1 Sustainable food system assessment

Lessons from global practice

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Introduction

Sustainable Food System Assessment: Lessons from Global Practice has its roots in workshops with participants in the Food: Locally Embedded, Globally Engaged (FLEdGE) Partnership as part of the work by the Laurier Centre for Sustainable Food Systems (LCSFS). The first workshop took place in Toronto, Canada in June 2016 with a follow-up meeting in Waterloo in September 2017. The goal of the gatherings was to share lessons learned and develop collective insights for moving forward with the various projects and the expert participants exploring opportunities for comparative work. These meetings provided a rich starting point, given the broad inclusion of academics and practitioners working on assessment projects developed from the city region to the national scale in both the Global South and North. Central observations, considerations, and questions from these meetings can be grouped as: (1) conceptual considerations including sense-making, vision, and place; (2) operationalization of metrics specifically developing frameworks and representations, determining degrees of complexity, the challenges of working within and across scales, and dealing with practical constraints such as data availability; and (3) outcomes and goals for assessment projects including policy generation, community inclusion and participation, building connections between initiatives, embedding change in communities, and knowledge dissemination. Taken together, these three overlapping themes capture the process of developing sustainable food systems assessment (SFSA) approaches from vision and concept, through operationalization, to ending with outputs (and in some cases, impacts). As such, these themes provide the framework for our book.

We begin with a scan of existing literature to provide context. Following, we provide a review of the workshop conclusions, including references to selected relevant literatures. Finally, this chapter includes a discussion of the chapters in this book. We revisit the core concepts in Chapter 12.

Insights from the sustainable food system assessment literature: terms of reference, context, and assessment considerations

Exploring terms and meaning

Recognizing the tensions around the words ‘sustainability’ and ‘systems’, it is useful to bracket how we use ‘sustainable food systems’ (SFS) in this book. As Prosperi et al. in Chapter 7 explain from their research in trying to understand sustainability, ‘People want a descriptor of a state rather than the prediction of a state’. With this in mind, we provide specific criteria for describing what constitutes an SFS.

While acknowledging that sustainability is a contested term, for our purposes ‘sustainable’ builds on the three-pillar approach from *Our Common Future* (Brundtland et al., 1986), used by many including the United Nation’s *2030 Agenda for Sustainable Development* and the associated Sustainable Development Goals (SDGs). Its three overlapping considerations are social, environmental, and economic. In a food systems context, social dimensions include the Right to Food, and ensuring food and nutrition security, food democracy, fair labour practices, gender equity, social connectivity, cultural self-determination, and natural resource rights including secure land tenure. Environmental considerations include ecological food production methods that acknowledge the important role of agroecology, biodiversity, renewable energy sources, and protecting the quality of soils, water, and other resources, while working towards regenerative closed loop food systems. Economic dimensions build from the premise of keeping equitable economic activity at the local as much as possible and then moving outward. This fosters supportive, circular commercial networks and infrastructure that include developing mutual trust and equal sharing of value and risk across agro-food networks from local to global. This is an important consideration as localization alone does not guarantee fair economic relations (Born & Purcell, 2006). The goal is to enhance community economic development through short, alternative food networks with models that include co-operatives, community supported agriculture and other forward investments, food sharing, collaborative business networks, and social economy approaches. Finally, inclusive, transparent, participatory, and democratic governance mechanisms are critical to support the three sustainability dimensions and are foundational to their success (Feenstra, 1997; Bricas, 2017; Blay-Palmer et al., 2018).

Given the complex, diverse, and necessarily adaptive demands of working towards sustainability, this book draws upon systems lenses to understand the possibilities for bringing about transformation through food collaborations (Stroink & Nelson, 2013; Knezevic et al., 2017; Chapter 4, this volume¹). While these systems lenses derive from many sources (Hipel et al., 2010; Ingram, 2011; Blay-Palmer et al., 2015; Hinrichs, 2016; Meter, 2007), we build explicitly from *Thinking in Systems* where Meadows (2008) defines a system as, ‘an interconnected set of elements that is coherently

organized in a way that achieves something' (p. 12). Systems are 'more than the sum of their parts' and can be '... adaptive, dynamic, goal-seeking, self-preserving, and sometimes, evolutionary' (p. 12). While there is integrity to systems and mechanisms to maintain balance, systems are also able to '... be self-organising, and are often self-repairing at least over some range of disruptions' (p. 12). Considering the myriad implications at the intersection of the definitions for sustainability and systems, it becomes clear that developing assessment tools and processes can be challenging (Stroink & Nelson, 2013; Chapters 4 & 7, this volume). That said, there are many complex and useful approaches to sustainable food systems that inform this book.

