to more deeply understand the regional food system, is to undertake food flow analyses for specific agricultural products. A strength here of the asset mapping work is that one can imagine identifying, for example, apple farms and their current regional (and global) markets as well as exploring future market linkages.

The food system assessment emphasises food security and equity; an analysis of neighbourhood food assets will be key to understanding issues relating to access, quality and community engagement. It is possible that the methods and process used in the food asset mapping initiatives, as well as the challenges, could be shared between global city regions.[1]

Note

1. For more details on this initiative, visit http://www.ruaf.org/projects/developing-tools-mapping-and-assessing-sustainable-city-region-food-systems-cityfoodtools

References

APA. 2007. *Policy Guide on Community and Regional Food Planning*.

Carter-Whitney, M. and S. Miller. 2010. *Nurturing Fruit and Vegetable Processing in Ontario*. Toronto: Metcalf Foundation.

City of Toronto. 2012. *History of Food in the CITY EXHIBIT at St. Lawrence Market*. Toronto.

City of Toronto. 2016. 'Toronto Facts: Diversity'. Accessed 15 February 2016. http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=dbe867b42d853410VgnVCM10000071d60f89RCRD

Friedmann, J., Baker, L. and Whyte, B. 2014. 'A Terroir of Institutions in Toronto', in *Urban Explorations: Environmental Histories of the Toronto Region*, edited by C. Coates, L.A. Sandburg, S. Bocking, K. Cruikshank. Toronto: Wilson Institute for Canadian History.

Friends of the Greenbelt Foundation. 2014. *Agriculture by the Numbers: Understanding the Greenbelt's Unique Advantages*. Toronto.

Golden Horseshoe Food and Farming Alliance. 2012. *Golden Horseshoe Food and Farming Action Plan 2021*. Toronto.

Golden Horseshoe Food and Farming Alliance. 2014. *Agricultural Profiles*. Toronto.

Golden Horseshoe Food and Farming Alliance. 2015. *Analysis of Food And Farming Assets in the Golden Horseshoe*. Toronto.

Ontario Federation of Agriculture and Environmental Defence. 2015. *Farmland at Risk: Why Land-Use Planning Needs Improvements for a Healthy Agricultural Future in the Greater Golden Horseshoe*. Toronto.

Statistics Canada. 2016. 'Immigration and Ethnocultural Diversity in Canada'. Accessed 15 February 2016. https://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99–010-x/99–010-x2011001-eng.cfm

Tarasuk, V. et al. 2016. *Household Food Insecurity in Canada, 2014*. Toronto: Research to Identify Policy Options to Reduce Food Insecurity.

TFPC. 2016. *Food by Ward: Food Assets and Opportunities Ward by Ward*. Toronto.

14

Greater Milan's foodscape
A neo-rural metropolis

Stefano Quaglia and Jean-Baptiste Geissler

Milan is internationally recognised as a tertiary city-hub, celebrated as the uncontested Italian capital of design and fashion and renowned for its financial and cultural services. Yet, this European metropolis is also a major agricultural centre, in both the Italian and the European context, as defined by agricultural land coverage and the number of farms. This mixed-use nature of the metropolitan region is not a new phenomenon. Since the Middle Ages, Milan has been characterised by a tradition of agricultural practices.

However, since the mid-1900s its urban/agricultural character has been affected by several dynamics. The most significant phenomena have been rural depopulation, as rural residents' migration towards industrial and tertiary urban activities, and the correlated rapid urbanisation. Both have caused degradation of Milan's peri-urban and rural landscape, with dire effects on natural resources, especially soil and water (Borasio and Prusicki 2014).

Milan and its metropolitan outskirts – with a growing population of over three million – are also facing other challenges such as urban sprawl, climate change, additional in-migration and natural resource depletion. All of these factors have contributed to the fragmentation of the agricultural landscape and to an impoverishment of metropolitan food quality and production facilities as well as ever-increasing tensions relating to social injustice and food poverty.

To address these issues, Milan has recently begun a process to improve the sustainability of its food system. Thanks to the proactive role of citizens and local authorities, Milan has moved to integrate the food system into the urban agenda, conferring on this topic a crucial importance in city planning and development.

This effort has been pursued to achieve a balance between the strong urbanisation pressure and the importance of preserving the ecosystem services (e.g. food production, soil and water regulation, urban cooling, air purification and recreation) provided by the green-agro infrastructure in the peri-urban interface.

Milan's vision translated into the implementation of many projects, policies and practices to achieve the city's neo-ruralisation strategy, with the twofold aim of protecting the urban and peri-urban rural spaces and enhancing the production of quality food. This vision was strengthened by both the recognition of the multi-functional role of agriculture and the engagement of a wide range of local stakeholders to assist in developing a shared urban–rural strategy.

This strategy proposes an interesting approach to planning and managing the Milan metropolitan rural system (Figure 14.1), which consists of 66 000 hectares of utilised prime agricultural land mainly producing cereals and industrial and forage crops (as shown in Table 14.1). This innovative approach was adopted in order to overcome the historical conflict between urban and rural areas, drawing inspiration from the utopian idea of *campagnes urbaines* introduced by Donadieu (2013), who advocated considering them as integrated spaces and not as conflicting territories.
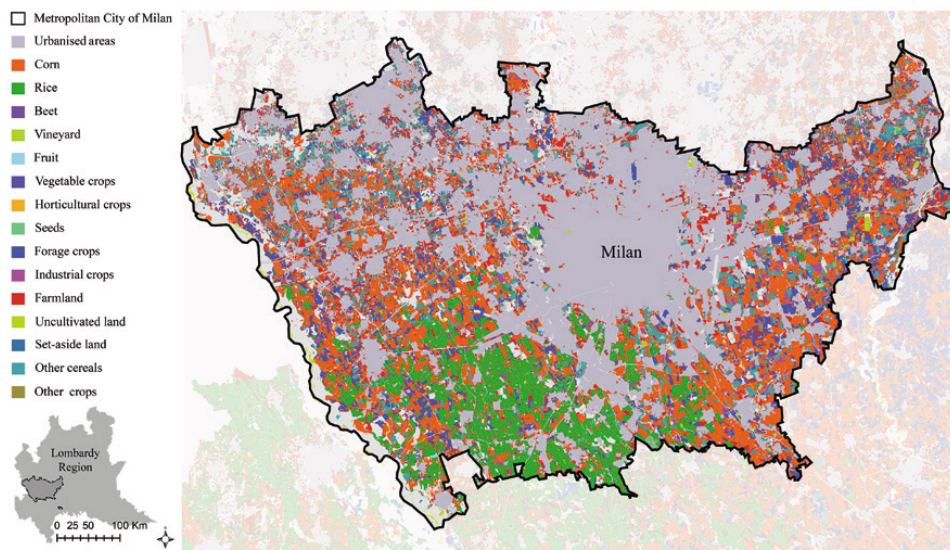
Figure 14.1   Milan metropolitan rural system – agricultural land use. (*Source*: Elaborated by Massimiliano Granceri from ERSAF data, 2012)

Table 14.1 Metropolitan main crops production

Crops	Productive surface (ha)	Total harvested production (kg)	Average production (kg/ha)
Cereals			
Wheat	4686	283 500	116.02
Barley	2515	148 448	59.03
Oat	74	2640	35.68
Rye	235	8813	37.50
Triticale	1425	76 687	53.82
Rice	12 117	678 552	56.00
Corn	18 950	2 312 075	122.01
Sorghum	363	26 005	71.64
Other cereals	73	3474	47.59
Total cereals	40 438		
Industrial crops			
Soy	2750	84 165	30.61
Colza	490	13 354	27.25
Sunflower	5	108	21.60
Total	3245		
Protein plants			
Pea	181	4668	25.79
Other protein plants	14	189	13.50
Total	195		
Tuber plants			
Potato	13	4100	315.38
Horticultural crops			
Industrial tomato	100	59 221	592.21
Other horticultural crops	761		
Total	861		
Forage crops			
1. Meadows			
Silage	8300	4 840 980	583.25
Rye grass	2900	1 073 000	370.00
Other meadow crops	2590	1 036 000	400.00
Total	13 790		

Table 14.1 (Continued)

Crops	Productive surface (ha)	Total harvested production (kg)	Average production (kg/ha)
2. Temporary grassland			
Polyphytic temporary grassland	2140	995 100	465.00
Alfalfa	1530	749 700	490.00
Other temporary grassland	130	60 450	465.00
Total	3800		
3. Grassland			
Permanent grassland	7680	3 801 200	494.95
Pasture	100	48 450	484.50
Total	7780		
Wood crops			
Vine	202	14 631	72.43
Apple tree	5	860	172.00
Pear tree	5	620	124.00
Other fruit	38	1458	38.37
Total	250		

Source: Open access data from Metropolitan City of Milan, 2014.

In this context, we outline how urban planning strategies of the food system were integrated into the Milan metropolitan area. We show the process by which this metropolis is developing a long-term strategy to improve sustainability, resilience and food security.

14.1. The neo-ruralisation of Milan

14.1.1. Regional approach – PASM

The linkage between urban development and food production in the Milan metropolitan area emerged in the 1970s. At that time, concerns were expressed about the environmental impacts of urbanisation on natural and rural spaces, especially those localised in the peri-urban interface of the city, and the gradual abandonment of agricultural lands.

This mobilised a bottom-up effort to find a way to preserve the rural landscape of the city's fringes. This trend reached a turning point in the 1990s, when Parco Agricolo Sud di Milano (PASM – Agricultural Park of South Milan) was established with the aim of mitigating the effects of the rapid urbanisation in the peri-urban areas and supporting the production of local food (Magoni and Colucci 2017).

Lombardy Regional law n.24/1990, which established the PASM, defined the Province of Milan (now the Metropolitan City of Milan) as the governing authority of the park, with the responsibility to pursue the following objectives:

- landscape and environmental protection and recovery of green continuity between the city and the countryside;
- improvement of the ecological balance of the metropolitan area;
- protection and enhancement of agricultural and forestry activities;
- improvement of citizens' recreational and farming opportunities.[1]

The regional authority introduced a tool aiming to integrate these objectives and protect the environment through the valorisation of the multi-functional role of agriculture, thereby recreating the traditional synergy between Milan and its rural outskirts.

Today the PASM (Figure 14.2) is one of the main agricultural parks in Europe, extending over 47 000 hectares, including a 36 500 hectare

Figure 14.2   Map of the PASM. (*Source*: Elaborated by Stefano Quaglia from open access data of the Metropolitan City of Milan, 2010)

utilised agricultural area (UAA), which covers a third of the Milan metropolitan area, encompassing 61 municipalities and 1400 farms and farm-related properties. Although most of the PASM consists of agricultural land, it also contains elements with high natural value and complex ecological functions, such as wooded and wet permanent areas, trees and hedges (albeit that in the past century there has been substantial degradation of these natural resources). Other characteristic elements of the park are the ancient and wide irrigation system, shaped by the Adda and Lambro Rivers and smaller waterways, artificial canals and karst springs, as well as historical abbeys, farmhouses and castles.

Notably, the productive nature of the PASM was to be maintained, for the goal was not to create peri-urban parks like those in Paris. Instead the focus was on the preservation of the physical and environmental characteristics of this territory and the creation of model agricultural production areas. For example, areas with high availability of water are characterised by intensive cultivation of cereals; in particular, rice and corn are typical products of the PASM. Areas with less water are allocated mainly to the alimentation of livestock, primarily for industrial dairy production. Other types of crops are grown but they represent marginal portions of the production (as showed in Table 14.2), implying the need to supply these food items from external sources, both Italian and international.

The PASM is managed by the Metropolitan City of Milan through the Piano Territoriale di Coordinamento (PTC – Territorial Coordination Plan) introduced in 2000 with the aim of defining land use within the park boundaries. The PTC identifies rules for the protection of natural and agricultural areas, as well as the cultural heritage and waterways, and for

Table 14.2 Crops cultivated in the PASM

Crops	Hectares	Percentage of total
Corn	17 337	47
Rice	10 699	29
Grassland and permanent pasture	4034	11
Autumn–winter cereal crops	2018	6
Soybean	1830	5
Tree crops	465	1
Horticultural and floricultural crops	117	0
Total	36 500	100

Source: Elaborated from Migliorini and Scaltriti (2012).

the use of open spaces. The PTC sets the specific planning competencies of the governing authority responsible for the definition of implementation plans (sector plan, natural reserve and peri-urban park plans). However, as Vescovi (2014) observes, the initial lack of and then late adoption of an implementation plan can be one of the limiting factors in the integration of urban and rural development. Lack of implementation undermined the original multi-functional purpose of the PASM and limited its role to that of a passive urban policy tool for contrasting urbanisation pressures. It also is important to consider the threats to agricultural production. They derive from demographic growth, the urbanisation of peri-urban areas and the development of new infrastructures. For example, between 1999 and 2009 the PASM lost 1042 hectares of rural land (Centro di Ricerca sul Consumo di Suolo [CRCS] 2013). Moreover, reliance on monoculture has also contributed to the loss of agro-biodiversity. These dynamics are predicted to have heavy impacts on this territory, reducing its ability to fulfil local food demand from 15.93 per cent in 2011 to an estimated 12.89 per cent in 2020 (Province of Milan 2011).

14.1.2. Place-based programmes

These features and dynamics of the PASM resulted in a complex territory where parks, wilderness, agricultural activities and urbanised areas coexist. A good illustration is the Muggiano enclave. Situated at the extreme west of Milan's municipal territory and cut off from the rest of the city by the ring road (*tangenziale*), it is an agricultural enclave with a quite important productive function. But it also hosts a park with recreational functions (fishing, boating), and elements essential to the biodiversity of the whole area (bodies of water, green corridors). This complexity is an opportunity for Milan, but it also carries considerable stakes in terms of governance, infrastructure development and development paths. Oddly, areas like Muggiano, with strong latent potential, are currently losing inhabitants and productive capacity. To keep going they will have to invent their own development path somewhere between production and conservation.

   Because of both the substantial political inertia with respect to implementing adequate policies and the environmental risks for food production, in recent years various place-based programmes have been implemented in Milan's metropolitan area with the overall aim of enhancing landscape values and producing quality food.

   These new efforts have focused on methods to improve the sustainability of local agricultural production and develop a new model,

alternative to the conventional one, through the integration of the food sovereignty approach (Calori 2009). This has been demonstrated in community-supported agriculture (CSA) initiatives to promote food education and the selling of local produce, as well as the diffusion of 'ethical consumerism' and new markets and short chain structures around Milan (Tricarico 2014).

14.2. Creation of the Milan Agricultural District

Among the many policies and projects introduced was the creation of the Distretto Agricolo Milanese (DAM – Milan Agricultural District) in 2011. A joint effort of the City of Milan and local farmers, the programme is a key component of the integration of urban planning and food systems in the neo-ruralisation of the city (see Figure 14.3).

The DAM is a non-profit association recognised as a consortium by the Lombardy Region and, indirectly, as a rural district by the European Commission.[2] The programme involves 31 farms covering a total of 1500 hectares in the Municipality of Milan. It represents an innovative model of territorial governance aiming to develop a territorially embedded system

Figure 14.3 Distretto Agricolo Milanese. (*Source*: Parco delle Risaie (2011))

of agricultural production through the valorisation of local farms and the quality of landscape, protect common goods like water and soil and foster the distribution and commercialisation of local food production.

