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A critical consideration of sustainable food system assessments

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Introduction

This final chapter pulls together the perspectives that framed this book by considering the academic literature in light of the three overarching themes from the Toronto workshop. As elaborated in Chapter 1, the three themes are:

1. Conceptual foundations;
2. Operationalizing metrics;
3. Outcomes and goals for assessment projects.

These dimensions and their interconnections are captured in Figure 12.1, which provides a summary framework for *Sustainable Food Systems Assessment: Global Approaches to Practice*. As is expanded in the conclusion of this chapter, several key points emerge. First, the imperative to give voice to and/or reinforce socio-political processes founded in social movements and the evolving relationship between policymakers, practitioners, civil society, and academics. We also discuss what defines ‘assessment’, including the importance of stories, trust, and the social (including the social economy) as we link and identify indicators as nested, linked, *and* relational. The opportunity to render the invisible visible is a part of how assessment can bring challenges to the surface and transform solutions through understanding, transparency, and building on food system complexity.

The research reported in this book points to assessments as not only providing information but also about how the process, when done right, can help build capacity within communities, provoke food systems thinking, connect people across scales, and even lead to policy coherence. The authors also highlight how assessment processes make successes and areas for improvement more apparent. Finally, the insights from *Sustainable Food Systems Assessments: Lessons from Global Practice* add more heft to important questions about whose voices are raised through assessment processes and what discourses are reinforced, foregrounded, overlooked, or ignored. In the following sections, we tease apart the challenges and opportunities in

Figure 12.1 Iterative Sustainable Food System Assessment dimensions.
Note: Interaction occurs between and within: Outcomes and Goals, Operationalization, and Conceptual Foundations.

applying these dimensions to sustainable food system assessment (SFSA), drawing heavily from the research in the previous chapters.

Conceptual considerations: sense-making, vision, and place

The conceptual considerations identified during the workshop focused on the process and outcomes of sense-making and vision as well as the need to recognize place-based dimensions (Sonnino et al., 2016). The sense-making used to develop indicators and the lenses used to frame them determine what is included or left out of an analysis. In selecting metrics, Maye and Duncan (2017, p. 268) ask us to broaden ‘visibility fields’ to question what is visible and why and how this decision-making process unfolds. This also

allows us to capture multiple dimensions of performance. It is important to consider ‘visibility’ as,

we must be particularly sensitive to aspects which are hidden from our view by the focus on the process of embedding sustainability in the supply chain, and conversely seek to understand how and why our attention is being directed to other areas by the actors concerned and the field of visibility associated with the embedding sustainability in decision-making tool.

(Spence & Rinaldi, 2014, p. 438)

The idea of visibility points to the importance of considering what an indicator represents. As Garnett (2014) points out, using one-dimensional indicators alone, such as efficiency and demand restraint, can be one-sided and oversimplify the context, missing key components that need to be included in sustainability assessment. Frequently, the efficiency perspective promotes the use of technology to meet increasing demand through more production, more efficient chemical use, and waste reduction – reinforcing the technocratic fix and often contributing to a top-down approach. This line of thinking is problematic as it overlooks issues related to food access and quality, including the current reality that there is enough food produced to feed everyone in the world a healthy diet, yet more than 800 million people are food insecure and more than 1 billion people are overweight or obese (FAO, 2017). The second perspective – the demand-driven focus – views solutions as being consumer-led and tackles food challenges from the influence eaters have over the supply chain. In many cases, the focus is on reducing meat-based diets or decreasing food miles to improve both environmental conditions and health. However, this is also too simplistic since indicators that support reduced meat consumption may overlook local sustainable meat production practices that can help sequester GHG and provide a regionally appropriate protein source (D’Silva & Webster, 2017). Alternatively, using a food system transformation lens draws upon the interdependence of production and consumption networks to recognize that sustainable food systems require integrated structural change and that these changes are interrelated and complex (see Chapter 4, this volume). A focus on transformation includes social justice and equity issues and offers a more robust and complete picture of challenges and possible solutions (Garnett, 2014). This integrated vision for fostering a sustainable food system is applied throughout this book. Chapters by Prosperi et al. (Chapter 7), Battersby (Chapter 5), Valette et al. (Chapter 2), Palmer and Santo (Chapter 8), Paredes et al. (Chapter 10), and Cohen (Chapter 11) all make the case for integrating social justice indicators into SFSA analyses. The Spring et al. (Chapter 3) and Meter (Chapter 4) chapters weave social justice into the assessment process itself by elevating the insights of those who had been marginalized as indicators are framed.