Next, we review some of the broader context that has fostered the emergence of assessment as part of the way forward for sustainable food systems. Academic work has increasingly embraced the perspectives and work of hundreds of community-based initiatives, amplifying the efforts of grass-roots projects while codifying lessons that can be applied across contexts.

The emergence of sustainable food system assessments

The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) is a key starting point for understanding current approaches to food system sustainability indicators as it helped to frame, both directly and indirectly, how actors consider and work within the existing food system at multiple scales. The IAASTD consultation and subsequent reports resulted from a multi-year (2004–2008) and multi-stakeholder process that included a wide spectrum of experts from research institutions and civil society, including both public and private sectors. The IAASTD process was developed to inform policy formulation around research and knowledge creation for SFS using agriculture as the starting point. It explicitly pushed back against the dominant assumption about high technology, scientific interventions alone and valued the knowledge and experiences of traditional, smallholder farmers and consumers. A primary goal was to present a multi-sectoral and integrated review from multiple world views so that,

the IAASTD does not advocate specific policies or practices ... It is policy relevant, but not policy prescriptive. It integrates scientific information on a range of topics that are critically interlinked, but often addressed independently, i.e., agriculture, poverty, hunger, human health, natural resources, environment, development and innovation. It will enable decision makers to bring a richer base of knowledge to bear on policy and management decisions on issues previously viewed in isolation ... presents different views, acknowledging that there can be more than one interpretation of the same evidence based on different worldviews; and identifies the key scientific uncertainties and

areas on which research could be focused to advance development and sustainability goals.

(IAASTD, 2009, pp. vii–viii)

In this way IAASTD was part of a watershed moment in opening-up the consultation process to include smallholder farmers' knowledge using agroecological and other traditional practices. Other critical and formative events unfolded as the final pages of IAASTD were written: the reform of the United Nations Committee on World Food Security (CFS) in 2009 in the wake of the 2008–2009 food crisis (Anderson, 2015; McKeon, 2015), as well as the launch by the FAO of a consultation process to develop its *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security* (published in 2012). There was also a revival of a focus on the Right to Adequate Food and Nutrition (FIAN, 2016), as well as the increasing role of La Via Campesina, and the 2009 *People's Food Sovereignty Now!* declaration by the Civil Society Organization (CSO) Forum, which ran parallel to the World Summit on Food Security in Rome. These clarified that civil society needs to be a key contributor in moving the sustainable food systems agenda forward.

The International Panel of Experts on Sustainable Food Systems (IPES-Food) 2015 report reiterated concerns expressed in IAASTD around power and the political economy of knowledge that result in disjointed and siloed approaches to, and identification of, sustainability solutions. To overcome this challenge and develop more coherent approaches to food system sustainability, the IPES-Food analytical framework called for analysing

Webs of complex interactions and feedback loops in food systems;
broad constellations of policies with the capacity to affect food systems;
power relations and the political economy of food systems; a multi-scale
and holistic understanding of sustainability, as the benchmark of food
systems reform.

(IPES-Food, 2015, p. 3)

It also put forward the need to foster a new transdisciplinary science of food systems, one that requires scholars to break down boundaries and silos between disciplines and around knowledge, encouraging the co-creation of knowledge with civil society (IPES-Food, 2015, p. 8).

In addition to recognizing the importance of traditional food system knowledge and the interconnectedness of food systems, 'measuring' change emerged as a priority for understanding more about SFS. As a result, indicators gained importance at all scales for policymakers, researchers, and funders, with metrics seen as the way to benchmark, assess, and track food system sustainability from cities to the global scale.

