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Integrating a food systems lens into discussions of urban resilience: Analyzing the policy environment

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Abstract

As discussions of urban resilience begin to include food systems thinking explicitly, researchers and practitioners must keep various considerations at

the fore. This reflective essay begins by delineating three international agreements (the Sustainable Development Goals, New Urban Agenda, and Milan Urban Food Policy Pact) that provide a broad pol-

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Authors' Note re: COVID-19

While this research and analysis was conducted before the COVID-19 pandemic, it highlights the need for more integrated urban-rural linkages to enable just and sustainable local food systems that will prove resilient in the context of shocks, including pandemics and the climate crisis. The pandemic has brought into sharp focus the vulnerability of our food system, and the critical role of food system planning to mitigate risk.

icy environment within which food systems governance might be situated. It then encourages consideration not only of megacities around the globe, but also of the approximately 2 billion people that live in towns and small- or mid-sized cities (encompassing about 27% of the world's population) (Berdegúe, Proctor, & Cazzuffi, 2014). It notes that integration of food systems thinking must enhance urban-rural linkages in mutually supportive ways, echoing recent calls from the Food and Agriculture Organization of the United Nations (FAO, 2019) and UN-Habitat (2018). It reflects on ways policies and governance might better articulate across scale and argues that deep adaptation to climate change must frame all work moving forward. Finally, it examines how food systems thinking and social innovation are critical to urban resilience and must be prioritized in policymaking rather than included as an afterthought. We draw illustrative examples from our community-based research projects carried out through the Nourishing Communities: Sustainable Local Food Systems Research Group and the Food: Locally Embedded Globally Engaged (FLEdGE) Partnership.

Keywords

Adaptation, City-Region, Food Systems, Scale, Governance, International Agreements, Urban Resilience

Introduction

By 2050, the world population is projected to reach 10 billion, and urban populations will comprise 68% of the planet's human inhabitants (UN Department of Economic and Social Affairs, 2019). While these numbers are staggering, the systems thinking required to integrate urban, peri-urban, and rural communities into coherent food systems to achieve ecological, economic, and social goals is equally, if not more daunting. Food systems can be



Food systems expert Wayne Roberts, June 22, 2018, documenting panelists via a Twitter post (@wrobertsfood), at the *Building resilient food systems: Policy across multiple scales* panel at the ICLEI World Congress 2018, in Montreal, Québec, Canada. From left to right: Irena Knezevic, Rotem Ayalon, Lori Stahlbrand, Patricia Ballamingie, Evelyn Nimmo, and André Lacerda.

understood to “[encompass] all the stages of keeping us fed: growing, harvesting, packing, processing, transforming, marketing, consuming and disposing of food” (Committee on World Food Security, 2016, para. 3). A sizable body of research on food systems has identified multiple economic, social, environmental, and health problems associated with the agro-industrial food system that now have a global reach. In response to this set of problems, a multitude of initiatives aimed at addressing them have sprung up around the world (Knezevic, Blay-Palmer, Levkoe, Mount, & Nelson, 2017; Mason & Lang, 2017; Mason & Lang cited in Kevany, 2018). Some are grassroots, community-based initiatives, while others are international and policy-focused. Some have a specific food focus (e.g., the Milan Urban Policy Food Pact), while others represent more general policy efforts (e.g., the New Urban Agenda and Sustainable Development Goals). As food systems thinking gains traction, urban-focused policy-makers have made significant strides in bringing food to the fore of policy discussions, although more progress is needed.

Since its beginnings in the 1990s, ICLEI has focused on local environmental sustainability. In 2018, ICLEI refined its core mission around sustainable urban spaces and identified pathways to development centered on five themes: nature, resilience, circularity, equity and people-centric approaches, and low-carbon emissions. Given the

gamut of this ambitious mission, it is not surprising that over the years, ICLEI has engaged with the work of RUAF Foundation. RUAF Foundation provides expertise on urban and peri-urban agriculture and city region food systems as levers for change in addressing pressures, such as food insecurity, climate change, and migration (RUAF, 2017). ICLEI and RUAF's approaches overlap with elements of other international initiatives, including the UNDP's Sustainable Development Goals (SDGs) (UNDP, 2018), the UN-Habitat's New Urban Agenda (UN, 2017), and the Milan Urban Food Policy Pact (Milan Pact, 2015).