The DAM works as a coordinating body gathering together public and private stakeholders to strengthen urban–rural interactions. It is backed by a strategic plan (Piano del Distretto Rurale di Milano) approved in 2011. The strategic plan was developed in accord with the vision of the Common Agricultural Policy (CAP), which is oriented towards the promotion of territorial ruralisation, and the goals defined by the European Strategy 2020 of raising the level of employment, reducing poverty and mitigating climate change's effects. The goals of the plan refer to the following key issues:

- *Production*. Protection of common goods, like water and soil; diversification of agricultural production, both to establish better relationships between local demand and supply and to improve the quality of the rural landscape; increased capacity to process products on site; improved accommodation capacity.
- *Marketing*. Promotion of local food production and direct sales through new distribution channels.
- *Territorial protection and safety*. Protection from micro and macro criminality, especially in terms of land abuse, and upgrading farms to the current norms.
- *Ecosystem and landscape services improvement*. Maintenance of green and blue infrastructure and requalification and valorisation of historical and natural elements (e.g. farmhouses, karst springs, canals and wooded areas) (Consorzio DAM 2011).

This plan therefore represents an innovative approach to the neo-ruralisation of the city, thanks to its vision being based on the pivotal role played by farmers. The local authorities are their partners. Agricultural areas are a strategic asset for the sustainable development of the metropolitan area.

The partnership between the DAM and the local authorities has been strengthened with the signing of the Protocollo d'Intesa – Strategia per lo sviluppo rurale di Milano[3] (Agreement Protocol – Strategy for the Rural Development of Milan) in May 2012. This agreement, developed from the vision of the DAM's strategic plan, may be considered the starting point of a pathway towards an urban–rural development strategy shared between public and private stakeholders in the metropolitan food system.

A leading project of the DAM is the Parco delle Risaie (Rice Park), an agricultural area of 650 hectares within the PASM's boundaries which was strongly exposed to the threat of urbanisation. Its recovery and valorisation began from the mobilisation of citizens and farmers, with the assistance of a non-profit association.

14.2.1. Associazione Parco delle Risaie Onlus

In 2008, a bottom-up process to re-establish both the natural and agricultural features of the area and its socioeconomic value was begun. Its goals were to strengthen the linkages between urban and rural contexts through the direct involvement of local stakeholders and authorities.

The association's strategic vision was defined by a democratic decision-making process. Its implementation aims to improve citizens' knowledge and participation in the project, preserve the rural landscape and promote farming's multi-functionality, as well as foster the diffusion of rice production.

14.3. Framework Agreement for Territorial Development

The implementation of these projects in the metropolitan territory has triggered a debate between institutions and farmers, leading in 2013 to the Lombardy Region's promotion of the Accordo Quadro di Sviluppo Territoriale[4] (AQST – Framework Agreement for Territorial Development). This agreement created a new level of governance, called the 'Milan Urban Metropolis'. It was accompanied by an action plan addressing several macro-objectives, such as improvement of the irrigation system, landscape and environmental restoration, multi-functionality, valorisation of rural culture, and innovation in production, distribution and marketing.

Through the signing of AQST, three other rural districts located in the metropolitan area became involved in the process of neo-ruralisation: Distretto Agricolo della Valle Olona (DAVO), Distretto Neorurale delle Tre Acque di Milano (DiNaMo) and Distretto Rurale Riso e Rane (Table 14.3). The involvement of metropolitan districts is an important aspect of this agreement, for it both permits the extension of the neo-ruralisation strategy to a wider range of stakeholders and creates a network of actors able to work as a system where previously actors worked alone in pursuit of their own ends.

Table 14.3 Accredited rural districts in the Metropolitan City of Milan

District name	District type	Lead organisation	Number of farms involved	Rural land covered (ha)
Distretto Agricolo Milanese (DAM)	Rural	Municipality of Milan	31	2000
Distretto Agricolo della Valle Olona (DAVO)	Rural–fluvial	Fiume Olona Consortium	29	1500
Distretto Neorurale delle Tre Acque di Milano	Rural	Metropolitan City of Milan	60	5500
Distretto Rurale Riso e Rane	Rural	–	61	3500

Source: Open access data from Metropolitan City of Milan, 2013.

Although these districts may share the same organisational structure, they are characterised by different ambitions. Actions taken by the DAM, the DiNaMo and the DAVO are directed more towards finding an innovative role for farms, responding to market changes in terms of redefining urban–rural synergies, and improving the multi-functionality of agriculture. Conversely, the Distretto Rurale Riso e Rane is mainly oriented towards industrial production, even if this maintains a strong linkage with the valorisation of rural landscape (Vescovi 2014).

The implementation of these place-based policies demonstrates a growing interest in the rural district model in the Milan metropolitan context.

The reasons such governance models are popular include their capacity to develop collaborative networks and to share urban–rural development strategy between local authorities, farms, NGOs, CSA and residents. Moreover, the active role played by the farmers is crucial to pursuing an alternative model of agricultural production; one mainly relating to metropolitan food demand and potentially able to ensure economic growth in the coming years.

14.4. Expo 2015 and local and international developments

The DAM has a key role in the re-ruralisation of the city by means of the rural districts. It has collaborated with the Municipality of Milan

on several projects relating to Expo 2015 (e.g. the Vie d'Acqua, a proposed project to the recover and valorise peri-urban landscape around Milan). This mega-event hosted by the City of Milan tackled the topic 'Feeding the Planet, Energy for Life!' and triggered many local and global initiatives around the theme of food. It was a further step towards the integration of food and urban systems. It also built bridges with existing initiatives within the territory. For instance, it is worth noticing that PASM was present in Expo, mainly through two pavilions (Slow Food and Cascina Triulza). Its presence took the form of film projections, animations for children, laboratories and debates.

More ambitiously, the food theme momentum created by Expo 2015 has been used by the municipality to elaborate important internal and external projects. In particular, the vision of the municipality now seeks to exploit the material and aesthetic resources unlocked by hosting the mega-event and has contributed to the development of its legacy plan with the aim of boosting the implementation of the re-ruralisation strategy.

That being so, beyond the urban physical transformations around the city, the main legacy of Expo 2015 is the definition of the Milan Food Policy 2015–20 and the Milan Urban Food Policy Pact.

14.4.1. Milan Food Policy

At the local level, the authorities initiated the Milan Food Policy, which aims to better understand the city's food system, identifying problems and opportunities, consulting and mobilising stakeholders and translating this knowledge into concrete action.

The elaboration of the food policy started with the work of experts in gathering data on several aspects of Milan's food system. A working group organised their results around 10 themes: Governance, Education, Waste, Access, Well-Being, Environment, Agroecosystem, Production, Finance and Trade. This effort resulted in the publication of a document, *Le dieci questioni della Food Policy* (The Ten Questions of the Food Policy), that was widely distributed to inform and engage with both stakeholders and citizens. The document was used to support the following actions:

- In February 2015, the municipal council defined its priorities and objectives in the development of the Food Policy.

- In March 2015, the third sector was consulted at the occasion of a fringe event at Fa' la cosa giusta!, the largest Italian fair on sustainable lifestyles, organised every year in Milan.
- In April 2015, a dialogue was initiated with start-ups and small businesses in the food sector.
- In May 2015, to reach as many citizens as possible, public meetings were organised in each of the nine districts of Milan.
- In June 2015, large private firms from the food sectors were consulted.

The results of this process were wrapped up and discussed in a 'Town Meeting' open to the public, held in July 2015. The concrete outcome of this process was the adoption, by the Milan City Council in October 2015, of guidelines for the Food Policy 2015–20.[5] This document, the *linee guide*, established five priorities, all subdivided into detailed potential pathways for action:

- Guarantee healthy food and sufficient drinkable water for all.
- Promote the Food System's sustainability.
- Food education.
- Fight against waste.
- Support and promote scientific research in the agro-food sector.

At the end of the document, the authors also listed the tools that are to be developed in support of these guidelines and recommended actions. They recommended the creation of a Food Metropolitan Council, which would help mobilise and be accountable to all the relevant actors. The deliberations of such an institution should be backed by a strong monitoring system able to provide relevant information about the local food system.

The City of Milan has recently announced a first implementation project relating to this policy. In collaboration with the DAM and Milano Ristorazione, the company in charge of catering in Milan, the local authorities want the rice served in school canteens to come from short local supply chains.[6] This goal is a first step towards connecting local production, and especially that coming from PASM, with local consumption. The project also has a cultural and educative component, for rice is an important local product (see Tables 14.1 and 14.2) that is already strongly promoted in the PASM context with the Parco delle Risaie (see above).

14.4.2. International development: the Milan Urban Food Policy Pact

The Milan Urban Food Policy Pact was conceived as an effort by the municipality to take advantage of the momentum created by Expo 2015 to put food-related issues on the agenda of cities worldwide. Signed by over 160 municipal and metropolitan authorities worldwide, it encourages them to engage with these issues and to spread good practice drawn from international examples. Current developments include setting up an international award to encourage cities to take concrete steps to implement the actions suggested by the pact. Technical assistance, including monitoring tools, will be supported by FAO's Food for the Cities Programme.

14.5. Conclusion

Milan has been confronted, in the last half-century, with challenges not uncommon to major European metropolises: rapid and spreading peri-urbanisation, increasing air pollution, climate change effects, growing internal demand, degradation of green and blue infrastructure and increasing complexity of food provision logistics.

The originality of the Milanese case has been its capacity, quite early on compared with similar cities (especially in Italy), to recognise food production and distribution as a significant urban issue. This local mobilisation around food-related themes has had concrete outcomes, chiefly the creation of the PASM and the DAM, as well as the promotion of educational and informational initiatives and projects to improve food access and reduce waste.

The PASM, despite its passive role as a mere barrier to urban sprawl, is a quite unique example of a voluntary action taken to preserve agricultural production capacity within a metropolitan territory (or its immediate proximity). Coupled with the ambitious institutional arrangement of the DAM, it helped to sustain a significant level of local food production, while encouraging bottom-up initiatives to preserve biodiversity preservation and strengthen urban–rural relationships.

The implementation of the DAM, and the other rural districts, is an important step towards the creation of a more democratic decision-making process to manage agricultural land sustainably and increase the resilience of the urban food system.

As ambitious and original as these initiatives may have been, they have not been without flaws. Indeed, to articulate environmental protection priorities in urban development policies, while paying special attention to local food production, appears to be a critical challenge for Milan. It requires a clear and democratic governance structure, the availability of economic resources and a long-term strategy for the implementation of shared objectives. The PASM's management of peri-urban spaces in recent times appears to have failed to take these factors fully into account. In spite of its successes in preserving this territory's agricultural capacity, it has arguably not been able to propose adequate policy for developing a strategy to integrate interacting factors such as urban agriculture, land use management and food security.

That experience, however, reinforced by the recent place-based initiatives in the Milan context, can be considered a positive stepping stone in the process towards enhancing Milan's food system, on both municipal and regional scale. This has been especially significant in the recent period in which the city has been taking advantage of the momentum created by Expo 2015, which has brought financial resources, political will and media attention. The local authorities therefore engaged in a process to define an overarching Food Policy.

With the collaboration of experts, a large consultation was started, which resulted in the adoption of detailed guidelines by the municipal council. It is too early to assess the concrete results of this process, but it does have the potential to improve the metropolitan food system, especially in terms of sustainability and resilience. Even the beginning of its implementation can be considered progress. Beyond the institutional initiatives that have progressively been developed to translate words into concrete projects, the debates about Milan's food system have arguably contributed to changing individual and business practices. As far as the latter is concerned, a noteworthy initiative has been taken by the Esselunga supermarkets, 49 of which started selling locally produced rice (under the DAM brand) in April 2015.[7]

Notes

1. Gazzetta Ufficiale, Lombardy Region Law n. 24/1990, 'Istituzione del parco regionale di cintura metropolitana Parco Agricolo Sud Milano', last modified January 2016. http://www.gazzettaufficiale.it/atto/regioni/caricaDettaglioAtto/originario?atto.dataPubblicazioneGazzetta=1990-12-29&atto.codiceRedazionale=090R1242
2. The European Commission, through Decision C (2008) 7843 of 10 December, has consented to the granting of state aid to implement the Rural District Contracts.

3. Protocollo d'Intesa – Strategia per lo sviluppo rurale di Milano, last modified February 2016. http://www.agricity.it/wp-content/uploads/Politiche/Protocollo-firmato.pdf
4. AQST Milano Metropoli Rurale, last modified February 2016. http://lombardia.rurbance.eu/media/activity/AQST/TESTO_ACCORDO_AQST_MMR_DEF.pdf
5. Milan Municipal Council, 5 October 2015, deliberation n°25, last modified February 2016. http://www.foodpolicymilano.org/wp-content/uploads/2015/10/CC-n.-25-del-5.10.2015.pdf
6. City of Milan's website, last modified April 2016. http://www.comune.milano.it/wps/portal/ist/it/news/primopiano/tutte_notizie/urbanistica/riso_cascine_tavole
7. City of Milan's website, last modified April 2016. http://www.comune.milano.it/wps/portal/ist/it/news/primopiano/tutte_notizie/urbanistica/riso_distretto_milanese

References

Borasio, M. and Prusicki, M. 2014. 'Milan Rural Metropolis. A Project for the Enhancement of Waters towards the Neo-ruralisation of Territorial System in Milan', *Scienze del Territorio* 2: 135–46.

Calori, A. 2009. 'Dal Parco Agricolo alla regione milanese: empowerment degli attori per la riconquista della sovranità alimentare', in *Pianificare tra Città e Campagna. Scenari, attori e progetti di nuova ruralità per il territorio di Parto*, edited by D. Fanfani, 91–114. Florence: Florence University Press.

Consorzio DAM. 2011. 'Piano del Distretto Rurale di Milano. Un processo di neoruralizzazione di Milano'. http://consorziodam.com/wp-content/uploads/2012/07/PIANO-DISTRETTO-AGRICOLO-RURALE-DI-MILANO.pdf

CRCS. 2013. 'Nota CRCS sul Consumo di Suolo nei Parchi Lombardi'. http://www.consumosuolo.org/les/2015/09/CRCS_aree-protette.pdf

Donadieu, P. 2013. *Campagne Urbane. Una nuova proposta di paesaggio della città*. Rome: Donzelli.

Magoni, M. and Colucci, A. 2017. 'Protection of Peri-urban Open Spaces and Food-System Strategies. The Case of Parco delle Risaie in Milan', *Planning Practice & Research* 32(1): 1–15.

Migliorini, P. and Scaltriti, B. 2012. 'Evaluation of Sustainability of the Farms in the Agricultural Park of South Milan and Their Production Chain', *New Medit* 11(4): 49–52.

Province of Milan. 2011. 'SEA Environmental Report of the Provincial Plan'. http://allega.provincia.milano.it/pianificazione/allegati/piano_territoriale/adeguamento_in_corso_adottato/VAS_Rapporto_ambientale.pdf

Tricarico, L. 2014. 'Imprese di comunità nelle politiche di rigenerazione urbana: definire e inquadrare il contesto italiano', Working Paper Euricse, no. 68/14.

Vescovi, F. 2014. 'Parco Agricolo Sud ed Expo 2015: per una nuova governance dell'agricoltura periurbana Milanese', *Territorio* 70: 92–100.