Recent key examples that demonstrate movement in this direction range from the urban–regional-focused *Milan Urban Food Policy Pact* (MUFPP) to the globally scaled SDGs. At the municipal and regional scale, the MUFPP uses six categories to understand and foster food system sustainability. These include effective governance, sustainable diets and nutrition, social and economic equity, food production, food supply and distribution, and waste. With more than 200 signatory cities, the MUFPP is enabling food system sustainability at the city–region scale. Since 2017, the MUFPP offers 44 indicators with four to ten indicators per category (Calori et al., 2017).

Assessment tools are also well established at the sub-national and more local contexts, for example the *Calgary Food Action Plan – Calgary Eats!*, the *Vancouver Food System Assessment*, and the *Toronto Food Strategy*. Urban metric-based assessments have also been undertaken for specific parts of an SFS and can enable comparative analysis. For example, work in Cape Town, South Africa, drawing on individual and household food security survey data, reported on the links between household food insecurity, income, and informal food sector markets and informal social safety nets. The analysis identified that the lower a person's or household's income, the more likely they were to rely on informal networks to secure their food (Battersby, 2011). Data were gathered through an 11-city project in southern Africa and allowed for some comparisons across cities (e.g. Crush et al., 2012). Another example is the work of the Sustainable Food Cities project in the UK and its report *Urban Food Strategies: The Rough Guide to Sustainable Food Systems* (Moragues et al., 2013; Chapter 6, this volume) that connects the realities of the local food system to the broader global scale, providing insights into how communities can use food systems initiatives to counter global pressures. By identifying several community well-being factors, including health, environmental impacts, economic performance, injustice, and cultural erosion, the assessment demonstrated that urban food strategies are locally contingent, and that local engagement varies. The research further showed the need for local engagement by key actors (Moragues et al., 2013, p. 6).

The City Region Food Systems (CRFS) project documented place-specific sustainability dimensions of food flows for key local staple foods in both the Global South and North. This work has enabled multi-scaled, multi-actor policy initiatives and networks with a view to improving various dimensions of the food system, including urban–rural linkages, food access (especially for low-income families), waste management and improved incomes for rural and urban producers (Dubbeling et al., 2017; Blay-Palmer et al., 2018; Chapter 9, this volume). At the more micro scale, the UN Food Insecurity Experience Scale (FIES) provides a snapshot of household food insecurity and can act as a rapid assessment tool for practitioners, complementing other tools that encompass the probability of undernourishment and measures of food insecurity determinants. At the farm scale, the Response Inducing Sustainability Evaluation (RISE) relies on interviews and then

computer evaluation to score farm-level sustainability (Grenz et al., 2011) while research on Flemish dairy farms (MOTIFS) was designed to measure integrated farm sustainability using ecological, economic, and social themes to identify indicators that could be gathered simply (Meul et al., 2008).

There are several tools that assess dimensions of sustainable food systems within countries. For example, the Sustainability Assessment of Food and Agriculture (SAFA) provides guidance for national-level assessment. SAFA was created to apply universal sustainability goals to food value chains. It was developed to be holistic, addressing all dimensions of sustainability (including environmental, social, economic, and governance) and applicable to all operational scales. *Food Counts: the pan-Canadian Sustainable Food Systems Report Card*, provides existing metrics and identifies information gaps across several food sovereignty pillars, named as: provides food for people, values providers, works with nature, localizes food, puts control locally, and puts food as sacred (Levkoe & Blay-Palmer, 2018).

At the global scale, there are several assessment tools that are either directly or indirectly linked to all or some dimensions of sustainable food systems. Arguably the most high profile in recent years have been the United Nation's Millennium Development Goals (MDGs) and the SDGs. MDG Goal 1 referred directly to food by calling for the eradication of hunger and poverty while the other seven goals were indirectly linked to improved food system sustainability through education, health, gender equality, environmental health, and building partnerships.

The SDGs build from the MDGs and are founded on 17 goals with associated targets that have been elaborated into 167 targets. SDG 2 (Zero Hunger) and the related targets provide countries with the opportunity to report on various dimensions of sustainable food systems, including food security and nutrition, productivity and incomes of small-holder farmers and other small-scale food-getters, land access, wild harvesting, sustainable production, protection of genetic diversity, and the correction and elimination of trade distortions. SDG 2 links to the other 16 SDGs with particular articulation with eradicating poverty (SDG 1), good health and well-being for all (SDG3), gender equality (SDG5), clean water and sanitation (SDG6), decent work and economic growth (SDG8), responsible production and consumption (SDG12), and climate action (SDG13).