As the sustainable food system movement works to transform the industrial food system, it is important to direct the focus away from bottom line, high technology-centred solutions, as well as industry- and export-driven policy to practices focused on social justice, food and nutrition security for all, agroecology, and local circular economies (Anderson, 2019). Food sovereignty is one way to do this as it explicitly values culture, food democracy, the sacredness of food, and the Right to Food (FIAN, 2016; Levkoe & Blay-Palmer, 2018). FIAN's (Food First Information and Access Network) project, People's Monitoring of the Right to Food and Nutrition (RTFN) has the vision that

Food Sovereignty and RTFN monitoring is consistently used by actors at all levels to result in positive changes in the realization of the RTFN and for the identification of strategic paths to a new society where all human rights are fully realized.

(FIAN, 2016, n.p.)

This project emerged from a desire to collect and report data that includes input from front-line people in civil society organizations (CSOs) and reflects resistance to a technocratic approach. Through this process, food sovereignty and RTFN monitoring information is not only used and reclaimed, but also produced, interpreted, and transformed into action by people and their representatives through different approaches to food, including agroecology, community-based co-operatives, and direct farmer to consumer sales. Food sovereignty and RTFN approaches have been used in a number of contexts, including in recent writing and policy focused on sustainable food system assessment (Levkoe & Blay-Palmer, 2018). While none of the chapters in this volume adopt an explicitly rights-based approach, many contributors to this book advocate for more inclusive processes that work to give agency to marginalized communities (in particular Chapters 3, 4, 5, 6, 8, 10, and 11).

At their best, place-based considerations account for local needs and ground the SFSA process to capture relevant information and point the way to impactful sustainable food system change (Sonnino et al., 2016). For example, by applying an ecosystem-assessment perspective, positing specific foodsheds helps us understand food systems as embedded in broader ecosystems instead of existing exclusively within political boundaries. Such an approach brings an ecosystem viewpoint to the analysis of SFSA based on place through the lens of food (e.g. Kloppenberg, 1996; Mullinix et al., 2016). Place-specific indicators, as well as inclusive and participatory indicator identification and development, are necessary for transformative SFSA processes. Noting the disconnect between indicators at the global and national scale with community initiatives, in particular with needs and goals across scales, Prosperi et al. (2015, drawing from Cassar et al., 2013) observe the importance of developing indicators that include place-based considerations such as the geographical, socio-economic, and cultural context where these tools are implemented. As a result, they stress

that, ‘a strong and active involvement of the local/community stakeholders is key to design a set of metrics that will be useful to measure real progress and gaps towards the sustainability of the urban food systems’ (2015, p. 30). Prosperi’s work applying a Delphi method to capture expert insights for the Mediterranean region reported in this book shows that consensus can be used to develop shared indicators (Chapter 7). Meter (Chapter 4) brings this work to a community level, engaging residents in defining linked indicators that cut across issue areas, and express systems levers that can be moved in each context (also City Region Food Systems, Chapter 9).

Place-based assessment can be pivotal for rural and urban authorities who have a chance to facilitate the institutionalization of innovative food system approaches. Research in Marin County, California, makes it clear that using a place-based approach is important. In that case, the analysis focused primarily on food access and food security challenges for low-income households as these factors were identified as having the most relevance in their jurisdiction and were seen as the best levers for change at that time in that place (Marin County, 2012). The URBAL project described in Chapter 2 recognizes the need for both place-based flexibility and robust widespread usability of research tools as it develops an impact-pathway mapping tool to capture sustainable urban food system innovation. Testing this tool in eight cities through 12 innovation labs will help to meet project goals of reach and relevance and enable the maps to capture the place-based vision for each innovation. The Sustainable Cities project in the UK is another excellent example of the importance of considering place throughout the development and implementation of indicators (Chapter 6). The overall goals of this project were: (1) To work with grassroots organizations and local practitioners to define success in cities; and (2) To develop an indicator toolbox to support municipal governments and communities as they work to change the food system. Following a literature review on sustainability and food security indicators, the researchers held four workshops to co-develop a vision with associated metrics across health, economics, and the environment. This information was assembled into an indicator toolbox that was tested in pilot communities. Crossing boundaries, this data is relevant for agencies with respect to the environment, climate change, and economic development. As the project was driven by the needs of the people in each place, there are no standardized objectives or pathways to change since each city is different and so all had different entry points. The Delphi survey used by Prosperi et al. in Chapter 7 developed indicators focused specifically on the Mediterranean region, while Battersby’s chapter points to data gaps based on decisions specific to Cape Town.