15

Participatory planning for food production at city scale
Experiences from a stakeholder dialogue process in Tamale, Northern Ghana

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Food systems are integral to a city's functioning, and the importance of stakeholder participation in urban planning at various scales is increasingly recognised. This chapter therefore analyses the role of participatory processes in urban food system planning. We draw upon data from an ongoing multi-stakeholder planning process in Tamale, Northern Ghana, as well as interviews with planners in the city. We describe the food system in Tamale, focusing on the food production and spatial and infrastructural planning issues that stakeholders prioritised in the workshops. However, urban food production is regarded here as but one element of city region food systems (White and Hamm 2014), because our aim is not merely to describe the production landscape in our study city. We rather use it as a case study through which to demonstrate the potentials of multi-stakeholder participatory planning and the points that should be considered during its implementation.

The Tamale multi-stakeholder fora confirmed that a local, participatory version of the planning process can potentially reveal the diverse priorities of multiple stakeholders. These need to be considered if planning and implementation are to meet the needs of city region inhabitants. This trend towards participation in planning has been slowly moving across the African continent (MacPherson 2013), following the general move towards participatory methods in development, particularly agricultural development (Mitlin and Thompson 1995). Examples of participatory planning can be found in Zimbabwe (Siguake and Mubaiwa n.d.), Kenya

(Majale 2009) and South Africa (Development Action Group 2009). In participatory planning, all stakeholders, including the users of space, have decision-making power, for example in spatial design, selection of contractors and budgeting. In 2016, the conditions were being laid down for this to happen in Tamale, since administrative powers had been devolved to the municipal level as part of the nationwide governmental decentralisation process. All governmental departments, including the planning authority, are therefore now organised at the local level. In theory, this should provide an opportunity for more involvement of local institutions and organisations in planning. However, data we collected from records of stakeholder planning meetings and interviews indicate a need to consider not only whether but *how* participatory planning happens. Linked to this, another important issue is the role and recognition of informal activity in urban African food systems. Finally, it is necessary to consider how to involve the expertise of local professionals and action researchers, in a context where regional customary land norms play a very important role. A consideration of the different power relations between actors is an integral part of this experience.

15.1. Tamale's food system

The stages of food production, processing, distribution and consumption relate to many issues that local governments are grappling with. The topic of food and agriculture is unfamiliar territory for many local governments, but pressing concerns about sustainability are encouraging municipalities to think creatively about how they can address food system resilience issues in their city regions. Considering food and its relationship to local community development provides an opportunity to enhance quality of life while seeking to achieve other planning goals and strategies.

Local governments can capitalise on efficiencies made possible by an integrated planning approach. Understanding relationships between different system elements is a first step. Food policy can be used to achieve this because it is a crosscutting issue that involves many different local government departments as well as external partners. It is important to understand how the issues of spatial and infrastructural planning we investigate in this chapter are integral to Tamale's food system.

Tamale is the capital city of Ghana's Northern Region. The traditional Northern Ghanaian staples maize, yam and rice still play an important role in the urban centre and are indispensable in the peri-urban zone. As Tamale has expanded, attracting white-collar workers from other regions

and nations, cuisine has diversified. Southern Ghanaian influence means that palm oil, cassava and plantain are imported from other regions to produce particular dishes. International imports are also necessary to modern African cuisine, so Thai and American polished rice is sold alongside vegetable oil and wheat flour as well as poultry products from Brazil. Fusion dishes incorporate raw salads using locally produced vegetables. Ruminant meat from the region is consumed; other animal products such as fish are largely imported from Southern Ghana or abroad. Traditional and modern staples are accompanied by small quantities of sauce containing fresh vegetables, often produced within the urban and peri-urban zone. These commonly include tomatoes, okra, aubergines and leaf vegetables. Traditional and modern meals can be bought relatively cheaply from vending sites throughout the day, and this has become more common over the past 20 years, as shown in Figure 15.1.

As storage facilities are rudimentary, regional roads are very important in maintaining staple food supplies (Karg et al. 2016). Fresh goods have a short shelf life. Thus, these are harvested daily by wholesalers from around the city and transported by marketers to the central markets. This

Figure 15.1 Evening meals of yam fufu served at a food outlet.
(*Source*: Imogen Bellwood-Howard)

system aims – but often fails – to reduce waste from spoilage by getting goods to the consumer by the end of the day.

Wholesaling of goods from the region and beyond takes place in the two central markets, namely Aboabo and the 'old market'. Aboabo market is geared towards bulking and distribution of dried goods, including cereals. Processed goods and fresh vegetables comprise a higher proportion of trade in the old market. Consumers and retailers buy from these central markets, the latter transporting fresh goods to neighbourhood markets around the city to sell. Imported goods are also distributed from these points and retailed in provisions stores. Increasingly, such products are also sold in supermarkets established by individuals. Such supermarkets increasingly sell home-processed consumer products with more sophisticated packaging, making use of locally produced agroproducts like groundnuts, combined with imported ingredients such as sugar. Large-scale agroprocessing is rare: cottage-scale rice parboiling and shea butter production are common livelihood activities, and there are larger-scale mango and rice processing facilities within the city region.

Regulatory infrastructure is represented by the Food and Drugs Agency, which sensitises food producers and retailers to quality standards. It also offers certification for local products, and the Ghana Tourist Board licenses formal and informal food outlets. However, the temporary and informal status of most food system actors means that only an insignificant minority of products and vendors are registered. This goes for foods sold in supermarkets as well as informally in markets and on the roadside. In the latter locations, although vendors may pay tax to the market authorities, there is very little prospect of quality regulation. Nevertheless, there is public awareness of food safety issues, and media outlets play a role in raising awareness of such concerns (Nchanji and Bellwood-Howard 2018).

Tamale has a low water table and natural perennial water sources are limited to a handful of streams (Giweta 2011). Municipal potable water is sourced from a tributary of the White Volta where it passes through a treatment plant at Dalun, 32 km from Tamale. Demand, however, is often greater than supply. Many people therefore frequently purchase drinking water and harvest rainwater in the wet season, and also use water from reservoirs to complement agricultural and domestic supplies.

Water shortages occur annually towards the end of the dry season, which usually lasts from November until the end of April. This exacerbates competition for water between domestic and farming purposes, as a significant share of farmers use potable water for irrigation when available (Bellwood-Howard et al. 2015b). An opposite but related concern is the use of wastewater to irrigate vegetables (Cobbina et al. 2013; Drechsel and Keraita 2014).

Liquid and solid waste is poorly managed: there is minimal formal infrastructure, some of which is not functional, or inadequate for the city's size. Collection is provided by large and small private companies, and plastic refuse is dumped outside the city limits or burned, while glass and metal are often reused or recycled. Biodegradable waste is often used to feed livestock, and unconfined animals frequently graze on refuse dumps. However, attention is increasingly being paid to the productive use of these wastes. Ghana Water Sanitation and Hygiene (WASH) alliance has brought together stakeholders, including researchers from Tamale's University for Development Studies (UDS), NGOs and local government bodies, to discuss the intersections between waste management, health and food production. Simultaneously, the metropolitan assembly, alongside other stakeholders, is supporting innovations and businesses connected to improved waste and sanitation management. These include the use of sewage sludge for fertiliser and industrial production of compost (Asare et al. 2010). On the other hand, urban and peri-urban vegetable farmers use appreciable quantities of fertiliser and other agro-chemicals, with little protection for themselves, wildlife or the public as excesses leach into the city's open drainage canals.

This overview of Tamale's food system shows that local and regional food production continues to play an important role in Tamale's foodscape, along with resource use issues. Historically, planning has paid little attention to urban food systems. As Tamale grows, there is a recognised and urgent need to consider this nexus, and in particular the elements relating to urban production.

15.2. History, geography and planning in Tamale

As the northern regional capital, Tamale is growing rapidly: the population has almost tripled to over 370 000 in the past 30 years (Ghana Statistical Service 2013), and the area of the city has increased up to seven-fold in the same period, as shown in Figure 15.2. This means that spatial and infrastructural planning has become a priority to reconcile competing land uses, particularly in the urban fringes. At the same time, rapid and often unplanned growth has meant that, of necessity, a rather functional food system has evolved even in the absence of guided planning.

Tamale was historically a market town on a trading route between the Sahara and the Salaga slave market. A period of development and expansion occurred in the 1920s (Dickson 1969). The planning laws developed in the 1950s were based on the British 1945 Town and Country Planning Act, a common legacy left throughout British ex-colonies (Okpala 2009).
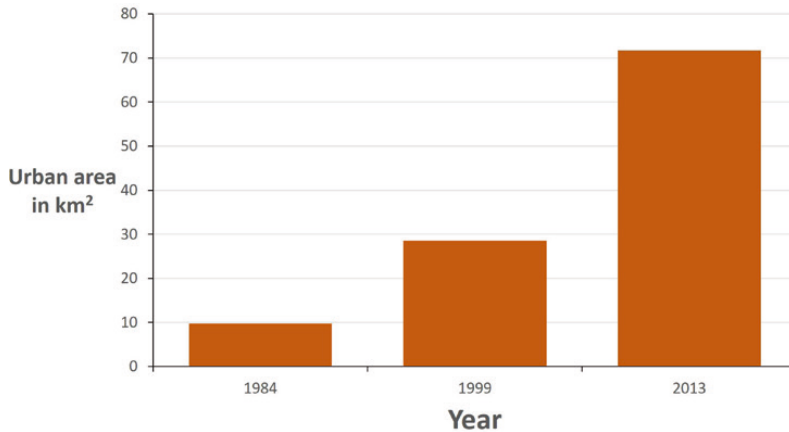
Figure 15.2 Growth of Tamale 1984–2013. (*Source*: Based on data from Erfurt (2014))

By the 1970s, the first 15-year plans were drawn up. The planning paradigm of the 1970s retained the European modernist view that rural and urban functions should be spatially separated. This perception had been reinforced by the disease epidemics of the colonial era (Okpala 2009; Cissé et al. 2005). Thus, planning did consider urban food systems to the extent that areas were zoned to include spaces for markets. However, space was not allocated for urban food production, which, as described above, has been and continues to be a central element of Tamale's food system. Before the passage of the 2016 Land Use and Spatial Planning Act, the part of Ghanaian Planning Law based on the 1945 act, Cap. 84, contained other elements intended to discourage urban food production. Focused on top-down design and implementation of whole-city master plans, Cap. 84 stated that permission should be sought from municipal authorities before any kind of agricultural activity is established in a town with a population over 5000. This was never strictly enforced in Tamale, for historical and contemporary reasons. In practice, colonial administrators were not particularly concerned with rigorously planning the city, partly because in colonial times Tamale was part of the northern territories and acted as a labour reserve for the timber, cocoa and gold industries in the Gold Coast to the south (Sutton 1989; Fuseini and Kemp 2015). This also meant that transport infrastructure bringing agricultural goods from the hinterland around Tamale was poorly developed, another factor encouraging the consumption of locally produced food. At independence, the north became part of the new country of Ghana. However, planners and law enforcers never sought to rigorously enforce

Cap. 84, recognising that it was outdated. In 2016, the Land Use and Spatial Planning Act was passed, intended to provide a basis for more locally relevant planning in the future. While its implementation awaits full enactment, informal urban food production is tolerated and prevails in Tamale.

15.3. Food production space in Tamale

Currently, there are two broad types of space that support urban farming within Tamale's central urban fabric. (Other farming types found in Tamale's peri-urban and adjacent rural zones also play a role in Tamale's regional food system.) Firstly, several undeveloped tracts of land exist around water sources all over the city, and many of these have become vegetable production sites (Figure 15.3). Within each area, a number of farmers cultivate next to each other on small, contiguous patches.
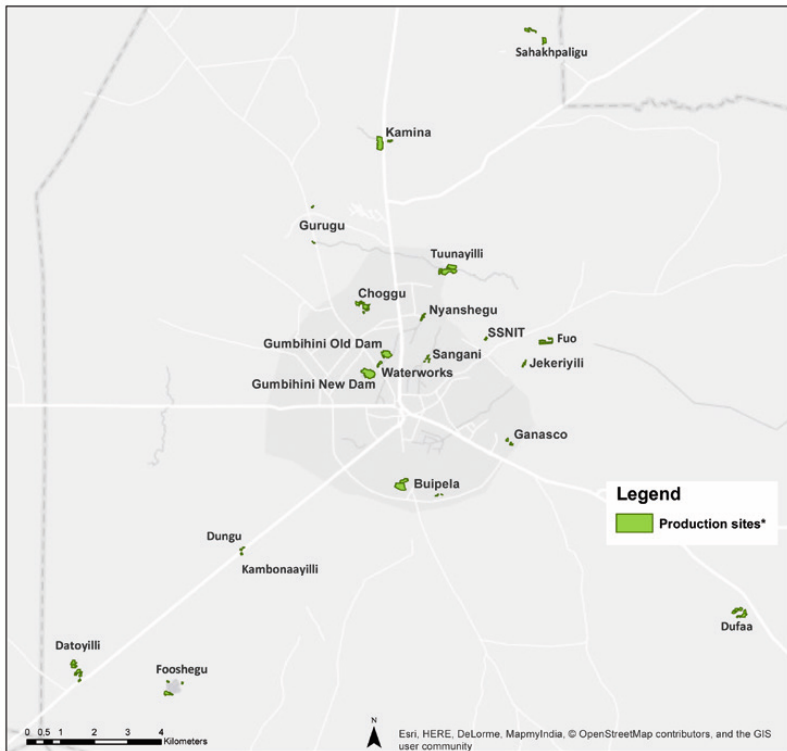
Figure 15.3 Open space production sites in and around Tamale. (*Source*: Nchanji et al. (2017))

Secondly, housing plots within areas officially zoned as residential are not all simultaneously developed, so householders and opportunistic farmers tend to cultivate on the vacant plots. This informal situation results from interaction between Tamale's spatial planning system and Northern Ghana's land tenure regime, among other factors. Roughly three-quarters of the land in Ghana is under the jurisdiction of the traditional authorities (Yaro 2012; Ubink and Quan 2008). Under the 1992 constitution, they are responsible for giving out plots to users. As this is traditionally in return for a gift of kola nuts, the process is termed 'allocation' rather than 'sale'. That gift, however, now takes the form of cash. What is significant with regard to food production is that any plot may be allocated, regardless of whether adjacent areas have been given out. In search of income, many chiefs currently engage unofficial planners to demarcate boundaries of plots unauthorised by the Town and Country Planning Department, which they then rapidly allocate (Yaro 2012; Fuseini and Kemp 2015). Thus, many unallocated and undeveloped plots can be found in isolated spaces within the newly expanding urban fabric, presenting an opportunity to food producers (Figure 15.4).