Our essay was conceived in discussions of food policy environments that were initiated through the collaboration between ICLEI and the RUAF Foundation. ICLEI – Local Governments for Sustainability is a global organization that brings together local governments committed to sustainable development. The session on resilient food systems included presenters from three Canadian cities (Montréal, Ottawa, and Toronto), as well as from Curitiba, Brazil. The participants (all co-authors on this essay) offered perspectives on innovative local initiatives and reflected on how those initiatives *do* or *do not* intersect with policy at higher governmental levels. A subsequent panel in fall 2018 generated a productive public conversation moderated by the manager of Toronto Food Strategy, which further expanded our thinking (see Blay-Palmer, Ballamie, Emanuel, & Schumilas, 2018). We then engaged in an iterative writing process with input from community partners. We have embedded the relevant scholarly literature into insights offered in each section.

This reflective essay explores each of these international initiatives and their explicit or implicit implications for food systems. After delineating some of the broad brushstrokes of the international policy environment through which food systems governance is framed, this essay considers policy action at municipal and regional levels and recommends several promising focus areas for food policy work. Specifically, it further develops ideas presented in the ICLEI panel and argues in favor of food systems thinking and the value of attention to midsized cities, integrative approaches to the urban-rural spectrum, deep adaptation to cli-

mate change, coherent, scale-appropriate policy and governance, and social innovation.

Policy Environment: Three Key International Agreements

Sustainable Development Goals

While the most obvious Sustainable Development Goal for food systems would be SDG 2 (zero hunger), sustainable food systems cut across all 17 goals and thus provide an integrative opportunity to connect many SDG aims and priorities. Key among these are the goals related to SDG 1 (no poverty), SDG 3 (good health and well-being), SDG 5 (gender equality), SDG 8 (decent work and economic growth), SDG 11 (sustainable cities), SDG 12 (sustainable production and consumption), SDG 13 (climate change), and SDGs 14 and 15 (life on land and in water). The SDGs are made more explicit through the 167 targets that help benchmark existing situations and measure progress. Together, these agreements, if taken seriously, provide a way to transform our food system towards increasing sustainability.

To this end, Johan Rockström and Pavan Sukhdev (2016) of the Stockholm Resilience Centre delineate “How food connects all the SDGs” and argue that food plays a central role in achieving a societal transition towards the SDGs, and in fact, constitutes a prerequisite to their success. The authors envision an integrated, layered approach to thinking about the SDGs through a food systems lens (see Figure 1). They cite various illustrative examples:

- Referring to SDG 3 (good health and well-being), they contemplate the co-benefits of a shift to plant-based diets for health outcomes and greenhouse gas emission reductions;
- Referring to SDG 6 (clean water and sanitation), they identify food production as the largest single consumer of freshwater;
- Referring to SDG 14 (life below water), they note that we cannot achieve global food security due to overexploitation of nearly depleted fish stocks coupled with warming, acidification, and plastic contami-

- Referring to SDG 15 (life on land), they estimate the current proportion of global land used for food production to be 40%—a figure projected to rise to 70% if we persist with business as usual.

Certainly, once one dons one's food systems goggles, one quickly realizes the centrality of achieving just and sustainable food and farming systems to achieving all other goals. Children must be properly nourished before they can benefit from SDG 4 (quality education), as the proponents of healthy school food programs know. Resilient urban food systems, ideally with some local self-sufficiency and fairly traded connections to global supply chains, are critical to achieving SDG 11 (sustainable cities and communities). Furthermore, and perhaps most pressingly, the Intergovernmental Panel on Climate Change (IPCC) (2018) directly urged governments to implement “rapid, far-reaching and unprecedented changes in all aspects of society” (para. 1) to limit global warming to 1.5° C. Thus, greenhouse gas emissions from the food sector, across the supply chain—which account for up to 29% of global emissions (Vermeulen, Campbell, & Ingram, 2012)—must be mitigated to address SDG 13 (climate action). Conversely, producers must adapt to now inevitable climate disruption and changing growing conditions. Rockström and Sukhdev (2016) advocate for the adoption of a new lens for looking at food, beyond simple measurements of productivity per acre, that considers jobs, health, nutrition, and culture, among other things.