As part of the work of imagining a sustainable food system, a shared sense of why indicators are being developed, and related goals is important at all steps from analysis and interpretation, through to policy development so that an indicator framework realizes its potential to become a sense-making process. These examples from our book and elsewhere point to ways visions

and sense-making as well as place-based considerations enhance the relevance of SFSA. With these visions to guide indicator selection, a related consideration is how to then operationalize indicators. Engaging stakeholders in assessments also transforms the process from place-based sense-making to place-making.

Operationalizing assessment tools

Operationalizing assessment tools relies on several resources including how frameworks are developed and feed into the assessment process, the relative complexity or simplicity of indicators, considerations about scale, and the availability of data.

Frameworks

As discussed in the previous section on conceptual foundations including visioning, a shared framework can capture common goals and lead to a consistent analysis over a broader context by including considerations outside of the narrow project scope (Riley et al., 1999). In addition, the process of sharing/developing common framework(s) can connect and facilitate work towards aspirational goals, such as a common framework with multiple, varied indicators. When selecting metrics, Maye and Duncan (2017) ask us to pay attention to the frameworks we use so that we engage meaningfully with key sustainability challenges (Lakoff, 2010). Morin (2008) recommends a paradigm of complexity that frames more self-reflective assessment work. While Lakoff (2010) refers specifically to the environment, this idea applies equally to enacting sustainable food systems and the crossover with other areas that are, ‘... intimately tied up with other issue areas: economics, energy, food, health, trade, and security. In these overlap areas, our citizens as well as our leaders, policymakers, and journalists simply lack frames that capture the reality of the situation’ (p. 76). At the same time, trends can be identified in the use of assessment tools for more inclusive places. Freedgood et al. (2011) identified several types of community assessments used particularly in the US and Canadian contexts: foodsheds, comprehensive food systems, community food security, food asset mapping, food deserts, land inventories, and food industries. These point to the multi-scale nature of ‘place’ and how place can be a layered consideration. Frameworks such as the Sustainable Livelihoods Framework (SLF) have been used to ground the work in household and community needs. In Chapter 3, Spring et al. use this framework in a wide range of circumstances including in First Nation communities in the Northwest Territories, Canada, where links were made between climate change, food security, and traditional systems. In particular, political capital was identified as a key community resource. Applying a common framework can enable comparisons across research and community initiatives (Blay-Palmer et al., 2015).

Complexity

There are several challenges that can be considered under the heading of complexity. On the one hand, there is the tension between the need to capture all facets of sustainable food systems dimensions and, at the same time, be simple enough so that indicators are functional. Indicators that are static can misrepresent the bigger picture. The FAO State of Food Insecurity report and the Prevalence of Undernourishment (PoU) indicator referred to in Chapter 1 are cases in point (FAO, 2017). The City Region Food Systems (CRFS) project described in Chapter 9 grappled with these challenges. In that case, researchers looked to develop an approach that was complex and applicable everywhere despite different place-specific issues, capacities, and missions in the pilot cities. The URBAL project (Chapter 2) is aiming to develop a mapping methodology that can be applied across sustainable food system innovations. In these cases, flexibility and multiple options is key so that the approach is relevant across a range of cases. Meter's Chapter 4 also reflects on these SFSA challenges, proposing a complex adaptive systems approach as valuable based on its capacity to reflect actual community needs and levers for systemic change. Complex indicators that address multiple co-benefits are also important in order to reflect complexity through, for example, agro-ecological approaches, so that indicators capture change in more than one dimension and can help to connect knowledge silos.