The SDG targets are considered to be a blessing and/or a curse (Death & Gabay, 2015). In theory, the SDGs are an improvement over the MDGs in that they include all countries (not just countries in the Global South). Among concerns about the SDGs is the privileging of scientific knowledge, the disregard for traditional knowledge, the reinforcement and expansion of neo-liberalism, and the technocratization of sustainability assessment (Prato, 2016; Fukuda-Parr & McNeill, 2019).

Sustainable development practice has also prompted reflections about new or improved forms and processes of information gathering and information diffusion. Conventional scientific expertise, which is the most evident source

of information when managing public action, shows some limits when applied to the challenge of providing information for mobilizing decisions (Death & Gabay, 2015). Other examples of global-scale data collection related to food systems include comparative assessments that are undertaken for narrower foci, for example the Prevalence of Undernourishment (PoU) as part of the annual State of Food Insecurity (SOFI). (For a critique of changes to the SOFI process in 2012 refer to *Framing Hunger*, Lappé et al., 2013).

Sustainable food assessments can also be understood through a thematic lens, for example using policy, food sovereignty, and/or food security as the basis for an assessment. On the policy side, Perez-Escamilla et al. (2017) evaluate the usefulness of national and global food security indicators as they make the case for SMART (specific, measurable, achievable/attainable, relevant and time-bound) indicators that facilitate evidence-based policy-making. Schader et al. (2016) also apply SMART criteria to link farm-level activity with broader sustainability goals. Using SAFA, they assess synergies and trade-offs between sustainability goals and find, in particular, that environmental dimensions are often traded-off for economic benefits. They make the case that policy needs to take into account these trade-offs. Both of these papers build on previous work such as that by Bauler (2012) who developed a framework to analyse the usability of environmental sustainability indicators for policy-makers, understanding that defining or implementing metrics is effectively a political act. Bauler (2012) argues for the ‘initiation of a “politics of policy indicators” and focuses on an expanded usability analysis of indicators that includes both an LCS (legitimacy-credibility-saliency) framework and a conceptualisation of indicators as “boundary institutions”’ (p. 43) that work at the interstices of three possible pairs of policy actor arenas: science–policy, policy–society, society–science. Bauler’s (2012) ultimate concern is how indicators can be developed to have the highest usefulness profile so that quality information is gathered and diffused in ways that foster robust policy decisions towards sustainability. In keeping with IAASTD and other initiatives, he questions the ability of traditional forms of scientific/modernist knowledge to be usable across policy actor groups or to represent important and changing data in ways that are effective for policy decision-making. Instead, he suggests that many existing indicators, as a basis for policy creation, are problematic given challenges previously mentioned including privileging modernist science as the primary expertise, as well as questions of accuracy and how information is made available (Death & Gabay, 2015).

In other cases, the goal is to create alternative framings and guidelines in support of sustainable food system transformation. Binimelis et al. (2014) use food sovereignty as a normative framework to elevate the profile and possibilities for SFS (see also Levkoe & Blay-Palmer, 2018) through rural development and agroecology. Their environmental scan resulted in five categories (access to resources; production models; transformation and trade;

food consumption and the Right to Food; and agricultural policy and civil society organizations) that can be applied at an international scale using 128 indicators. They then adopt a local focus through their review of the Catalan food sovereignty assessment (based on Badal et al., 2011). Using three methods – documentary analysis, interviews, and participatory action research – data were gathered that allowed a ‘self-reflexive analysis’ (Badal et al., 2011, p. 333) of food sovereignty movement goals and their alignment with the ‘actually-existing’ (Brenner, 1997) food system. Along with other assessment tools and related processes such as the Sustainable Cities initiative in the UK (Moragues et al., 2013), this project is an excellent example of assessments being used for community and consensus building, both locally and at higher scales. The application of food sovereignty goals in Catalan exposes the place-specific nature of these projects on the ground, as assumptions inherent to La Via Campesina and food sovereignty, developed primarily in the Global South, required reinterpretation for Catalan. The application of a modified food sovereignty approach is also the case for the *Food Counts* report card in Canada that includes ‘Food is Sacred’ as a category, drawing on work by the national organization Food Secure Canada and its People’s Food Policy.