Figure 15.4 A backyard farm. (*Source*: Imogen Bellwood-Howard)

15.4. The multi-stakeholder planning process

In this context, a multi-stakeholder dialogue process was instigated in 2011 by RUAF and UDS as partners in the WASH alliance. The process is based on the multi-stakeholder policy formulation and action planning (MPAP) approach described below, developed by RUAF under the Cities Farming for the Future programme.[1] It initially considered the connections between waste management and food production. Of particular interest was the treatment of human waste for soil fertilisation and of drainage waters for irrigation, the latter particularly relevant in the light of the water constraints highlighted above. In 2013, UrbanFoodPlus – a research project on urban agriculture, in which UDS, RUAF and the International Water Management Institute (IWMI) were also partners – was introduced as another umbrella under which these and other organisations, such as the Urban Agriculture Network (URBANET), could meet. Key stakeholders in this MPAP also included the two local government bodies that administer the metropolis, Tamale Metropolitan Assembly and Sagnarigu District Assembly, the latter formed in 2012 as the city expanded. Other government institutions also took part, such as the Ministry of Food and Agriculture, the Town and Country Planning Authority and the Ministry of Health. Initially they participated as independent government departments, and then as part of the Tamale and Sagnarigu Assemblies, as they were subsumed into these between 2014 and 2015 in the course of government decentralisation. Local NGOs participating in the process included the Campaign for Agricultural and Rural Development, the Community Life Improvement Programme and Presby Mile 7, another WASH member, which engages farmers in the application of agricultural technology. Private enterprises such as rural banks were invited to participate, and the farmers' union was also involved (Figure 15.5).

The workshops followed the MPAP approach initially developed by RUAF to bring together urban agriculture stakeholders. RUAF and IWMI supported the development of a multi-stakeholder platform in Accra between 2005 and 2011. That process led to the formation of the Accra Working Group on Urban and Peri-urban Agriculture (AWGUPA), which facilitated the development of a city strategic agenda for urban agriculture, a document in which stakeholders made commitments to facilitate urban agriculture. This is part of the overall objective of the MPAP approach, which is to achieve 'long-term impact through the incorporation of [urban agriculture] in city planning' (Amerasinghe et al. 2013, 22). Although MPAP was originally designed as a tool for planning and

Figure 15.5 Farmers involved in the Tamale MPAP process. (*Source*: Imogen Bellwood-Howard)

policy development about urban food production, the principles of participatory planning can be applied to any component of a food system. Stakeholders in the Tamale workshops, despite being primarily concerned with production and waste reuse, discussed interlinkages with other food system components such as market upgrading and consumer empowerment.

MPAP can be seen as a preliminary, institutional-level tool in urban planning, and planners are among the stakeholders. By definition, the distinction between MPAP facilitators and participants is blurred: the aim is for local stakeholders to act as leaders, taking ownership of the process. Different parties, including local government, NGOs, researchers and practitioners, engage in joint definition and analysis of issues to address and the planning of solutions. They identify ways to institutionalise improvements to the food system by incorporating them into their ongoing activities (Dubbeling et al. 2011). This provides an opportunity for them to undertake further ground-level participatory work, involving food system stakeholders as leaders in the planning process. Participation can thus be nested at different institutional and practical scales.

By 2016, the Tamale stakeholder process had reached the stage of having identified several areas for policy attention and produced a policy narrative (see Bellwood-Howard et al. 2015a). However, the process of participation involves complicated negotiations between different organisations. A lesson learned by the RUAF teams working in Accra as well as Freetown and Ibadan was that it is important to identify an appropriate local leader for an MPAP process, and this requires an understanding of the local institutional setup. In Accra, AWGUPA eventually handed over the role of facilitator to the Ministry of Agriculture, and this established a strong leadership role that is so far missing in Tamale. In Tamale, the newly reinforced Tamale Metropolitan and Sagnarigu District Assemblies would seem to be appropriate lead institutions, yet face accusations of inefficacy, particularly from the traditional authorities.

Authority for certain decisions rests with different bodies across locations, and gaining approval and legitimacy means engaging with different hierarchies in different cities. This observation is certainly relevant in Tamale, and is especially important as decentralisation takes place across Ghana. Therefore, there is a need to consider the power relations that come into play as stakeholders express their views during the MPAP process. Working through these is one of the processes inherent in any development effort that uses a participatory method (Cooke and Kothari 2001). While engaging with existing hierarchies, the MPAP processes in both Tamale and Accra found that these sometimes stood in the way of effective discussion and prevented engagement with the private sector and marginalised groups. Indeed, the disjunctures between the customary and legal land systems, and the formal planning approach and informal realities, are the main points of contention that need to be dealt with in this discussion about spatial and infrastructural planning (Yaro 2010). Zeeuw and Dubbeling (2015) mention that choices made in the initial phase of the (MPAP) planning process (for example the geographical focus, or position of the local authorities) strongly influence the scope and the result. They also identify other challenges to MPAP, including the need for stronger integration of more participatory and community-based approaches with planning-led and formal processes. There is a need to try to inculcate a sense of local ownership among all stakeholders. This was achieved to some extent in Accra: responsibility for hosting the meetings rotated around the different stakeholder organisations, and research was carried out by the stakeholders themselves (Larbi and Cofie 2010). In Tamale, outsider researchers did most of this work, making stakeholder ownership less successful. The current facilitator, URBANET, with funding from RUAF, is driving the dialogue. When local institutions

make solid commitments in the city agenda document, they will be a step closer to owning the process. If local stakeholders are to become facilitators, they may need training on participation and groupwork alongside technical skills and knowledge development. Zeeuw and Dubbeling (2015) also indicate the need for a minimum package of indicators to permit effective monitoring. MPAP therefore needs careful and thoughtful implementation.

The meetings that took place between 2011 and 2016 in Tamale have revealed several issues that indicate the need for a middle, professional, tier of participation in planning discourse, between the grassroots and the institutional levels, and demonstrate the challenges that will be encountered in pursuing a participatory planning approach. We illustrate these through two key issues that motivated stakeholders in the Tamale workshops.

15.5. The role of planning

15.5.1. Land allocation and zoning

In Tamale, the land tenure system, combined with a particular spatial planning environment, has generated a particular set of tensions over land management. The land tenure system was described above, including the way that rapid, haphazard allocation of residential land gives farmers the opportunity to exploit the vacant spaces between new developments. Simultaneously, chiefs have sometimes sold to potential developers land inappropriate for construction, such as on flood plains. Such land has hitherto been used for farming, and when it is allocated to developers the farmers have to leave. Farmers who had experienced this complained that they regarded these sales as illegal. Meanwhile, agriculture has not hitherto been recognised as a valid urban land use category. Planners attending the stakeholder workshops before mid-2016 emphasised that when the Land Use and Spatial Planning Act was passed into law the formal spatial planning process should become more participatory. Planners would eventually be expected to consult residents before designing zone plans. Such plans would be produced at three scales: the national, the regional and the local. This reflects the move towards participatory planning proposed by scholars and practitioners of spatial and urban planning across Africa (Watson and Agbola 2013).

Stakeholders were strongly preoccupied with the question of land's availability for production. Their deliberations veered towards

promoting formal zoning and allocation of specific large sites for agriculture, particularly those prone to flooding. The discussions also considered how to secure such sites after zoning. Many stakeholders proposed that Tamale and Sagnarigu Assemblies formally acquire such lands from chiefs and lease them, then charge farmers a rent to use them. This mirrors the formalist approach adopted for example in Bamako, Mali, where a 300-farmer site at Samanko, in peri-urban Bamako, has been officially dedicated to gardening. Similarly, the South African Cape Town Urban Agriculture Policy recognises urban agriculture as a legitimate land use for registered urban agricultural enterprises – although it does not allocate land to such enterprises (Geyer et al. 2011). One of MPAP's stated aims is also to 'move UA [urban agriculture] from its informality to formal recognition' (Amerasinghe et al. 2013). The similarities in these discourses prompt further reflection on the power relations between various stakeholders. When the instigators of a participatory process hold views that coincide with those of powerful stakeholders, it is necessary to question the extent to which divergent voices can be expected to emerge. It is hard to imagine how voices advocating a continuation of informal, unregulated gardening could be heard in the Tamale MPAP.

Despite advocating a participatory approach to land zoning, the representative from the Town and Country Planning Department regretted that there had not yet actually been any consultations over the designation of specific sites in Tamale for specific activities, meaning that the current situation, where different stakeholders perceive land to have different functions, continues. There is also continuing uncertainty over how to enforce any potential zoning of urban land for agriculture. In particular, the question arises of whether chiefs can be sanctioned if they allocate such land to residential developers, or allocate land that has not been officially demarcated. Simultaneously, the traditional land secretariat claims that the local assembly has failed to acquire sufficient lands from traditional authorities for public functions such as markets and food production. The stakeholder workshops revealed that farmers were not prepared to pay for space in designated agricultural zones, or to undertake the responsibilities that came with such rights, despite voicing a desire for formalisation. Frictions are therefore likely to emerge in the implementation of the participatory land zoning process, especially if stakeholders claim to welcome formalisation but continue to act informally. Such consultation will also potentially become part of the work of town planners as they design the local land use plans implied by the Land Use and Spatial Planning Act. Finally, the legal and practical implications of changes to land law are highly complex in the context of existing

traditional institutions, as exemplified in Tamale by the Kingdom of Dagbon. There is therefore good reason to suggest establishing an expert professional working group to explore these issues.

15.5.2. Water infrastructure and management

Backyard and isolated space food production is fairly important in this particular food system because of the situation described above, where chiefs can simultaneously allocate non-adjacent plots within their territories. Farming upon undeveloped plots is not only for subsistence purposes, but also makes some contribution to Tamale's commercial food production system. As these farms are not always located close to water sources, the majority of production is limited to the rainy season. Simultaneously, 73 per cent of backyard farmers who produce in the dry season use potable water to irrigate their vegetables,[2] which demands examination of the extent of planning in water provision.

Major pipelines exist to most residential areas in central Tamale, but are poorly developed in peri-urban areas. To gain access to the municipal water supply, householders may contact the Ghana Water Company (GWC) to connect directly to the major pipeline and install an individual meter. This is expensive, so many people make private arrangements to extend the line of a neighbour, even though this will give them both lower water pressure.

In the stakeholder workshops, the GWC representative explained that use of potable water for agriculture, though not illegal, was discouraged by the GWC because it competed with domestic needs in Tamale's dry environment. Another major concern was that up to 50 per cent of water used in Tamale was unbilled, and a large proportion of that was ascribed to agricultural use. The GWC therefore aimed to prevent the use of treated water for farming, through price mechanisms as well as hard infrastructure. There are commercial and consumer rates for water, and urban farmers are obliged to pay commercial rates if GWC representatives find that they are using treated water for agricultural production. The issue of water rates is very sensitive, especially since December 2015, when national commercial and residential rates for water rose between 69 and 89 per cent (Kpodo 2015).

Although farmers claimed in the workshops to recognise the importance of using clean and legal water sources, field data suggest that their practice does not match their rhetoric. When piped water infrastructure does not meet their needs, dugouts and reservoirs act as water sources for some farmers. Water from these structures is used in food production

and for domestic functions. This can pose a public health risk: Cobbina and colleagues (2010) found that faecal coliform levels in three Tamale dugouts were above the World Health Organisation's acceptable limits for drinking water. Many reservoirs seasonally become dry, and it is understandably difficult to plan the creation of new reservoirs in areas already congested by urbanisation.

An alternative irrigation source is therefore wastewater, often collected from gutters and overflows. However, as described above, reasonable public consternation over such activity is further fuelled by media reports.

Engineers from UDS and UrbanFoodPlus have at various points suggested wastewater filtration as a technical solution to the lack of irrigation water. Methods tried in the past and currently under examination include individual-scale slow-sand and biochar filters. The equipment developed so far has yet to meet farmers' needs for rapid provision of large volumes of water, particularly for temperate salad crops. Participants in the stakeholder process conceded that wastewater treatment and use for irrigation would be an appropriate solution, but concluded that infrastructural planning capacity was currently too limited to be able to provide municipal-scale options at this stage. A major sticking point is that the funds for a citywide, centralised scheme are not available. Meanwhile, contemporary developments illustrate that the water and waste authorities are still far from considering a joined-up approach to water supply and disposal: gutters are currently being reconstructed to divert wastewater out of the city centre towards peri-urban areas, rather than to treat it for reuse. The head and outlet of one such gutter are shown in Figure 15.6. This sets

Figure 15.6   Reconstruction of a gutter in central northeast Tamale (left) and its end point 7 km outside the city centre (right). (*Source*: Imogen Bellwood-Howard)

current wastewater disposal planning at odds with the needs of urban agriculture.

In the light of these constraints, flood-, storm- and rainwater harvesting was deemed the most feasible interim solution. To date, then, water planning has been unable to address food producers' and consumers' concerns. Small-scale, unplanned, informal irrigation on the edge of legality and public acceptability is presently the norm, and one that is likely to continue into the future. Solutions in this area are possibly even further away than on the land issue, since it is not possible to point to any legislative move to address water concerns, despite the acute need.

Here, engineering considerations based on local geography are more important than customary resource allocation systems. A working group of experts in this area should therefore comprise engineers alongside geologists and also experts in waste management and water infrastructure and treatment. It will be important to engage farmers in dialogue about how realistic it is for them to change their irrigation practices, given their economic priorities alongside the health concerns of other stakeholders. This particular case study illustrates especially strongly the need for a holistic planning approach that considers interconnections between various nodes in the food system.

15.6. Implications

The observations above demonstrate a need to continually reflect on the veracity of the opinions stakeholders express in participatory fora, especially when such processes involve the interaction of diverse groups with different levels of power. If stakeholders reach agreement on a city strategic agenda document for urban food production, they can use this to direct their diverse responsibilities. These may include the facilitation of further participatory planning exercises with individual resource users at the operational and grassroots levels. This is the type of approach suggested by the Land Use and Spatial Planning Act. Thus, there is a need to use a city strategic agenda as an opportunity to connect MPAP to the responsibilities of urban planners (Mitlin and Thompson 1995).

Secondly, considering the lip service paid to formalist solutions by actors like chiefs and farmers, it would be useful to examine the relative merits of an entirely formal approach and leaving space (literally) for informal activities. Even if formal solutions such as official zoning of agricultural land have been suggested in a participatory environment, the observations on participation indicate that this could be disingenuous.

This implies a rationale for thinking about how informality, such as opportunistic use of available irrigation sources or unofficial roadside vending, may be integrated into food system planning. No stakeholder in the Tamale process openly voiced such an idea, yet this is a discourse establishing itself in academic writing on African urban planning (Watson and Agbola 2013; Odendaal 2012; Roy 2005).

The complexities of the situation described here point to a need for local professional expert working groups. These could undertake and report on place-specific action research on the implications of certain planning decisions. Thus, they could potentially act as a middle tier of participation between the institutional and the grassroots levels. This is important in Northern Ghana, where local traditional norms interact with national and regional planning processes. The same claim could be made for multiple contexts across the continent. The experiences of the Tamale stakeholder workshops consolidate those of the Accra MPAP, that funds should be earmarked towards facilitating such a process and making a worthwhile investment.

There is particular potential for setting up a local working group in the current era of decentralisation. Hence, stakeholders, including RUAF, based on experience elsewhere, suggested that the MPAP process leader should come from a body within the local assembly, now the central authority for planning matters. The need for integrated planning also led stakeholders to suggest changes to the structure of the local assemblies themselves. Agriculture is currently discussed under the social services subcommittee of the metropolitan assembly. The stakeholders recommended that an agriculture subcommittee be formed as well. This is an example of a structure that could host an expert working group that would assess the implications of various food system planning decisions, such as those to do with agricultural land and water. Such a move would involve the challenge of maintaining the balance between detail and holistic outlook: the linkages between food production and other sectors of the food system should not be forgotten by members of such a subcommittee.