Scale considerations

It is important to consider how frameworks and indicators can or cannot be translated across scales, ranging from the individual and household to the municipal, regional, and sub-global. Considerations include the way indicators are nested, connected, and/or contradictory. Chapter 1 provides a discussion of the Millennium Development Goals (MDGs), the Sustainable Development Goals (SDGs), and related challenges, including the lack of engagement with community voices, the privileging of scientific knowledge, the disregard for traditional knowledge, and the technocratization of sustainability assessment (Death & Gabay, 2015; Fukuda-Parr & McNeill, 2019). Several authors in this book address these and other challenges related to scale issues. Battersby (Chapter 5) illustrates how data expectations at one scale miss data needs at another scale. The analysis of the food system and food security study commissioned by the City of Cape Town illustrates these disconnects through either the lack of appropriately disaggregated data and/or no data or data requirements by international projects that miss the mark locally. The chapter by Prosperi et al. on the Mediterranean region provides an example of how to address assessment challenges and opportunities at the sub-national level. The chapter describes the consensus-building process developed based on the Delphi survey method to identify and agree on a suite of indicators for food and nutrition security in the context of SFS. The

CRFS project presented in Chapter 9 documents place-specific sustainability dimensions of food flows in the Global South and North. This work relied on either existing or creating multi-scaled, multi-actor networks. These networks were used to enhance urban–rural linkages and improve various dimensions of the food system including food access for low-income families, waste management, improving incomes for rural and urban producers, and by creating food policy (Forster et al., 2015; Dubbeling et al., 2017). As Forster and colleagues explain, '[s]trengthening urban-rural linkages by focusing on improving the holistic performance of food systems at a city region level can contribute to the broader sustainable urbanization agenda. The improvement of city region food systems has significant implications for spatial planning' (Forster et al., 2015, pp. 3–4). Toolkits include indicators that support SFS capacity building and food policy advocacy (Chapters 8 and 9). Paredes et al.'s chapter (Chapter 10) tests indicators at the intersection of sustainable food production and access in three regions in Ecuador. This project emerged from a desire to collect and report data that included and reflected input from front-line people in civil society organizations and demonstrates their resistance to a technocratic approach that would not have represented community priorities. Cohen's chapter (Chapter 11) assesses downstream outcomes around food access in New York City and links them with upstream federal policies around immigration and food, and makes the existing and potential iterative relationships between the two scales clear. Chapter 2 by Valette et al. explores mapping methodologies to support urban and surrounding regional sustainable food system analysis and offers new tools for data analysis. Meter (Chapter 4) discusses the merits of using an adaptive complexity approach within regions as the basis for indicators that are integrative across sectors and scales through both qualitative and quantitative data to highlight core system dynamics. His chapter also informs the city region food-planning approach by identifying the extractive economic structures that place cities in a more powerful position than rural areas. Research focused on assessment at these regional scales can enable more comprehensive and coherent pathways to address food system challenges.

At the city scale, SFSA typically link food assessment with a range of city goals. As previously discussed, the Milan Urban Food Policy Pact, with its six sustainability categories (production, health and well-being, governance, waste, biodiversity, and social inclusion), provides the basis for urban sustainability assessment and potentially for comparative work across the more than 200 signatory cities. In these cases, comparisons, network, and capacity building can be indirect outcomes of the data collection process. This work is consistent with the chapter by Moragues-Faus (Chapter 6) who assesses the co-production and reflexive processes that occur as indicators are developed during Action Research sustainable food futures projects in the UK.

All of the chapters in this book point to the challenges of interpreting national data at smaller scales as solutions are overly generalized. This points

to the relevance of community-based research that leads to the creation of relevant indicators. Based on the work in this book, regional and smaller scales appear to provide the most useful information for policymaking and action, while national and global approaches may add important comparative overarching perspectives through a broader context.

Data availability

Collecting data is expensive and time-consuming and the extent data is or is not available limits and constrains the capacity to support visions. As Battersby (Chapter 5) points out in her chapter, available data is gathered in the context of existing politics. In the case of Cape Town, this has led to data gaps for food system assessment stemming from a misarticulation of data boundaries and the kind of data that was (or was not) available. Pointing to the disconnect between food and landscapes, Spring et al. (Chapter 3) discuss the lack of data covering remote northern communities and the gaps that need to be filled to link traditional food systems with the health of the land as a key source of regional food and boreal ecosystem health. The question of data availability is critical in communities closely tied to the land for their food as the climate continues to change. Paredes et al. (Chapter 10), Moragues-Faus (Chapter 6), Valette et al. (Chapter 2), and Palmer and Santo (Chapter 8) also address the question of data availability, in these cases through participatory processes as part of the development for SFSA.