Clearly, then, sustainable food system assessment is important for understanding issues at a given scale and to enable comparisons between cities, regions, and countries as well as to enable knowledge sharing and learning. Assessment can also clarify the role and directions for policy and raises important questions about how the information is shared. It is equally essential to be aware of the power that is activated through assessment with a view to enabling sustainability. Assessments can be used to foster agency for civil society, shine a light on inequities and environmental degradation and where there is room for improvement in support of sustainability, or not.

With this overview in hand, we now turn to a brief description of the chapters in this book, proceeding from conceptual considerations to how assessments can be operationalized and ending with some examples of impacts and outcomes of sustainable food systems research.

Introducing the book chapters

Recalling the insights from the collective research referred to earlier in the chapter, the three overarching themes used to organize this book are: conceptual considerations, operationalizing metrics, and project goals and outcomes.

Part I of the book includes three chapters that focus on conceptual foundations including sense-making and vision, and place. Chapter 2 by Valette et al. examines emerging research for a participatory mapping methodology of innovation impact pathways as they occur in sustainable urban food systems. The URBAL (Urban-Driven Innovation for Sustainable Food Systems) project focuses on innovations in consumer practices, value-chains,

and governance by examining 12 case studies – referred to as Urban Food Innovation Labs (UFILs) – in eight cities in the Global South and North. The research begins from the visions of innovators in each UFIL and recognizes that the methodology needs to accommodate unique place-based dimensions. As a result, URBAL raises questions about how to develop a methodology that is at once generic enough to be used to study all urban food system innovation in the context of sustainability dimensions, and at the same time allow for useful insights in each place where the approach is applied.

The next chapter by Spring et al. takes us to northern Canada and describes the food systems of communities throughout Canada's northern boreal forest and their reliance on the health of the surrounding land, its animals, and waters. Traditional foods – those gathered, fished, and harvested from the land – remain the basis of these community food systems. However, climate change is having profound negative impacts on both availability and accessibility to traditional food sources through its impacts on the ecological integrity of the boreal system. Combined with other socio-economic factors, this has increased dependency on processed food purchased through the stores and has contributed to the rise of food insecurity across the region. This chapter discusses the lack of assessment tools for the complex food systems found in northern communities, and the need for more holistic approaches to measurement that connect food systems, land, and ecosystem health. The authors discuss research being conducted with, and in, the community of Kakisa, Northwest Territories, that highlights a community-driven assessment to understand the health of the boreal forest ecosystem. Kakisa, like many northern communities, see the health of the boreal forest ecosystem as the most important part of their food system. The well-being of northern communities therefore relies on the resiliency of the boreal forest and the ability of all aspects of the food system to support the overall form and function of the ecosystem.

In Chapter 4, the final chapter in Part I, Meter considers how a complex-adaptive-systems approach has simplified assessments performed in 140 US regions. The intent is to foster more self-reflective and effective action by framing the food system to be assessed as a complex adaptive system, which is a system that the component entities are learning from each other and adapting to what they learn. As Meter explains, introducing a conscious approach to adaptive complexity reaps several rewards. First, it harnesses quantitative and qualitative data to illuminate core system dynamics. Second, it taps essential wisdom from community members, helping to identify the essential levers that can move a given food system to greater sustainability. Third, by so doing, this approach facilitates community foods initiatives that develop *systemic* theories of change, for which indicators cut across issues that are often separated by disciplinary divides. These suggest measurement approaches that illuminate how system dynamics have shifted, and whether systems levers have moved, rather than focusing solely on programmatic outcomes.