15.7. Summary

This chapter has examined the role of participation in integrating urban food systems into urban planning, using Tamale as an example. Differential power relations between stakeholders make the implementation of participation at the institutional and the local levels challenging, even

when an explicitly participatory process is used. Local professionals such as town planners have an important role to play through applying their expertise in working groups. They are well placed to carry out action research into the implications of enacting certain policies in a specific cultural, geographical and historical context. With this in mind, the recent decentralisation of most of Ghana's ministerial functions bodes well for the future of urban agriculture planning: indeed, over a decade ago, Cissé and colleagues (2005) called decentralisation an opportunity for urban agriculture. In this process, the actual enactment of participation should be carefully assessed, bearing in mind various actors' power-laden interactions, with the objective of addressing local stakeholders' development priorities. There may be a need to explicitly recognise the role of informal activity, rather than attempt to enforce formal approaches with limited resources. It will now be instructive to see how far the relevant stakeholders in Tamale, and elsewhere, will engage with each other to proceed along the urban food system planning process.

Notes

1. http://www.ruaf.org
2. Unpublished data, Urban Food Plus (UFP).

References

Amerasinghe, P., Cofie, O., Larbi, T. and Drechsel, P. 2013. *Facilitating Outcomes: Multi-stakeholder Processes for Influencing Policy Change on Urban Agriculture in Selected West African and South Asian Cities*. Colombo: IWMI.

Asare, I., Kranjac-Berisavljevic, G. and Cofie, O. 2010. 'Faecal Sludge Application for Agriculture in Tamale, Ghana', *Urban Agriculture Magazine* 10: 32–3.

Bellwood-Howard, I., Chimsi, E., Abdul-Ganiyu, S. and van Veenhuisen, R. 2015a. 'Urban and Peri-urban Agriculture in Tamale: A Policy Narrative'. Last modified October 2015. http://www.urbanfoodplus.org/fileadmin/user_upload/Pictures/Publications/Policy_narrative_UPA_in_Tamale_2015_10.pdf: UrbanFoodPlus

Bellwood-Howard, I., Häring, V., Karg, H., Roessler, R., Schlesinger, J. and Shakya, M. 2015b. *Characteristics of Urban and Peri-urban Agriculture in West Africa: Results of an Exploratory Survey Conducted in Tamale (Ghana) and Ouagadougou (Burkina Faso)*. Colombo: IWMI.

Cissé, O., Gueye, N. and Sy, M. 2005. 'Institutional and Legal Aspects of Urban Agriculture in French-Speaking West Africa: From Marginalization to Legitimization', *Environment and Urbanization* 17(2): 143–54.

Cobbina, S., Anyidoho, L., Nyame, F. and Hodgson, I. 2010. 'Water Quality Status of Dugouts from Five Districts in Northern Ghana: Implications for Sustainable Water Resources Management in a Water Stressed Tropical Savannah Environment', *Environmental Monitoring and Assessment* 167(1–4): 405–16.

Cobbina, S., Kotochi, M., Korese, J. and Akrong, M. 2013. 'Microbial Contamination in Vegetables at the Farm Gate Due to Irrigation with Wastewater in the Tamale Metropolis of Northern Ghana', *Journal of Environmental Protection* 4(7): 676–82.

Cooke, B. and Kothari, U. (eds). 2001. *Participation: The New Tyranny?* London: Zed Books.

Development Action Group. 2009. *A Place to Be Free: A Case Study of the Freedom Park Informal Settlement Upgrade*. Cape Town.

Dickson, K. 1969. *A Historical Geography of Ghana*. Cambridge: Cambridge University Press.

Drechsel, P. and Keraita, B. (eds). 2014. *Irrigated Urban Vegetable Production in Ghana: Characteristics, Benefits and Risk Mitigation*, 2nd edn. Colombo: IWMI.

Dubbeling, M., de Zeeuw, H. and van Veenhuizen, R. 2011. *Cities, Poverty and Food; Multi-stakeholder Policy and Planning in Urban Agriculture*. Leuden: RUAF.

Erfurt, M. 2014. 'Landnutzungswandel in Tamale, Nordghana', bachelor's thesis, Albert Ludwigs University, Freiburg.

Fuseini, I. and Kemp, J. 2015. 'A Review of Spatial Planning in Ghana's Socio-Economic Development Trajectory: A Sustainable Development Perspective', *Land Use Policy* 47: 309–20.

Geyer, H., Schloms, B., du Plessis, D. and van Eeden, A. 2011. 'Land Quality, Urban Development and Urban Agriculture within the Cape Town Urban Edge', *Town and Regional Planning* 59: 41–52.

Ghana Statistical Service. 2013. *2010 Population and Housing Census: Regional Analytical Report, Northern Region*. Accra.

Giweta, M. 2011. 'Mainstreaming Wastewater Management in Urban Planning: A Case Study of Tamale Metropolis, Ghana', master's thesis, Wageningen University and Montpellier Sup Agro/IRC.

Karg, H., Drechsel, P., Akoto-Danso, E., Glaser, R., Nyarko, G. and Buerkert, A. 2016. 'Foodsheds and City Region Food Systems in Two West African Cities', *Sustainability* 8: 1175.

Kpodo, K. 2015. 'Ghana Approves Major Hikes in Electricity, Water Tariffs'. Last modified 7 December 2015. http://www.reuters.com/article/ghana-utilities-hike-idUSL8N13W4GW20151207

Larbi, T. and Cofie, O. 2010. 'Gradual Institutionalization of Urban Agriculture in Accra, Ghana', in *Cities, Poverty and Food*, edited by H. de Zeeuw, M. Dubbeling and R. van Veenhuizen, 82–7. Rugby: Practical Action.

MacPherson, L. 2013. 'Participatory Approaches to Slum Upgrading and Poverty Reduction in African Cities', *Hydra* 1(1): 85–95.

Majale, M. 2009. 'Developing Participatory Planning Practices in Kitale, Kenya', case study prepared for the *Global Report on Human Settlements 2009*. www.unhabitat.org/grhs/2009

Mitlin, D. and Thompson, J. 1995. 'Participatory Approaches in Urban Areas: Strengthening Civil Society or Reinforcing the Status Quo?', *Environment and Urbanization* 7(1): 231–50.

Nchanji, E. and Bellwood-Howard, I. 2018. 'Governance in Urban and Peri-urban Vegetable farming in Tamale, Northern Ghana', *Land Use Policy* 73: 205–214.

Nchanji, E., Bellwood-Howard, I., Schareika, N., Chagomoka, T., Schlesinger, J., Drescher, A. and Glaser, R. 2017. 'Assessing the Sustainability of Vegetable Production Practices in Northern Ghana', *International Journal of Agricultural Sustainability* 15(3): 321–37.

Odendaal, N. 2012. 'Reality Check: Planning Education in the African Urban Century', *Urban Planning in Africa* 29(3): 174–82.

Okpala, D. 2009. 'Revisiting Urban Planning in Sub-Saharan Africa "Anglophone" Countries', regional study prepared for the *Global Report on Human Settlements 2009*. www.unhabitat.org/grhs/2009

Roy, A. 2005. 'Urban Informality: Toward an Epistemology of Planning', *Journal of the American Planning Association* 71(2): 147–58.

Siguake, N. and Mubaiwa, A. n.d. *Baseline Report: Promoting Examples of Participatory Local Empowerment in Urban Planning*. Harare: Practical Action.

Sutton, I. 1989. 'Colonial Agricultural Policy: The Non-development of the Northern Territories of the Gold Coast', *International Journal of African Historical Studies* 22(4): 637–69.

Ubink, J. and Quan, J. 2008. 'How to Combine Tradition and Modernity? Regulating Customary Land Management in Ghana', *Land Use Policy* 25: 198–213.

Watson, V. and Agbola, B. 2013. 'Who Will Plan Africa's Cities? Africa Research Institute Counterpoint'. Last modified 12 September 2013. https://www.africaresearchinstitute.org/newsite/publications/who-will-plan-africas-cities/

White, S. and Hamm, M. 2014. *Urban Agriculture and a Planning Approach to Urban Food Systems*. East Lansing: Global Center for Food Systems Innovation, Michigan State University.

Yaro, J. 2010. 'Customary Tenure Systems under Siege: Contemporary Access to Land in Northern Ghana', *GeoJournal* 75(2): 199–214.

Yaro, J. 2012. 'Re-inventing Traditional Land Tenure in the Era of Land Commoditization: Some Consequences in Periurban Northern Ghana', *Geografiska Annaler: B* 94(4): 351–68.

Zeeuw, H. de and Dubbeling, M. 2015. 'Process and Tools for Multi-stakeholder Planning of the Urban Agro-food System', in *Cities and Agriculture: Developing Resilient Urban Food Systems*, edited by H. de Zeeuw and P. Drechsel, 56–87. London: Earthscan.

16
Unintentional food zoning
A case study of East Harlem, New York

Nevin Cohen

Among the tools that planners wield, none is more powerful or more commonly used than the ability to rezone land at the parcel, neighbourhood or city scale. Advocates of sustainable, healthy food systems typically focus on the *intentional* applications of zoning to improve neighbourhood food environments: allowing urban agriculture in residential and commercial areas; offering developers density bonuses to include supermarkets in their buildings; or restricting fast food establishments in neighbourhoods with high rates of obesity and diet-related diseases (Wooten et al. 2013; Sturm and Cohen 2009; Cohen 2014b, 57–85). However, these examples of intentional food zoning have produced mixed results. Although permitting farms and gardens in residential and commercial zones has enabled urban agriculture to flourish, developer incentives to include supermarkets in new buildings have led to only modest numbers of new stores.[1] Attempts to limit access to unhealthy food through zoning restrictions on fast food restaurants have had insignificant effects on diets and population health (Sturm and Cohen 2009).

This chapter focuses on *unintentional* food zoning – zoning decisions aiming to create housing, redevelop contaminated industrial sites, improve the streetscape, or achieve other municipal goals that also have significant consequences for neighbourhood food environments. Planners and food system advocates often overlook the unintended effects of zoning on food, ignoring the substantial changes to the food system which they create. The chapter presents evidence from the New York City neighbourhood of East Harlem, a low-income community of colour which has been rezoned numerous times in the past two decades to stimulate economic development and is undergoing yet another rezoning to spur the

construction of affordable housing. The case illustrates how rezoning has led to numerous changes to the neighbourhood's food retail sector, with significant consequences, positive and negative, for current and future residents. It argues that planners, policy-makers and community residents who care about access to healthy, affordable food need to pay attention to, analyse and address the effects of zoning changes that may appear at first glance to be unrelated to the food environment.

16.1. Food planning in New York City

Throughout the twentieth century, urban planners largely ignored the food system, treating food production as an exclusively rural activity and relegating responsibility for distribution and marketing to the private sector (Pothukuchi and Kaufman 2000). In the US, this perspective began to change in the 2000s as rising rates of obesity and diet-related chronic diseases made healthy food access a politically salient issue at the same time as growing demand for locally produced food put the vulnerabilities of regional food systems on the radar screen of activists, entrepreneurs and local political leaders. More recently, climate-change-induced extreme weather has heightened attention to precarious food system infrastructure. In response, planning and public health organisations, along with advocacy groups, have supported urban food planning initiatives that have led to new policies, programmes, advisory councils and spatial plans designed to improve nutrition and health, eliminate disparities in access to healthy food and increase the resilience of the urban food system (Pothukuchi 2009; Morgan 2013).

As in many US cities, New York's food system has reinforced underlying economic and social disparities, contributing to a wide range of health problems, particularly among low-income people of colour. Out of a population of approximately 8.5 million, approximately 1.36 million New Yorkers are food insecure and 1.8 million depend on federal Supplemental Nutrition Assistance Program (SNAP) benefits to buy food (City of New York Department of Health and Mental Hygiene 2015). Racial and ethnic disparities in access to healthy food, levels of obesity, and prevalence of diet-related illnesses are significant. More than half of adult New Yorkers are overweight or obese, and 20 per cent of kindergarten students are obese, with rates significantly higher among African Americans and Latinos than Whites (Freudenberg et al. 2018).

Early efforts at food planning in New York City focused on reducing diet-related diseases. Mayor Bloomberg created an Office of Food Policy

in 2007 to improve the nutritional standards of the approximately 250 million meals and snacks served by city agencies each year; increase enrolment in federal food subsidy programmes like SNAP; and promote access to healthy food in neighbourhoods with an inadequate number of supermarkets (Wurwarg 2014). The mayoral-controlled Board of Health also adopted regulations to reduce chronic diseases by prohibiting restaurants from using trans fats, requiring calorie labelling on the menus of chain restaurants and attempting, albeit unsuccessfully, to limit serving sizes for sugar-sweetened beverages (Freudenberg and Atkinson 2015). Other city policies to improve nutrition included support for farmers' markets; financial incentives (called 'health bucks') for SNAP recipients to shop at farmers' markets; programmes to help convenience stores stock healthier food; and permits for fruit and vegetable pushcarts in neighbourhoods with inadequate fresh food retailers (City of New York Department of Health and Mental Hygiene 2015).

Two elected officials, the Borough President of Manhattan[2] and the Speaker of the City Council, expanded the scope of food policy beyond health by releasing food strategies in 2010 addressing issues like regional agriculture, food distribution, food business development and food waste, as well as nutrition. Though not formally adopted as city plans, the documents were crafted with stakeholder input, thus garnering the support of diverse food advocates who saw the issues they cared about (e.g. hunger, food-related economic development, environmental impacts of food) reflected in the documents. Moreover, the City Council's strategy, *FoodWorks*, legitimised local policy intervention in the food system and committed the City Council to food-related legislation and oversight. The Borough President's document, *Food in the City*, illustrated that food is an issue appropriately addressed by elected officials primarily responsible for land use, budgeting and service delivery at the borough and neighbourhood scales. Both strategies prompted Mayor Bloomberg to add food system goals to a 2011 update of his citywide sustainability platform, *PlaNYC*, which had previously been silent about food. Food continues to be incorporated into the city's current sustainability plan, *One New York: The Plan for a Strong and Just City*.

In addition to these food strategies and food-infused sustainability plans, New York City has used spatial planning to integrate the city's approximately 900 food-producing gardens and farms, ranging from rooftop hydroponic greenhouses to small school gardens, into the cityscape (Altman et al. 2014). The city's zoning text allows agriculture as of right in all parts of the city, so, unlike many other US cities, New York has not had to legalise the practice. However, many urban gardens and farms

operate on public land, and conflicts over their tenure and competing uses, like affordable housing, have persisted for decades (Reynolds and Cohen 2016; Cohen 2016). Planning at the project scale has enabled city agencies like the Department of Housing Preservation and Development (HPD) and the New York City Housing Authority (NYCHA) to integrate farms atop and adjacent to new and existing residential projects (Cohen 2014a, 138–45). At the citywide scale, a programmatic green infrastructure plan to increase permeable surfaces to absorb stormwater that would otherwise inundate the sewer system has invested nearly US$600 000 in a 0.4-hectare rooftop farm and another US$770 000 in several smaller farms and gardens (Cohen and Wijsman 2014). The Department of City Planning has also supported rooftop agriculture through a zoning text amendment to exempt rooftop greenhouses on commercial buildings from bulk and height limits, increasing the number of buildings that can accommodate rooftop food production (Cohen et al. 2012).