When data is available or is being collected for the first time, it is important to be able to compare indicators over time and build on that work to keep it relevant, identify trends, and share it out as well as identifying data gaps. The Food Counts report card for Canada is a good example of this challenge. As a key part of the analysis, Levkoe & Blay-Palmer (2018) identified the need for new metrics. For example, there was no existing way to measure ‘food is sacred’ as one facet of the Canadian SFSA. Identifying data needs emerged as an important contribution of that work. In Maryland, an intuitive, accessible metric was developed to capture the siltation of a river (Flora, 2018). The goal was to make the water quality problem visible to local residents who lived upstream so they would be motivated to make a difference. To make the problem clear, the mayor put on white tennis shoes and walked out into the bay to see where he lost sight of his feet, recalling that people used to be up to their necks and still see their feet. Every year at the same time he would walk to the point where he could still see his feet and this measure would be posted on a bulletin board. As the siltation decreased over time, in part though work with farmers up and down the watershed, people celebrated enthusiastically as results were reported widely throughout the state. This was a very simple, inexpensive but visible indicator of turbidity that could be linked directly to soil run-off, making the remediation challenge and the progress clear for local communities.

Outcomes and goals

Outcomes and goals for sustainable food system assessment are clearly context dependent. In many cases they include policy generation, which is fostered by, and helps to enhance, the engagement and inclusion of participants and communities, builds connections between initiatives, embeds change in communities and allows for widespread knowledge dissemination.

Policy generation

Several questions emerged from the Toronto workshop around policy as an outcome of data gathering based on research projects. These questions focused on: (1) The conditions needed for policy to emerge from SFSA work; and (2) Whether there is a common process or trajectory that all/most places follow as they work towards SFS. Key informants at the workshops also identified power dynamics on how/whether policy is implemented as an important consideration. The extent to which subsidiarity applies is also key as it reflects the extent of empowerment of local actors and the extent to which power and agency are devolved as close to the community scale as possible. The IPES-Food 2017 report provides insights into necessary conditions for policy formulation at the city scale. Drawing on in-depth interviews and literature scans, the report identifies the policies and conditions needed to create and maintain sustainable food systems in cities including: (1) The need for robust inter-sector actor networks as channels for policy influence and the basis for partnerships; (2) The importance of partnerships between municipal departments and external organizations to allow for co-governance. This requires supportive resources and capacity for implementation; (3) The determination of formal governance and terms of reference so all actors know what is expected and are accountable; (4) Conducting research and monitoring impacts to demonstrate efficacy, and to identify and remedy unexpected impacts; and (5) Focusing on areas of local government control and influence seeking synergies with the national level where possible (IPES-Food, 2017).

The SFSA processes described in *Sustainable Food Systems Assessment: Global Approaches to Practice* support and build from the insights captured in the IPES findings to help address food systems challenges. In some of the research reported in this book, conflicts emerge between different levels of government (Chapter 11). In other cases, data is mis/realigned across departments, sectors, or scales, as in the findings reported by Battersby (Chapter 5) and Moragues-Faus (Chapter 6). As reported, indicators can help deal with these tensions as they can enable the identification of which policy levels sh(c)ould be addressed – in some cases national policies are needed to provide an overarching context, in other cases local zoning may need to be changed (Chapter 8). This type of policy alignment is ongoing as circumstances evolve. A related set of questions revolves around whether the