Meter's chapter provides an excellent segue to Part II on operationalizing sustainable food system assessment where we explore the complexity of metrics specifically when developing frameworks and representations, the challenges of working within and across scales, and dealing with practical constraints such as data availability. In the first chapter of Part II, Battersby describes the process of writing the 2013 food system and food security study commissioned by the City of Cape Town, South Africa. This study honed in on data gaps and what they reflect about the politics of food, highlighting both scale-related governance and data challenges. Given the historical lack of consideration of food as a local government competence, researchers found that available data were either poorly disaggregated or unavailable, requiring the state to depend on poorly matched proxy indicators. This chapter reflects on the process, focusing on the politics and practicalities of data collection and disaggregation for municipal and regional food system assessments. Building on this experience, the author then considers the current challenges faced by local governments reporting against externally generated indicators (such as the UN SDGs and the 100 Resilient Cities indicators), which are time-consuming to report against at best, and are often at odds with the logic of local development plans. The chapter concludes with an argument for more micro-scale, collaborative, community-generated data and assessment frameworks.

Moragues-Faus's chapter addresses questions raised by the research in Cape Town, recognizing the need for more structural change through policy to enable SFS-based transformation. Complementing concerns expressed by Battersby, the author describes the explosion of indicator-based research and the associated ubiquitous tools to measure and facilitate sustainable development in food systems. Moragues-Faus critically questions the usefulness of these initiatives, including academic and practitioner-led processes, bottom-up and top-down approaches, and a local-, national- and international-level focus. Questions such as who can use these tools and for what purpose become central since these measurements ultimately produce specific narratives of how foodscapes function and develop. To begin to answer these questions, this chapter provides an analysis of an Action Research (AR) process to measure progress in UK cities towards more sustainable food futures. After presenting the action research process and associated methodology, the author assesses the different co-production and reflective practices at play as the indicators are developed. The chapter assesses the benefits and limitations of the AR approach to support transitions towards more sustainable and fair urban food systems. The author concludes by encouraging both practitioners and researchers to embed reflexive and co-productive governance principles within their everyday practice.

The final chapter in Part II, Chapter 7 by Prosperi, Allen, and Cogill, addresses operationalization questions that tested an iterative methodology to develop consensus about a set of food systems indicators at the nexus of broad sustainability goals and local contexts. The project sought to develop

better knowledge of food system dynamics to understand more about how to strengthen both food and nutrition security outcomes and improve the social, environmental, and economic performance of food systems. The goal was to support policymakers, researchers, and local practitioners who strive to identify and develop SFS indicators. The project was led by Bioversity International and the International Center for Advanced Mediterranean Agronomic Studies-Mediterranean Agronomic Institute of Montpellier (CIHEAM-IAMM) to build consensus among the multidisciplinary food research community. The set of indicators (specific to the Mediterranean context) was developed to assess the different SFS dimensions with the view to inform policymakers. Applying a Delphi survey, consensus was reached after three rounds of consultations involving 52 experts for 14 indicators. The application of the Delphi method in the study provides several lessons to enhance validity, replicability, participation, and consensus for further surveys. The chapters in Part III make it clear that implementing useful place-based sustainable food system assessment tools is challenging and that engagement is key to developing and using tools and processes that are relevant.

Part III of the book builds from previous insights into the importance of engagement by focusing on the impacts and outcomes of SFS assessment and metrics, including policy generation, community engagement, embedding change in communities, and knowledge dissemination. There is clear overlap here with Part II of the book, since the toolkits mentioned below are simultaneously examples of operationalizing frameworks. This part begins with Chapter 8, a contribution by Palmer and Santo that describes a toolkit developed to measure advocacy capacity as a foundation to grow food policy. The underlying insight for the toolkit recognizes that while food policy councils (FPCs) aim to foster more just, healthy, and sustainable food systems by discussing, shaping, and assessing food system policies and programmes in their communities, many struggle to understand how to engage effectively in advocacy work. Recognizing this common challenge, the authors used an iterative consultation to create a comprehensive online assessment toolkit that helps build the capacity of stakeholder groups like FPCs to influence local and state level food policy. The toolkit will be most useful for groups working along the continuum of advocacy – those that aspire to do more advocacy in the food system arena, those that are struggling with their advocacy work, and those that are heavily involved in advocacy and want to evaluate and improve their efforts. The toolkit includes a self-assessment that provides a sequence of activities to help FPCs better understand the advocacy and policy process, evaluate their current advocacy capacity, and/or use the results to guide discussions about how to get started. This chapter explores the goals, development, and content of the toolkit, with specific attention to equity and systems-thinking metrics. It reflects on how the toolkit has been used in practice by one FPC in Lynchburg, Virginia, USA.