Spatial planning has also been used to provide incentives for grocers to locate in neighbourhoods lacking access to fruits and vegetables and other healthy food. In 2009, the New York City Department of City Planning (DCP) created a programme called Food Retail Expansion to Support Health (FRESH), which combined financial and zoning incentives for supermarkets in such neighbourhoods, which are mapped in Figure 16.1 (New York City Economic Development Corporation [NYC EDC] 2015). The financial incentives include tax abatements and exemptions, while the zoning incentives allow property developers to build larger buildings than otherwise permitted under the existing zoning (one additional square metre of residential floor area for each square metre of grocery store space, up to 1858 more square metres) by including a neighbourhood grocer on the ground floor. To qualify for this bonus, the grocer must have at least 557 m² for general groceries, half for food intended for home preparation and consumption and 30 per cent for perishable food, with a minimum of 46 m² for fresh produce. FRESH zoning also reduces parking requirements and allows food stores on land zoned for light manufacturing as well as commercial use (Cohen et al. 2012). The results of the FRESH programme have been modest: since 2009, 27 FRESH supermarkets have been approved for financial and/or zoning incentives, and 14 of these have been built (City of New York Office of the Director of Food Policy 2017). Barriers to the programme include the reluctance of developers and grocery operators to participate in a city incentive programme and the dearth of vacant spaces of 557 m² or more (NYC EDC 2015). Moreover, the density bonus incentive may not be sufficient in neighbourhoods with very low housing prices.
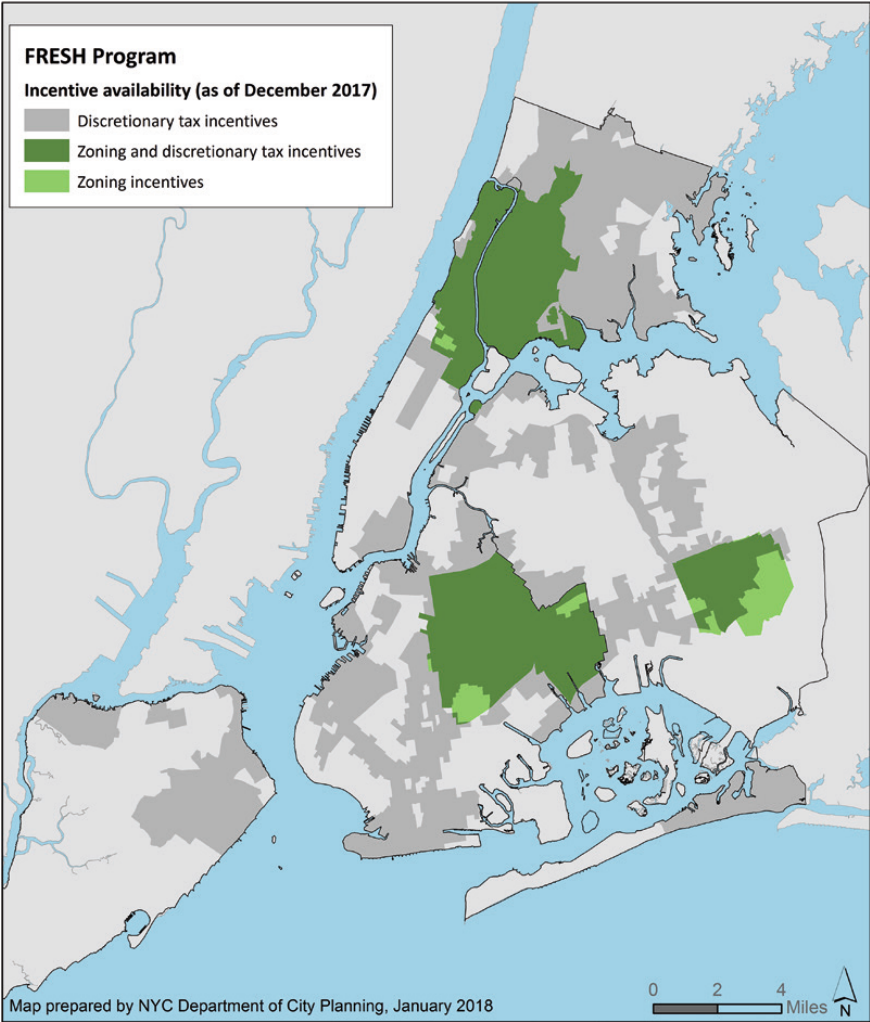
Figure 16.1 FRESH programme eligibility areas. (*Source*: Used with permission of the New York City Planning Commission. All rights reserved)

16.2. Unintentional food zoning

Although policy and spatial planning has led to numerous interventions in New York City's food system, zoning changes that are ostensibly not about food have in fact resulted in some of the most significant food impacts. This is partly a legacy of New York City's lack of a comprehensive plan, which has led the city to rely heavily on zoning to direct its

Figure 16.2 Zoning map amendments adopted since 2002. (*Source*: Used with permission of the New York City Planning Commission. All rights reserved)

growth and achieve broad municipal goals (Angotti 2009). From 2002 to 2013, for example, the administration of Mayor Bloomberg completed 120 separate rezonings that affected nearly a fifth of the city's land (McDonnell et al. 2010) (see Figure 16.2). The process has continued under the current mayoral administration of Bill de Blasio, which is rezoning low-income neighbourhoods throughout the city to increase the allowable residential density to spur housing construction that will be required to include affordable dwelling units. Six neighbourhoods, including East Harlem, are in the midst of community-wide planning and rezoning, with nine more to follow (City of New York Office of the Mayor 2014, 7; Navarro 2015).

Rezoning has two main effects on neighbourhood food environments. The *direct* consequences include changes to the allowable uses, size, density or configuration of buildings which determine whether and where food retailers, restaurants, farms, farmers' markets and food processing and distribution facilities can locate. Rezoning can increase opportunities for new food retail by, for example, changing a site's zoning from manufacturing to commercial use. Rezoning can also displace existing food businesses by making other, more profitable development possible, for example by allowing high-rise residential and commercial uses on a property previously zoned only for low-density commercial use. Rezoning also can have significant *indirect* effects on food environments by stimulating real estate development in a neighbourhood, increasing population density and reducing the ratio of food retail space to the number of residents, potentially exacerbating gaps in food access unless there is a corresponding growth in food retailers. Induced development can also change a neighbourhood's socioeconomic composition, thus influencing shopping and spending patterns that determine the types of businesses a neighbourhood can support, and therefore the quality, provenance and prices of food offered for sale. New development may drive up commercial rents, pricing grocers out of business; and new higher-income residents may shift the retail market to more expensive food.

Despite these direct and indirect effects, planners rarely analyse the consequences of rezoning on neighbourhood food environments when they design, propose and shepherd zoning proposals through public review and approval processes. Three factors account for this inattention. First, despite increasing interest in food systems over the past two decades, food remains a 'stranger to the planning field', off the radar screen of most planning departments which focus on more conventional planning domains like transportation and housing (Pothukuchi and Kaufman 2000). Second, although state and local environmental review laws often require analysis of the effects of zoning changes on the neighbourhood economy, they typically do not require explicit attention to the effects on food retail. Instead, planners typically treat commercial food establishments like other types of businesses, such as banks or pharmacies, which move in and out of neighbourhoods as communities evolve and consumer demand changes. Hence, food system impacts are often considered to be insufficiently significant to warrant more detailed review. The lack of a food analysis in the zoning process is all the more glaring when contrasted with the many other effects that get scrutinised

in great detail: population density, vehicular traffic, housing prices, shadows, water and sewer capacity and other issues of concern to residents. Third, zoning remains arcane to non-planners, inhibiting active political involvement in the zoning process by food system advocates.

16.3. The case of East Harlem

East Harlem, a low-income community in northern Manhattan, has undergone numerous zoning changes since the late 1990s, some area-wide and others limited to specific development sites. These rezonings have had three principal effects on East Harlem's food environment: supermarket displacement; the creation of new sites for specific types of food retailers; and the expansion of food retail as zoning has changed the neighbourhood's characteristics. Yet these effects were never explicitly considered when zoning proposals were introduced, debated and adopted.

16.3.1. Background on East Harlem

East Harlem has been a working-class, immigrant community for many generations (see Figure 16.3) and it remains a low-income community of colour. Its population is 50 per cent Hispanic and 31 per cent Black, with growing numbers of Mexican and Asian immigrants (King et al. 2015). East Harlem's median household income is US$30 335 per year compared with US$51 526 for New York City as a whole, with an unemployment rate of 11.5 per cent compared with 6.7 per cent for New York City (Community Board 11, 2015). Nearly a third (31 per cent) of its residents live below the poverty line, compared with 21 per cent of residents in New York City (King et al. 2015). Two-thirds of the neighbourhood's dwelling units are either in government-assisted housing programmes (39 per cent) or in public housing developments operated by NYCHA (28 per cent). The persistence of government housing makes it likely that the neighbourhood will continue to be home to large numbers of low-income residents for the foreseeable future (Furman Center 2014). Approximately 39 per cent of East Harlem residents receive SNAP benefits, and nearly a quarter of the population has reported being food insecure (Freudenberg et al. 2016).

East Harlem has also experienced significant new public and private investment since the mid-1990s. The neighbourhood's location in Manhattan, just north of the high-income Upper East Side and easily accessible to Midtown and Lower Manhattan business districts, has made

Figure 16.3 City map of Manhattan, New York with boundaries of Community District 11. (*Source*: Used with permission of the New York City Planning Commission. All rights reserved)

it desirable for those priced out of other Manhattan neighbourhoods, and thus has been prone to gentrification and displacement. Demand for housing in East Harlem has resulted in increased rents for new residential leases: between the periods 2005–7 and 2011–13, the median rent in East Harlem for recent movers increased by 35.7 per cent, compared with 9.3 per cent for the city as a whole, spurring the construction of new rental and condominium projects (Furman Center 2014). An influx of higher-income residents has also increased economic disparities in the neighbourhood. Between 2005 and 2013, East Harlem's income diversity, the gap between highest and lowest income (measured by dividing the income of households in the 80th percentile by the income of households in the 20th percentile) widened from 6.2 to 8 (Furman Center 2014).

Development pressures in East Harlem have resulted from public policies and financing aiming to encourage real estate development throughout northern Manhattan, which includes the neighbourhoods of West, Central and East Harlem. For example, the Upper Manhattan Empowerment Zone Development Corporation (UMEZ), a not-for-profit corporation established in 1994, has provided US$73 million in loans to mixed-use real estate development projects, commercial businesses and small business enterprises throughout northern Manhattan, as well as tax-exempt bonds for real estate development projects (UMEZ 2015). City agencies like the DCP, HPD and EDC have also disposed of city-owned property, offered tax subsidies and increased the allowable floor area ratio (FAR) on parcels throughout northern Manhattan to encourage new development.

16.3.2. Rezoning and supermarket displacement

Rezoning to stimulate new development along Harlem's historic 125th Street, a prominent east–west commercial corridor, contributed to the displacement of a large supermarket that was an important source of healthy food for East Harlem. In 2003, the DCP and other city agencies conducted a study and strategic planning process for the corridor which led to a rezoning proposal to make 125th Street a retail and entertainment destination by encouraging new mixed-use development, arts institutions and retail activities on this street (see Figure 16.4). The new zoning designation allows denser and taller buildings in the area and introduces mixed-use developments on lots that were once zoned only for commercial activity. The 125th Street rezoning aimed to encourage new development; impose urban design controls to ensure that development was in context with the neighbourhood's scale and character; expand the
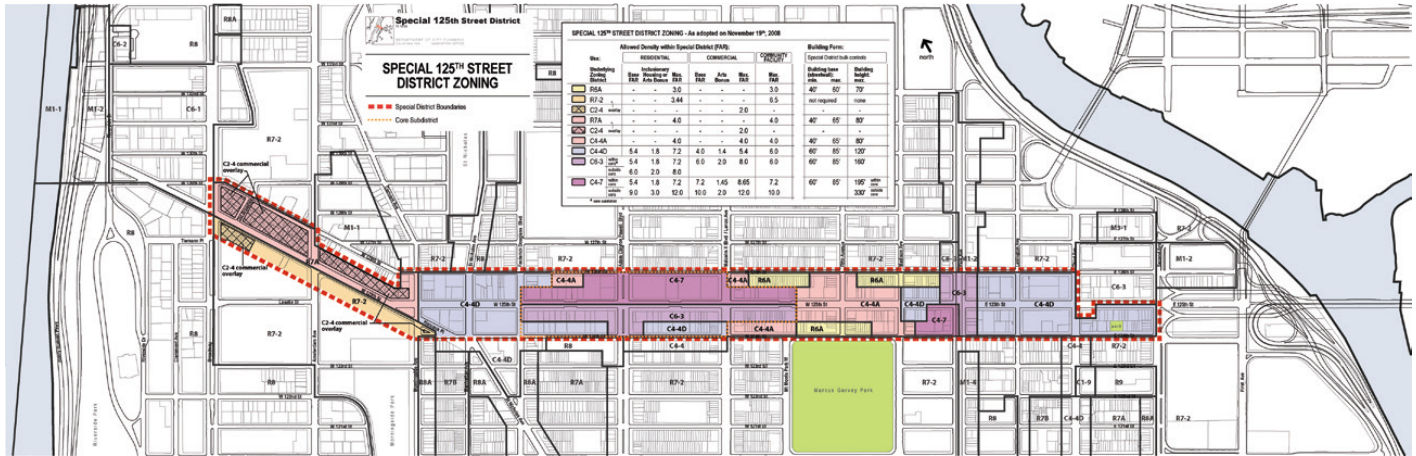
Figure 16.4 Special 125th Street district zoning map. (*Source*: Used with permission of the New York City Planning Commission. All rights reserved)

uses permitted along the street; and provide for housing construction by offering density bonuses for housing that included affordable units. The increase in development resulting from the rezoning was projected to include 2328 new residential units, 19 378 additional square metres of retail commercial space, 40 507 additional square metres of office commercial space and 1084 m² of new hotel space, along with *reductions* in community facilities, storage and manufacturing, and parking or auto repair uses (UMEZ 2014).

The rezoning contributed to the displacement of a large one-storey Pathmark supermarket located on 125th Street in East Harlem by increasing the development potential of the Pathmark site as well as nearby parcels in the rezoned area. Although the loss of one food retailer to development may not seem significant, this particular retailer's presence in East Harlem was the product of a long struggle in the community for access to a full-service supermarket. The East Harlem Pathmark opened in 1997 after a decades-long activist campaign to bring a supermarket to the neighbourhood, which only had smaller grocers and convenience stores ('bodegas'). Getting Pathmark to East Harlem involved multiple attempts by the city's EDC to attract a supermarket operator to a publicly owned parcel the size of a full city block on East 125th Street between Lexington Avenue and Third Avenue. At the time, retailers viewed the location as high risk, serving primarily low-income people of colour on a street perceived as dangerous (Eisenhauer 2001). Bottom-up pressure from activists combined with interest by UMEZ in a retailer that would draw shoppers to nearby UMEZ-financed commercial properties prevailed, despite objections from the owners and operators of the existing independent grocers and bodegas that public subsidisation of a supermarket would unfairly disadvantage their businesses. The EDC eventually sold the land at a below-market price of US$1.5 million to a local non-profit corporation, the Abyssinian Development Corporation (ADC), which developed the site and attracted Pathmark, a subsidiary of the Great Atlantic & Pacific Tea Company (A&P) to operate a 4920 m² supermarket.