assessment uses universal indicators or not. And, whether researchers want to identify indicators that will help decide which policy level is the best for intervention. To help answer these questions, there is an ongoing exploration about whether international initiatives can be leveraged to shift from technical to more policy approaches. For example, in their policy-directed assessment, Perez-Escamilla et al. (2017) evaluate the usefulness of national and global food security indicators to make the case for indicators that facilitate evidence-based policymaking. Using SMART (specific, measurable, achievable/attainable, relevant, and time-bound) criteria they assess the usefulness of commonly used indicators (Dietary Diversity Measures; Measures Based on Participatory Adaptation; Prevalence of Undernourishment; Global Hunger Index; Global Food Security Index; Dietary Record; 24-hour recall; Food Frequency Questionnaires; Food Consumption Score; Household Dietary Diversity Score; Coping Strategies Index; Experience-based food insecurity scales; Anthropometry) for policymakers and classify indicators for usability. Battersby's chapter raises these important points from a community and local perspective providing insights into how indicators are shaped by the existing hegemony and where there may be entry points for change (Chapter 5). In Chapter 8, Palmer and Santo offer insights into the advocacy process through their work on food policy councils. Their extensive survey of existing food policy initiatives points to ways that advocacy may be improved. And, as Prosperi et al. reiterate, the ways in which assessment results get translated, packaged, and mobilized are important factors in how change occurs (or does not occur) in food systems at all levels (Chapter 7). If policymakers do not understand interactions and dynamics that are inherent to SFS then assessment results can be misinterpreted and policy and programmes will be ineffective or even counter-productive to the goals policymakers and communities establish (Chapter 11).

Participatory approaches and embeddedness

When working in communities, comparing and talking about developing or replicating a process can help to identify relevant indicators, build networks, and embed learnings. All of the chapters in this book support the importance of communities as they need to determine their own values and related visions and what they want to work towards based on their goals, needs, and resources. As discussed, international project goals can be set at the global scale with indicators identified for specific national or local concerns. The SDGs are an interesting example of this approach; while there was consultation with member states, intergovernmental organizations, non-governmental organizations, business sector, and other major groups, there was very little public consultation. Some of these concerns include the need for continuity between the process that established the SDGs and their implementation (Palmer, 2015), issues around land rights (Wise, 2015), and the technocratization of the process to the exclusion of smallholder farmers and others (IPES-Food, 2015). Participatory research by Sanye-Mengual et al.

(2018) in Bologna, Italy, into the interconnections between local urban food production (UFP) and global sustainability initiatives, in particular the SDGs, identified the need to consider sustainability transversally and through a participatory approach. Enhancing the chance of success and uptake,

[t]his bottom-up approach unveiled a comprehensive vision of sustainable UFP, the relevance of certain sustainability elements and key aspects to take into consideration for the implementation of UFP, the design of effective policy-making and the development of research studies on the sustainability of UFP that built upon the presented conceptual framework. (Sanye-Mengual et al., 2018, p. 15)

This building process is important to embed indicator work so that it has staying power and is not lost with a shift in government or through other changes. One mechanism is to liaise with official data collection agencies as this can help to maintain and/or add indicators to the data-gathering process and embed food system sustainability. This is also important to ensure the continuation of functions needed to support food systems.

As explored earlier, creating coherence across scales for indicators is challenging – community participation in developing action-oriented assessment can help mitigate this problem. For example, in Montpellier, France, university researchers gathered municipally elected people together to ask them what they were doing in their political work to advocate for their own food systems. While food was not previously a focus, the elected officials involved in the project started to talk about school canteens, land use, environment, shops, and then the foodscape. Then suddenly everybody did work for food. It was the creation of the process that generated a sense of food, the potential of food, and suddenly people could feel that working on food could be of benefit. Then, when food was an issue and they were working on that, they realized that they need data to understand the situation, to know, for example, that people are hungry, to map the situation, then data becomes important. The data gathering also allows people in civil society and policymakers to think beyond the agenda they had already established. This was the case based on the research in South Africa as reported by Battersby in Chapter 5. Meter found in Chapter 4 that simple network maps changed economic development leaders' perspectives. Prosperi et al.'s chapter (Chapter 7) used a participatory research method throughout the indicator development process to ensure relevant co-production of knowledge and to facilitate, given the complexity, that everyone understood terms, concepts, and frameworks in the same way (see also Lehtonen et al., 2016). Palmer and Santo (Chapter 8) also demonstrate the importance of iteration as assessment tools are being developed as well as the need for as many face-to-face consultations as possible to enable this iteration. The URBAL project (Chapter 2) and the CRFS work (Chapter 9) demonstrate the possibility of engaging multiple stakeholders across disciplines, sectors, and scales and the benefits that can accrue, including increased capacity and coherence for communities.