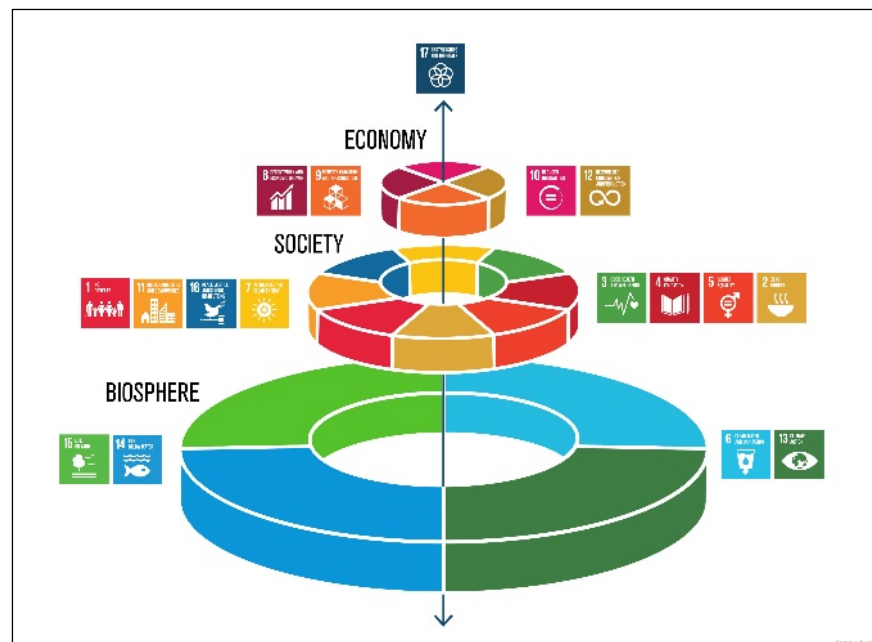
Clearly, the 17 SDGs all impact one another iteratively, and must be understood as an interconnected web. When the values em-

bodied by a goal are progressive—related to equity, equality, ecological integrity, and rights (understood broadly to include ecosystem rights and the rights of nonhuman species)—the potential for progress and transformation remains. But when the values embodied by a goal normalize the very constructs that have resulted in our current ecological crisis—the ongoing colonization of Indigenous peoples and territories, the primacy of private property over the common good, our unchallenged growth regime, dependency on extractive industries, and uncritical embrace of neoliberalism (“capitalism on steroids”)—the globalization of values can be fraught. The devil will lie in the details of *how* goals get implemented, what metrics are made visible and deemed worthy of measure, and to what effect.

New Urban Agenda

The New Urban Agenda (NUA) was developed over several years and officially signed in the fall of 2015. It was based on the premise that urban populations will double by 2050 and the recognition that despite increasing attention to sustainability, “persistence of multiple forms of poverty, growing

Figure 1. Interconnections Between Food and the Sustainable Development Goals



Source: Rockström & Sukhdev (2016); used with permission. Illustration: Azote for Stockholm Resilience Centre, Stockholm University.

inequalities and environmental degradation remain among the major obstacles to sustainable development worldwide, with social and economic exclusion and spatial segregation often an irrefutable reality in cities and human settlements” (UN, 2017, p. 2). Proponents of the NUA seek to use urbanization as a driver of positive transformation towards *sustainable cities and settlements for all*—the subtitle of the agreement.

Of the 175 paragraphs in the NUA, only one, paragraph 123, focuses on food. Specifically, it seeks to integrate food and nutrition security through attention to territorial approaches and policies to link up rural, peri-urban, and urban spaces with a focus on the urban poor. Consistent with SDG 2, its aim is to achieve zero hunger. The NUA advocates a cross-sectoral approach uniting food production, storage, processing, distribution, and marketing to make sustainable food more accessible and affordable for all. It also suggests provisions to reduce food waste and food loss; recognizes the need to integrate with other policy areas, including energy, water, health, transport, and waste; and emphasizes the critical value of genetic diversity in seeds and the importance of reducing chemical inputs. However, despite the inclusion of this paragraph and oddly specific references to discourses of food security, mitigation of food waste, seed diversity, and efficiency, food systems thinking did not prove central to the development of the NUA.

The inclusion, or lack thereof, of meaningful food system framing in the NUA informs how this governance framework is applied at the national level. In the Canadian context, the Government of Canada’s Habitat III (Canada’s national report on the New Urban Agenda), which aims to anticipate and address the challenges of rapid urbanization (Government of Canada [GoC], 2016, p. 1), makes only two explicit and exceedingly brief references to food (GoC, 2016, pp. 17, 37). Clearly, the integrative potential for a food systems lens to advance the goals of the NUA remains underdeveloped.