By rezoning 125th Street, the city made higher-density residential, commercial and office development feasible along the entire east–west corridor in Harlem, increasing the value of parcels on 125th Street like the Pathmark site which were built to significantly smaller scale than allowed under the new zoning. The Pathmark site could accommodate 41 800 m² of buildable space, 27 900 m² of air rights for residential development, and additional development bonuses for affordable housing, making the one-storey supermarket an uneconomic anachronism. In

2013, a developer purchased a parcel just one block west of Pathmark for US$66 million to build two 32-storey residential towers totalling more than 55 700 m², 650 residential units (approximately 70 at affordable rents) and 6500 m² of retail space. In 2014, the real estate development company Extell bought the Pathmark parcel from ADC for US$39 million and announced plans to replace the one-storey supermarket with a much larger mixed-use project. Coincidentally, Pathmark's parent company, the Great Atlantic & Pacific Tea Company, filed for bankruptcy on 20 July 2015 (Great Atlantic & Pacific Tea Company 2015), and by December 2015 the Pathmark supermarket that the community had fought so hard to bring to East Harlem shuttered its doors, meaning the loss of a major food retailer and some 200 unionised jobs. Extell has not announced whether its new building will include food retail.

16.3.3. Rezoning for big box food retailers

Rezoning to redevelop a derelict industrial site ('brownfield') in East Harlem was designed specifically for a big box food retail format. On 7 September 1999, the City Planning Commission rezoned land in East Harlem (between 116th and 119th Streets near the East River) which had been occupied by a defunct manufacturing facility, the Washburn Wire Factory, so that it could be redeveloped into East River Plaza, a 44 000 m²

Figure 16.5   East River Plaza. (*Source*: Wikipedia media open source)

shopping centre. The primary planning goal was to turn the site into a commercial facility that would generate tax revenue, create jobs and capture sales revenue that would otherwise be lost to nearby suburban shopping centres. Its effect on food retail was to create commercial space to accommodate food retailers Costco and Target and eventually an Aldi supermarket (see Figure 16.5).

The process involved several interconnected zoning decisions: changing allowable uses on the site from manufacturing and residential to a range of commercial uses; issuing a special permit for a large parking garage accommodating 1250 vehicles; changing the street configuration; issuing a special permit to change height and setback requirements to facilitate big box commercial space; and transferring the land from the city to a developer. The special permits issued for the project defined the permitted form, size and uses in a way that fitted the footprint of big box retailers, a deliberate policy decision to accommodate the developer's aim to lease the space to the food retailer Costco (along with the home improvement big box retailer Home Depot). UMEZ also provided a US$15 million loan and US$40 million in tax-exempt bonds (UMEZ 2014).

The City Planning Commission and City Council approved the rezoning, yet, despite the significant effect of a new Costco and Target (and later Aldi) on food access in East Harlem, the consequences for food availability and impacts on other food retailers in the community were not intended by the rezoning, nor were the consequences for competing food businesses or the health of the neighbourhood residents analysed in the project's environmental impact assessment. During the project's environmental review, which required agencies to assess alternatives to proposed action, the Department of City Planning considered, but dismissed as less feasible, a 'local retail mix' alternative in which the site would be zoned for a mixture of six 930 m^2 local retail stores and a 5600 m^2 supermarket.

16.3.4. Upzoning and food gentrification

Upzoning is the process by which a city increases the allowable FAR or scale of development, thus increasing land value and development potential. Urban planners choose to upzone communities for different reasons: to convert a low-rise manufacturing area into a residential neighbourhood; to increase density around transit nodes to encourage the use of mass transit; to maximise the efficiency of other municipal infrastructure such as water and sewer systems or schools and public safety facilities; or

to meet the housing needs of a growing population. Upzoning has also been used as a way to offer residential developers additional density in exchange for creating below-market units that can be afforded by lower-income residents.

During the Bloomberg administration, East Harlem was upzoned numerous times to encourage the construction of new residential and commercial buildings. The goal was to stimulate economic development in northern Manhattan while also creating new affordable housing units. A sample of the outcomes of these zoning changes in East Harlem include:

- the development of more than a dozen new 8–12-storey mixed-use residential and commercial buildings;
- the creation of the East Harlem Media, Entertainment and Cultural Center, a 158 000 m² housing, retail and cultural project;
- the development of Harlem Park, a 46 500 m² mixed-use project with a hotel, 100 residential units, offices, retail space and a parking garage (City Planning Commission 2004);
- a new 110-unit rental building with 500 m² of ground floor commercial/retail space and 42 m² of community space (City Planning Commission 2005);
- the conversion of a vacant city lot into a 314-unit, 27 500 m² residential building with 217 m² of commercial space (City Planning Commission 2011);
- a new 12-storey building with 179 units of affordable housing, 506 m² of retail, 364 m² of community facility space, 27 parking spaces and 874 m² of recreational open space (City Planning Commission 2015).

One consequence of these and other projects has been the attraction of higher-income residents to East Harlem, as reflected in rapidly growing residential real estate prices. Between 2011 and 2014, the average price per square metre for multifamily rental buildings in East Harlem rose 104 per cent to US$4121, while the price per unit for multifamily rental buildings rose 182 per cent to US$414 565. The influx of higher-income people and escalating housing prices have raised concerns about residential displacement as landlords of existing properties have tried to take advantage of the changing real estate market by attempting to evict existing tenants and raise rents (Mark-Viverito and Brewer 2016; Busà 2014).

Commercial displacement has also become a concern because owners of commercial spaces, which are not subject to government rent controls, have sought, as leases expire, to rent to businesses that can afford higher rents (Busà 2014). Since 2000, retail rents in Upper Manhattan

Table 16.1 East Harlem 'soft sites' with existing supermarkets

Supermarket	Zoning	Commercial overlay	# floors	Current FAR	Allowable Commercial FAR	Allowable Residential FAR
Associated Supermarket	R7-2	C1-4	1	0.99	2	.87–3.44
Fine Fare Supermarket	R7X	c2-5	2	1.95	2	5
Met Supermarket	R7A R7-2	C2-5 C1-5	1	0.93	2	4.0/ .87–3.44
Fine Fare Supermarket	R8A R7A	C1-5	1	1.05	2	6.02/4.0
Cherry Valley Marketplace	R8A R7A	C1-5	2	2	2	4.0/6.02

Source: oasisnyc.net

have risen 41 per cent (Real Estate Board of New York 2015). Increasing real estate value also puts pressure on the owners of so-called 'soft sites', parcels that have buildings substantially smaller than the maximum allowable FAR under existing zoning, to sell their properties or develop them with structures that maximise development potential. In East Harlem, four of the community's 18 supermarkets are located on soft sites that could accommodate higher-density residential and/or commercial uses (see Table 16.1).

The influx of higher-income residents and cultural and commercial uses that attract higher-income visitors may also lead to 'food gentrification'. Analogous to residential gentrification, food gentrification is the process by which higher-income residents contribute to the displacement of existing affordable food establishments by virtue of their higher levels of disposable income and more expensive tastes in food. This leads to decisions by higher-end grocers and restaurants to locate in a gentrifying neighbourhood, or prompts existing food retailers to upgrade their stores, change their product selections and raise prices, making these establishments financially off-limits to existing residents (Anguelovski 2016). Symbolic barriers like different types of food combined with higher prices can prevent existing low-income residents from taking advantage of new food retailers and restaurants in gentrifying neighbourhoods (Sullivan 2014). Even without physical displacement, residents remaining in East Harlem can experience the loss of a sense of

place as the food establishments they are used to frequenting change or close owing to the neighbourhood's changing socioeconomics (Shaw and Hagemans 2015).

16.3.5. Rezoning and the displacement of food production

Food retail is not the only segment of the food system affected by rezoning. As a neighbourhood loses vacant lots and small manufacturing buildings to mixed-use buildings with new apartments and shops, spaces for activities like urban agriculture, small-scale food processing, and opportunities for local food distribution hubs – components of a diverse food system that contribute to resilience – may disappear. In New York City, the tradeoff between urban agriculture and housing has been the most controversial. In 1998, for example, Mayor Rudolph Giuliani attempted to sell 114 community garden sites to housing developers, framing the proposal in terms of the need to build new housing. Urban agriculture advocates and their allies thwarted Giuliani's plan, allowing the preservation of most of the sites, but threats to urban agriculture continue. For example, in 2015, the de Blasio administration's HPD proposed selling to housing developers 50 city-owned parcels that were being cultivated for food. Following a year of protests and negotiations, the Mayor announced on 30 December 2015 that 34 of these gardens would be spared development, and the city would attempt to relocate the others (Cohen 2016).

This decision was significant for East Harlem because a cluster of six gardens had been in operation on a large city-owned site slated for an affordable housing project. The developer of the new residential project will be required to fit the most active four of the six gardens into the site plan. Although the conflict between agriculture and housing is not a zoning issue per se, it illustrates that the effects of development on urban agriculture and local food production are not typically considered before the planning of city development projects made feasible through neighbourhood rezoning.

16.3.6. Changes in East Harlem food retail

As noted above, some zoning decisions have directly affected food retail in East Harlem, increasing property values and making one-storey supermarkets economically unfeasible or carving out spaces for particular types of food retailers such as Costco, the world's second-largest retailer (Deloitte 2015) and America's largest organic food seller (Foodbusinessnews.net 2015). Other zoning changes have indirectly affected food

retail by stimulating higher-priced development, resulting in increased property values and real estate development activity that continues to put pressure on existing food retailers (Satow 2014). Zoning over the past two decades has resulted in the following significant changes to East Harlem's food environment:

- the number of food retailers has grown by more than 40 per cent, increasing the availability of healthy and unhealthy food throughout East Harlem;
- the number of supermarkets has increased from 10 in 2000 to 17, though Costco, Target and Aldi are clustered on the periphery;
- new types of food retailers, including fruit and vegetable push-carts, farmers' markets and chain pharmacies that sell groceries, have emerged;
- some smaller supermarkets have upgraded their spaces and changed their branding to remain competitive, and at least one is reported to have lost its lease because the property owner built a larger structure with ground-floor retail space leased to a pharmacy at a higher rent;
- the number of restaurants has grown more than 80 per cent, reflecting an increase in the frequency with which people eat out or buy food ready for consumption;
- the number of franchise or fast-food restaurants in East Harlem has more than quadrupled from 11 in 2000 to 47 in 2015, reflecting growth in the fast food sector (Freudenberg et al. 2016).

Conclusions: strategies for healthy food zoning

The unintended effects of rezoning on food in East Harlem illustrate the need for city planners to be more attentive to whether and to what extent prospective rezoning affects a community's food system, for better and for worse. Consideration of the effects of rezoning on food needs to happen as the planning process begins and before ideas for rezoning are proposed – and certainly before the zoning code is changed. Moreover, changes to community food environments should be tracked following major rezoning projects to ensure that access to healthy, affordable food does not decrease over time, and to provide empirical evidence of how zoning affects food.

There are several steps that planners can take to ensure that all the effects of zoning on food are made with intention and public deliberation.

One is for a city to adopt a 'no net loss' policy for food retail. This means that if rezoning a community increases the number of residential units there should be an equivalent increase in commercial space suitable for supermarkets, grocers and other food retailers to ensure *no net loss* of fresh food retail per capita. Putting this into practice requires analysing food retail capacity, a process that is routinely carried out to assess other infrastructure capacity, but that is rarely done for food retail. Adding food to the list of municipal systems (e.g. transportation, water, schools) currently evaluated in environmental assessment processes would ensure that planners considered food as they developed proposed zoning changes, and would provide data on potential impacts to enable residents to more effectively participate in public reviews of proposed zoning changes.

Another step is to proactively use the rezoning process to carve out spaces for a variety of food activities that make a municipal food system resilient beyond supermarkets. These activities include manufacturing spaces for food incubators and new food businesses; open space for urban agriculture; and spaces to facilitate alternative forms of food retail, such as community supported agriculture (CSA) drop-off sites, food buying clubs and farmers' markets, which may require different types of interior and exterior space from conventional supermarkets, but may also have different needs for delivery and truck parking, and access to electricity and water, and may be able to fit into multiple-use spaces of different sizes and spatial configurations. In a similar vein, planners can propose zoning incentives to encourage developers to integrate food infrastructure into different types of buildings and spaces. Zoning texts could offer additional developable space for gardens and farms, commercial kitchens, food distribution infrastructure, and composting facilities built into new development projects. Cities could prioritise the reuse of industrial sites for food distribution infrastructure, particularly those obsolete manufacturing facilities considered too small for continued manufacturing use or too close to housing to be safe as a reused manufacturing facility. These sites are often rezoned for commercial or residential uses, but instead could serve as food hubs supporting a distributed and diverse food infrastructure that could reduce reliance on centralised and thus vulnerable terminal food markets.

Finally, zoning decisions that are expected to change the demographic composition of a community, particularly those leading to gentrification, require extra effort to ensure food availability and affordability for those remaining as the neighbourhood experiences an influx of higher-income residents. Zoning experts in planning departments can work

with economic development, human resources, education and other professionals to find ways to improve access to federal food benefits, school food and emergency feeding programmes as part of the rezoning process. This may involve offering zoning bonuses for facilities – from SNAP application centres to food pantries – that are built into new mixed-use projects.

In conclusion, by measuring and disclosing the effects of unintentional food zoning on neighbourhood food systems, and by taking steps to intentionally design zoning changes to enhance food access, planners and food advocates can improve neighbourhood food environments as they achieve other goals of the zoning process.

Notes

1. New York City's FRESH initiative has resulted in 14 new supermarkets since 2009. See City of New York Office of the Director of Food Policy 2017.
2. New York City consists of five boroughs, each with an elected president who has land use, budget and service delivery responsibilities for the borough.

References

Altman, L., Barry, L., Barry, M., Kuhl, K., Silva, P. and Wilks, B. 2014. *Five Borough Farm II: Growing the Benefits of Urban Agriculture in New York City*. New York: Design Trust for Public Space.

Angotti, T. 2009. 'Zoning without Planning?', *Gotham Gazette*. Accessed 5 June 2009. http://www.gothamgazette.com/article/fea/20090526/202/2928

Anguelovski, I. 2016. 'Healthy Food Stores, Greenlining and Food Gentrification: Contesting New Forms of Privilege, Displacement and Locally Unwanted Land Uses in Racially Mixed Neighborhoods', *International Journal of Urban and Regional Research* 39(6): 1–22.

Busà, A. 2014. 'After the 125th Street Rezoning: The Gentrification of Harlem's Main Street in the Bloomberg Years', *Urbanities* 4(2): 51–68.

City of New York Department of Health and Mental Hygiene. 2015. 'Community Health Survey'. http://www.nyc.gov/html/doh/html/survey/survey.shtml

City of New York Office of the Director of Food Policy. 2017. *Food Metrics Report 2017*. New York. Accessed 24 January 2018. http://www1.nyc.gov/assets/foodpolicy/downloads/pdf/2017-Food-Metrics-Report-Corrected.pdf

City of New York Office of the Mayor. 2014. *Housing New York: A Five-Borough, Ten-Year Plan*. New York.