Building bridges and disseminating knowledge

Part of thoughtful indicator creation is ensuring outcomes do not reinforce or seed more silos between disciplines, sectors, and government departments and institutions. Rather, indicators need to allow actors to talk to each other more frequently and more effectively. At the same time, it is important to work from a food systems perspective to provide the resources and data that communities need in order to address the issues they value within their own food systems. For example, at a meeting leading up to the 3rd UN Conference on Housing and Sustainable Urban Development (Habitat III, Quito, 2016), a panel whose diverse participants worked at multiple scales and from many institutions discussed the need to share instruments and knowledge among cities. While they identified the need for instruments to carry out assessments as well as evidence from focused studies, planning and regulatory instruments for cities were singled out as lacking. The co-creation of knowledge provides a more inclusive and relevant set of indicators as the basis for policy and policy tools.

In this context, a question becomes, how can indicators be used to create networks that link across sectors and institutions to foster system transformation? The indicator work needs to be embedded in potential policy delivery, which is not always easy. The cities of Toronto, Canada and Milan, Italy are pioneers in this regard having developed both depth and breadth in food policy. The Toronto Food Policy Council is a world leader having been established nearly 30 years ago, while Milan has become extremely active following the launch of the Milan Urban Food Policy Pact in 2015. To continue this work requires unpacking the ‘policy-governance’ box and looking at how food can become an issue that engages all communities. Questions to address include: (1) is policy integration taking place, for example between planning and land use (Forster et al., 2015)? And (2) if it is, is the balance right? The CRFS process reported in Chapter 10 and the idea of linking upstream policy with downstream impacts as proposed in Chapter 11 by Cohen are good examples of how this can work.

Sharing the results from indicator projects is key and should be considered part of the process from project inception. There is a need to actively share findings with other researchers, government, the private sector, and civil society. Using multiple platforms including clear plain language reports, online spaces, and social media is critical to keep forward momentum so projects are not time bound and the work is taken up and used by administrators and policymakers. Creative partnerships could help ensure findings are accepted and acted upon, and also employed as part of public education. Including key actors from the outset also helps with knowledge dissemination, as indicators are more likely to reflect key player needs and goals.

It is also valuable to look outside food systems to learn from other domains, such as the health sector where a lot of relevant work is already

being done, for example, the World Health Survey and the water–energy–food nexus. Sustainability movements are confronting similar problems as they challenge the neo-liberal hegemony, so it is helpful to share information about processes and the kinds of frameworks that are useful. The UN Convention on Biodiversity (CDB) was among the first, multi-lateral agreement to tackle a global challenge with the recognition of ‘traditional knowledge’ and provides an example of integration across multi-stakeholders.

The view from here

We conclude the book with some insights that pull out and weave together some common threads as well as raise questions to consider moving forward as we work to advance the relevance and breadth of sustainable food system assessments.

First, in addition to data gathering and tool development, an important part of the assessment work at the centre of this book is the development of, giving voice to, or reinforcing socio-political processes founded in social movements and the evolving relationship between policymakers, practitioners, civil society, and academics. Working on assessments can have the added benefit of capacity building through the participation enabled with this type of research (Chapter 9).

It also raises questions about what constitutes data. While indicators are important, stories are interesting and compelling; thus, a key question is, how do we capture the most useful insights? And, how do we link and talk about the indicators as nested, linked, *and* relational? It is important to talk about processes and purpose simultaneously. Chapter 3 by Spring et al. is an excellent example of how communities with traditional food systems need to connect their community food system assessments to the health of the land. In this case, the well-being of the boreal forest, including caribou and fish health, is part of understanding the sustainability of Kakisa’s food system. The EKOMER project (Chapter 10) focuses attention on the household as part of a city region while chapter authors Paredes et al. (Chapter 10) explain the power of the,

efforts of consumers to self-organize around ethical values and morals of consumption and to exert political influence at any stage of the process. Such is the notion of ‘co-producer’, ‘a consumer who knows and understands problems of food production’ (Petrini, n.d.)