Also focused on the sub-national scale, Chapter 9 by Santini, Dubbeling, and Blay-Palmer describes the City Region Food System (CRFS) approach to food system assessment developed by the UN-FAO and RUAF, with support from the LCSFS, in seven pilot city regions. The chapter describes the CRFS toolkit that was derived from reviews of the process of change and lessons learned in the pilot projects. Elements of the toolkit include sections on how to define the boundaries of a CRFS, how to create a local vision, how to characterize and conduct an analysis of a CRFS, and how to engage in policy and planning. The toolkit also suggests methodologies for engaging in governance and multi-stakeholder dialogue processes. The toolkit is linked to synthesis reports for each of the seven pilot cities, providing details about both the implementation and results of these CRFS interventions. The CRFS approach enables concrete policy and investment opportunities within which complex sustainable development issues can be addressed, and through which rural and urban areas and communities can be directly linked. In turn, improved CRFS may help achieve better economic, social, and environmental conditions in both urban and surrounding rural areas. As with the toolkit developed by Palmer and Santo, the CRFS toolkit provides both the opportunity for self-assessment and points to ways forward for city regions.

The next chapter, Chapter 10, co-written by academics and practitioners and led by Paredes and Cole, takes us to the micro scale through the lens of households and individuals in Ecuador. The research explores the premise that to move towards food system sustainability individuals must play a larger role by becoming more responsible food consumers. Based on diverse literatures and observed practices, the multidisciplinary Ekomer research team conceptualized responsible food consumption, designed a Responsible Consumption Index (RCI), and applied it in a sample of randomly selected households in three city regions, or counties of Ecuador (Ibarra, Quito, and Riobamba), and in samples of individuals shopping at agroecological food outlets or fairs (open air markets). They describe the heterogeneous distribution of the RCI dimensions and overall score across different populations as well as the analysis from their market surveys. Their preliminary analyses show a positive relationship of RCI with daily fruit and vegetable consumption, as well as table-salt reduction practices. From the open-air market research they identify consumption of Andean grains, direct purchasing from producers especially of agroecologically produced food as more in line with SFS. The authors conclude by reflecting on using these insights to strengthen sustainable and healthier food regimes in city regions. This chapter highlights the potential for enhanced agency of households and individuals and how they can help to enable change.

The final chapter by Nevin Cohen, Chapter 11, considers how to integrate both upstream and downstream food metrics. The research begins from the insight that food metrics typically measure the outcomes of food policies

and programmes, not the root causes that create food system injustice, like poverty and discrimination. As a result, attention is focused on downstream interventions and the potential to address upstream determinants is often masked. Cohen makes a compelling case that integrating the two can enable planners to design better food policies and foster stronger collaboration among food and social justice advocates. The chapter illustrates the value of integrating upstream determinants and downstream food metrics with three examples from New York City: the role of federal immigration policies on access to federal food benefits; the role of zoning changes on real estate development that leads to food gentrification; and the effects of policies to increase wages and improve working conditions on low-wage food sector workers. The chapter concludes with strategies for iteratively integrating upstream and downstream metrics. These involve aggregating existing public data and emerging sources of big data in food planning, and encouraging urban planners to incorporate upstream data in their food planning activities.

This edited volume concludes with Chapter 12, which provides a reflection on the insights from the book and implications for future research and assessment for both theory and practice. No single approach is endorsed in this volume; rather, a diversity of approaches that can be adapted to diverse issues and contexts is highlighted. Together, these chapters provide valuable insights into the place-based challenges of navigating the multiple and often conflicting needs of practitioners, policymakers, and funders across multiple scales and the pressures that emerge as these tensions are addressed. By examining various assessment tools, the authors question both the relevance and politics of sustainable food systems by engaging directly with the motivations and processes that have emerged in response to the call for assessment approaches. Collectively, the authors are working to make indicators and tools that reflect, without diminishing, and that are relevant for the complex work of transformation towards increasingly sustainable food systems.

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Note

- 1 Chapter cross-references guide readers to similar concepts in the book that can be located using a key word search, given this book is open access and available online.

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