City Planning Commission. 2004. Negative Declaration Review, Department of City Planning of the City of New York, Environmental Assessment and Review, 10 May. http://www.nyc.gov/html/oec/downloads/pdf/e-deg_materials/manhattan/04DCP053M_Determination_of_significance.PDF

City Planning Commission. 2005. C 050482 HAM, Department of City Planning of the City of New York. http://www.nyc.gov/html/dcp/pdf/cpc/050483.pdf

City Planning Commission. 2011. C 110096 HAM, Department of City Planning of the City of New York. http://www.nyc.gov/html/dcp/pdf/cpc/110096.pdf

City Planning Commission. 2015. C 150212 HAM. Department of City Planning of the City of New York. http://www.nyc.gov/html/dcp/pdf/cpc/150212.pdf

Cohen, N. 2014a. 'Policies to Support Urban Agriculture: Lessons from New York and Detroit', in *Second Nature Urban Agriculture: Designing Productive Cities*, edited by A. Viljoen and K. Bohn, 138–45. New York: Routledge.

Cohen, N. 2014b. 'Urban Food Systems Strategies', in *Elgar Companion to Sustainable Cities Strategies, Methods and Outlook*, edited by D.A. Mazmanian and H. Blanco, 57–85. Northampton, MA: Edward Elgar.

Cohen, N. 2016. 'Urban Agriculture for One New York'. http://www.huffingtonpost.com/nevin-cohen/urban-agriculture-for-one_b_8913140.html

Cohen, N. and Wijsman, K. 2014. 'Urban Agriculture as Green Infrastructure: The Case of New York City', *Urban Agriculture Magazine* 27: 16–19.

Cohen, N., Reynolds, K. and Sanghvi, R. 2012. *Five Borough Farm: Seeding the Future of Urban Agriculture in New York City*. New York: Design Trust for Public Space.

Community Board 11. 2015. Fiscal Year 2017 Statement of Community District Needs and Community Board Budget Requests Submitted to the Department of City Planning. http://www1.nyc.gov/assets/planning/download/pdf/community/community-portal/statement_needs/mn11_statement.pdf

Deloitte. 2015. 'Global Powers of Retailing'. http://www2.deloitte.com/be/en/pages/consumer-business/articles/global-powers-of-retailing.html

Eisenhauer, E. 2001. 'In Poor Health: Supermarket Redlining and Urban Nutrition', *GeoJournal* 53(2): 125–33.

Foodbusinessnews.net. 2015. 'Is Costco the New Organic Leader?' http://www.foodbusinessnews.net/articles/news_home/Food-Service-Retail/2015/06/Is_Costco_the_new_organic_lead.aspx?ID=%7B4DB18C69-FE2B-431F-A333-D7AFEDA54ABA%7D&cck=1

Freudenberg, N. and Atkinson, S. 2015. 'Getting Food Policy on the Mayoral Table: A Comparison of Two Election Cycles in New York and London', *Public Health* 129(4): 295–302.

Freudenberg, N., Cohen, N., Fuster, M.R., Garza, S., Johnson, D., Poppendieck, J., Rafalow, A., Sheldon, M., Silver, M. and Srivastava, A. 2016. *Eating in East Harlem: An Assessment of Changing Foodscapes in Community District 11, 2000–2015*. New York: CUNY School of Public Health and New York City Food Policy Center at Hunter College.

Freudenberg, N., Cohen, N., Poppendieck, J. and Willingham, C. 2018. 'Ten Years of Food Policy Governance in New York City: Lessons for the Next Decade', *Fordham Urban Law Journal* 45(4). https://ir.lawnet.fordham.edu/ulj/vol45/iss4/2

Furman Center. 2014. 'State of New York City's Housing and Neighborhoods in 2014'. http://furmancenter.org/research/sonychan

Great Atlantic & Pacific Tea Company. 2015. 'A&P Executes Asset Purchase Agreements to Sell Approximately 120 Stores for Approximately $600 Million'. Accessed 29 February 2016. http://www.apteanotice.com/wp-content/uploads/2015/07/BANKRUPTCY-ANNOUNCE-MENT-PRESS-RELEASE2.pdf

King, L., Hinterland, K., Dragan, K.L., Driver, C.R., Harris, T.G., Gwynn, R.C., Linos, N., Barbot, O. and Bassett, M.T. 2015. *Community Health Profiles 2015, Manhattan Community District 11: East Harlem*; 11(59): 1–16.

Mark-Viverito, M. and Brewer, G. 2016. 'East Harlem Neighborhood Plan', February. Accessed 27 February 2016. http://www.eastharlemplan.nyc/EHNP_FINAL_REPORT.pdf

McDonnell, S.T., Madar, J. and Been, V. 2010. 'How Do New York City's Recent Rezonings Align with Its Goals for Park Accessibility?', *Cities and the Environment* 3(1): 1–11.

Morgan, K. 2013. 'The Rise of Urban Food Planning', *International Planning Studies* 18(1): 1–4.

Navarro, M. 2015. 'New York Zoning Plan Requires More Affordable Homes', *New York Times*, 21 September 2015. https://www.nytimes.com/2015/09/22/nyregion/new-york-zoning-plan-requires-more-affordable-homes.html

NYC EDC. 2015. 'Food Retail Expansion to Support Health Impact Report'. http://www.nycedc.com/system/files/files/program/FRESH%20Impact%20Report.pdf

Pothukuchi, K. 2009. 'Community and Regional Food Planning: Building Institutional Support in the United States', *International Planning Studies* 14(4): 349–67.

Pothukuchi, K. and Kaufman, J.L. 2000. 'The Food System: A Stranger to the Planning Field', *Journal of the American Planning Association* 66(2): 113–24.

Real Estate Board of New York. 2015. REBNY Retail Reports. https://www.rebny.com/content/rebny/en/newsroom/research/REBNYRetailReport.html

Reynolds, K. and Cohen, N. 2016. *Beyond the Kale: Urban Agriculture and Social Justice Activism in New York City*. Athens, GA: University of Georgia Press.

Satow, J. 2014. 'Developers Are Making Bets on a Rising East Harlem', *New York Times*, 20 March. http://www.nytimes.com/2013/03/20/realestate/commercial/developers-are-making-bets-on-a-rising-east-harlem.html?_r=0

Shaw, K.S. and Hagemans, I.W. 2015. 'Gentrification without Displacement and the Consequent Loss of Place: The Effects of Class Transition on Low-Income Residents of Secure Housing in Gentrifying Areas', *International Journal of Urban and Regional Research* 39(2): 323–41.

Sturm, R. and Cohen, D.A. 2009. 'Zoning for Health? The Year-Old Ban on New Fast-Food Restaurants in South LA', *Health Affairs* 28(6).

Sullivan, D.M. 2014. 'From Food Desert to Food Mirage: Race, Social Class, and Food Shopping in a Gentrifying Neighborhood', *Advances in Applied Sociology* 4(1): 30–5.

UMEZ. 2014. 'Upper Manhattan Empowerment Zone: Channeling Growth and Opportunities to Upper Manhattan Residents', June. http://assimediafinal.s3.amazonaws.com/site557/reseller84/company831/user28794/1410875471_UMEZ.Channeling%20Growth%20Opportunities.pdf.

UMEZ. 2015. 'Who We Are – Upper Manhattan Empowerment Zone'. http://www.umez.org/index.cfm?e=inner2&itemcategory=59425

Wooten, H., Mclaughlin, I., Chen, L., Fry, C., Mongeon, C. and Graf, S. 2013. 'Zoning and Licensing to Regulate the Retail Environment and Achieve Public Health Goals', *Duke Forum for Law and Social Change* 5(1): 65–96.

Wurwarg, J. 2014. 'Urbanization and Hunger: Food Policies and Programs, Responding to Urbanization, and Benefiting the Urban Poor in Three Cities', *Journal of International Affairs*, 67(2): 75–90.

Appendix 1
List of declarations, charters and agreements examined in relation to 'integrating food into urban planning'

A1.1. Intergovernmental and international covenants, declarations and agendas

- 1966 Covenant on Economic, Social and Cultural Rights (article 11.1, 11.2)
- 1993 Vienna Declaration and Program of Action of the World Conference on Human Rights
- 1996 Rome Declaration on World Food Security
- 1996 Habitat Agenda in Istanbul [paras 109, 113(a), 116(a), 118(f)]
- 1999 General Comment 12
- 2016 New Urban Agenda

A1.2. Local governments' declarations

- 2000 Quito Declaration
- 2002 Hyderabad Declaration
- 2002 Nyanga Declaration
- 2002 Villa María del Triunfo Declaration
- 2003 Harare Declaration
- 2007 La Paz Declaration

A1.3. Food, allotments and nutrition-related declarations

- 2003 Maputo Declaration on Agriculture and Food Security, African Union
- 2006 Abuja Declaration of the Food Security Summit, African Union
- 2007 Zero Hunger Challenge, Ban Ki Moon initiative
- 2008 Resolution on the Future of Allotment Gardens in Europe
- 2013 Bonn Declaration of Mayors ICLEI–Local Governments for Sustainability, signed by 20 mayors (encourages development of city region food systems and urges development of resilient food systems in the context of urban resilience and climate adaptation)
- 2014 Rome Declaration on Nutrition
- 2014 Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, African Union
- 2014 Windhoek Declaration on Food and Nutrition Security, signed by 38 mayors and village chairpersons (peri-urban agriculture and city region linkages in the context of a town planning and food security workshop)
- 2014 World Urban Forum Medellin – Global Call for Action on City Region Food Systems agreement among key UN and other international organisations under the City Region Food Systems Collaborative Group and Global Urban Food Policy Pact
- 2015 Seoul Declaration (96 mayors signed this declaration which calls on cities and stakeholders to 'encourage sustainable urban food production projects and resilient city region food system programs' [point 4.3])
- 2015 Milan Urban Food Policy Pact

A1.4. Urban planning-related declarations

- 1992 Agenda 21 (completely omits urban food security)
- 1994 Aalborg Charter of European Cities and Towns towards Sustainability
- 1998 New Charter of Athens, European Council of Town Planners' principles for planning cities
- 2000 Hanover Call on European Municipal Leaders at the Turn of the Twenty-First Century

- 2003 The New Charter of Athens (in Lisbon)
- 2004 Aalborg Commitments, European local governments in the European sustainable cities and towns campaign
- 2007 Leipzig Charter on Sustainable Cities (doesn't mention food at all)
- 2010–20 Bangkok Declaration for Sustainable Transport Goals, organised by the UN Centre for Regional Development (doesn't address food)
- 2011 Planning and Food Security Discussion Paper by Commonwealth Association of Planners
- 2012 Naples Declaration at Sixth World Urban Forum, by global planners network
- 2013 Rabat Declaration (does not address food except to list 'food insecurity' in point 4)
- 2014 Building the Future Manifesto, Town and Country Planning Association
- 2015 World Urban Campaign (raising the urban agenda and the future we want – the city we need)

A1.5. Selected civil society declarations and resolutions

- 2009 Declaration from the CSO Parallel Forum to the World Summit on Food Security
- 2010 International Proposal for Food Security and Nutrition Civil Society Mechanism with CFS
- 2010 European Food Declaration, Nyeleni
- 2012 Civil Society Declaration on Food Sovereignty in Buenos Aires at the Third Special Conference for Food Sovereignty
- 2014 World Urban Forum 7, AITEC Declaration (point 37)
- 2015 Nyeleni Declaration of the International Forum for Agroecology

A1.6. Leaders' declarations

- 2015 Manila Asia–Pacific Economic Cooperation (APEC) Economic Leaders' Declaration
- 2015 G7 Leaders' Declaration

A1.7. Other sustainability, culture, development, biodiversity or climate change frameworks

- 2004 Agenda 21 for Culture
- 2007 Toronto Declaration: The Right to Healthy Environment
- 2011 Lyon Declaration of Regions and Federated States
- 2012 Cities and Biodiversity Outlook
- 2012 The Future We Want (Rio+20) (food for cities elevates the importance of rural–urban linkages on to the sustainable development agenda though urban food is hardly mentioned)
- 2014 Mayors' Compact Action Statement (climate focused)
- 2015 Sustainable Development Goals (points 2 [hunger] and 11 [cities])
- 2015 SDGs statement delivered by representatives of local and regional government networks gathered around the global taskforce
- 2015 Transforming Our World: 2030 Agenda for Sustainable Development, plan for action resolution adopted by the General Assembly for the post-2015 development agenda
- 2015 UNFCCC Carbon Climate Registry Report
- 2015 Latin American Cities' Declaration on the Compact of Mayors (climate focused)
- 2015 Paris Declaration (the road to Paris)

Appendix 2
City charters analysed in Chapter 1

2000 Toronto Food Charter (Canada)

2002 Saskatoon Food Charter (Canada)

2004 City of Greater Sudbury Food Charter (Canada)

2007 Vancouver Food Charter (Canada)

2008 Philadelphia Food Charter (USA)

2008 Thunder Bay Food Charter (Canada)

2009 Durham Region Food Charter, North Carolina (USA)

2009 The Cowichan (Vancouver Island) Food Charter (Canada)

2010 London Food Charter (UK)

2010 Halton Food Charter (Canada)

2010 Michigan Good Food Charter (USA)

2010 Jefferson County Food Charter (USA)

2011 Kawartha Lakes Food Charter (Canada)

2011 Kaslo Food Charter (Canada)

2011 Plymouth Food Charter (UK)

2011 Guelph–Wellington Food Charter (Canada)

2011 Sarnia–Lambton Food Charter (Canada)

2012 Simcoe County Food and Agriculture Charter (Canada)

2012 Hamilton Food Charter (Canada)

2012 Elgin St Tomas Food Charter (Canada)

2013 Bristol 'Good Food' Charter (UK)

2013 Newcastle Food Charter (UK)

2013 York Region Food Charter (Canada)

2013 Region of Waterloo Food Charter (Canada)

2013 Revelstoke Food Resilience Charter (North Columbia Environmental Society, Canada)

2013 Northumberland Food Charter (Canada)
2013 Victorian Good Food Charter (Australia)
2013 West Virginia's Roadmap for the Food Economy (USA)
2014 Birmingham Food Charter (UK)
2014 Oxford 'Good Food' Charter (UK)
2014 Cambridge 'Sustainable Food' Charter (UK)
2014 Minnesota Food Charter (USA)

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The integration of food into urban planning is a crucial and emerging topic. Urban planners, alongside the local and regional authorities that have traditionally been less engaged in food-related issues, are now asked to take a central and active part in understanding how food is produced, processed, packaged, transported, marketed, consumed, disposed of and recycled in our cities.

While there is a growing body of literature on the topic, the issue of planning cities in such a way they will increase food security and nutrition, not only for the affluent sections of society but primarily for the poor, is much less discussed, and much less informed by practices. This volume, a collaboration between the Bartlett Development Planning Unit at UCL and the Food Agricultural Organisation, aims to fill this gap by putting more than 20 city-based experiences in perspective, including studies from Toronto, New York City, Portland and Providence in North America; Milan in Europe and Cape Town in Africa; Belo Horizonte and Lima in South America; and, in Asia, Bangkok and Tokyo.

By studying and comparing cities of different sizes, from both the Global North and South, in developed and developing regions, the contributors collectively argue for the importance and circulation of global knowledge rooted in local food planning practices, programmes and policies.

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