(p. XX)

Colombo used a city region focus as part of the FAO-RUAF CRFS project (Chapter 9). In that case, stakeholders attended primarily to indicators using their locally determined project foci of waste, food security, or food safety. The food policy work by Palmer and Santo (Chapter 8) demonstrates

how assessment can be used as a vehicle for building tools for activism. It is anticipated that the URBAL project (Chapter 2) will build communities of food around the process of mapping sustainable urban food system innovations so that knowledge is co-created and agency is enhanced as networks grow. As part of these processes, it is important to combine and point out how the indicators are linked and improve the connections as learning opportunities to understand more about food systems as a whole. In considering scale of assessments, questions include how/whether to move from local or regional indicators to more national or international indicators, or the reverse, and what links and connections exist between scales? Battersby's, Meter's and Cohen's work (Chapters 4, 5 and 11) helps us to understand the challenges in shifting between scales and the need to work within complex frameworks. All of the projects in this book point to the centrality of iteration and the value of cross-verifying data as it is gathered.

Second, while the initiatives reported in this book help to broaden the conversation about assessment and policy, more is needed. In addition to understanding local food systems, it is also important to understand how international laws affect local laws, for example the World Trade Organization, the European Union, or through the multi- or bi-lateral accords such as the SDGs. The common list of indicators used by international organizations applies a global lens that can be difficult to apply at the local level (Chapter 5). It is important to have standard indicators but, from a governance point of view, if people do not understand the value of food then it is a challenge to integrate food into policies. Moving to standard indicators coupled with a participatory approach for interpretation and implementation can be effective. Related questions to address include, does future work compare processes, frameworks, and/or specific indicators? It seems there is an interesting nexus between indicators and unknowns in the realm of governance that needs to be further unpacked to try to identify ways to make new pathways between different interests. A related question is what are the indicators we can use to create and signal transformative food systems? One way to know the indicators are successful, is that we would see change in the values of indicators over time, or pertinent, new indicators may be initiated. But what combination of indicators would signal that food system sustainability is being achieved? The authors of this book certainly suggest that indicators of social capital and relationships of trust play a central role, in concert with other measures (for example, the role of communities as discussed in Chapters 2, 3, 4, 9, & 10, this volume).

A third consideration is capturing the invisible dimensions of SFSA. The social economy, particularly as it is articulated in informal economies, is a good example of the largely invisible and often poorly measured dimensions of SFSA, a situation that is captured in the work of Joubert et al. (2018) on the ways in which informal food systems in South Africa, Kenya, Zimbabwe, and Zambia are overshadowed. Case studies or other qualitative processes that capture these important stories can complement metrics

and other assessment tools by providing the depth needed to connect the data in a meaningful way. To develop relevant policy, it is critical to capture the practices that are out of the scope, or beyond the ‘official’ framework, or simply invisible and the associated contributions that are very difficult to measure. There are many data challenges including, as reported by Paredes et al. (Chapter 10), with people being reluctant to be ‘data-ed’.

The book also raises questions about complexity and using an adaptive systems approach. Meter (Chapter 4) is the most clear about this opportunity but others, for example the chapters by Valette et al. (Chapter 2), Cohen (Chapter 11), and Santini et al. (Chapter 9), draw on these assumptions. As Kate Clancy (2014) states, complex adaptive systems integrate and rely on, ‘many diverse and autonomous components or parts ... which are interrelated, interdependent, linked through many (dense) interconnections, and behave as a unified whole in learning from experience and in adjusting (not just reacting) to changes in the environment’ (p. 10). The multi-directional, iterative co-creation of knowledge demonstrated in the development of the advocacy toolkit developed by Palmer and Santo (Chapter 8) is an excellent example where multiple individuals in the same organization completed the assessment as they worked towards enriched, varied convergence. The heterogeneity that comes from multi-stakeholder, multi-sector, and multidisciplinary assessment opens up space for verification and buy-in.

Finally, we need to consider enacting assessment processes and tools to help address the pressing issues the world now faces. Climate change, migration shifts, and growing inequality can all be addressed through more sustainable food systems. To do this, we need assessment processes and tools that reflect the realities of those most disadvantaged in households, communities, regions, and countries. By providing relevant assessment support, we can make decisions based on evidence that raises the voices of the people who need to be heard the most. At its best, a sustainable food system assessment process, as demonstrated by all the chapters in this volume, offers the potential to build capacity and bring transparency and clarity, in turn enabling a better use of resources and learning over time and across scales (Anderson, 2015). They can also provide the basis for seeing how participation may need to change, measure change over time, enable strategy development, knowledge transfer, and inform transformative, coherent policy.

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