Milan Urban Food Policy Pact

With more than 207 signatories, the Milan Urban Food Policy Pact (hereafter the Milan Pact) focuses its efforts to support and foster food system sus-

tainability on six pillars. These pillars include ensuring effective governance, enabling sustainable diets and nutrition, improving social and economic equity, augmenting food production, producing in closed-loop ecosystem-based systems with strong links to regional cities (particularly through a robust food supply and distribution connections), and monitoring and mitigating food waste (Milan Pact, 2015). While the Milan Pact provides a voluntary framework for action, indicators have been developed to guide implementation and track progress. Three cities (Antananarivo, Madagascar; Nairobi, Kenya; and Quito, Ecuador) piloted these indicators. The preliminary results from this work, presented at the 2019 Milan Pact annual meeting, highlight the challenges of operationalizing the indicators and the place-based nature of these efforts. That said, the process of identifying place-specific indicators helped to galvanize efforts in most contexts. Moreover, the monitoring framework should encourage municipal governments around the world to adopt a city-region food systems lens by availing themselves of the CITY-FOOD experts at RUAF and ICLEI and coupling that with knowledge of local food systems actors from civil society and academia.

In addition, annual Milan Pact Awards adjudicate exemplary practices from signatory cities to recognize outstanding achievement across a range of sustainable food system categories. The organizers explain: “The cities’ practices have been selected to balance the scale of cities, diversity of practices, and regional distribution around the world. The intent is to create a representative sample of food policies and practices that [Milan Pact]... cities are implementing” (Milan Pact, n.d., para. 1). Recipients include a wide range of initiatives, from a newcomer settlement program that integrates food-handler certification and employment support in Toronto, Canada, to community dining rooms in Mexico City, Mexico, to redistribution of surplus food through food banks in Belo Horizonte, Brazil—seeking, effectively, to globalize social innovation. The awards allow municipalities and civil society actors embedded in emergent regional food networks to gain inspiration from more established networks. A recent review of applicants for the award has become a sort of com-

pendium of best exemplary practices around the world (FAO, 2018a).

The Milan Pact embodies the adoption of an integrated and holistic approach to food systems thinking. While the first round attracted considerable attention, there is tremendous promise (and untapped potential) for a second round of recruitment to encourage the mayors of small- and mid-sized centers to sign on. To wit, in Canada, Montréal, Toronto, and Vancouver have signed on, but no midsized cities have done so to date. Municipalities that have not yet realized they have a role to play regarding the food system need only look to the Milan Pact (n.d.) and/or to established regional city-food networks for inspiration (here, the work of the Food for the Cities program of the FAO [2018a] is exemplary).

This section delineated the three international agreements that comprise the broader policy environment within which a food systems lens might be implemented at the municipal level. Such initiatives signal our joint commitment to work towards shared goals, enable states to align their policies and programs with global efforts, and facilitate global connections to share exemplary practices. Moreover, international agreements can serve as levers for food systems change: they can be held up as discourses to be invoked, strategically, to advance political ends—helping civil society organizations (CSOs) and other actors to name laudable targets and possibly to shame governments for not making meaningful progress.

Each of the three international agreements reflects the unrealized potential of embracing a food systems lens. Progress would involve recruiting more small- and midsized centers to adopt the Milan Pact, conceiving the next New Urban Agenda with food systems at the fore, and identifying and using the myriad ways food systems intersect the SDGs as indicators of and levers for cross-cutting change. Such efforts would allow food systems thinking to become central to how we imagine urban futures, rather than continuing to act as an add-on or afterthought in policy-making.

Key Considerations in Applying a Food Systems Lens

We draw on our work as community-engaged scholars and practitioners to identify key considerations when applying a food systems lens. First, we discuss the merits of expanding a food system lens to deliberately include more small- and medium-sized cities. This section explores the need to do this in the context of regional food systems to enable mutually beneficial integration through more coherent approaches. We then discuss the necessary strategies of policy integration across scales and attention to place-based context as ways to enable support for a sustainable food systems lens. Finally, we stress climate change adaptation as an imperative—a driving force that should inform all policy moving forward.

Small- and Midsized Cities Must Be Considered

When discussing the role of food systems thinking in the context of urban resilience, policy-makers and practitioners must attend not only to megacities around the globe, but also to small- and midsized cities¹ (Kago, Loose, & Sietchiping, 2019). Why? To begin, Berdegue et al. (2014) explain: “Almost 2 billion people, 27% of the world’s total population or half of the world’s urban population, reside in towns and small and medium cities of up to half a million inhabitants. An additional 3.4 billion people are classified as living in rural areas, or 46% of our planet’s inhabitants” (p. 5). Thus, the sole focus on megacities misses 80% of the global population and fails to address important urban-rural interconnections (discussed below). Moreover, the authors continue: “The majority of the world’s poor, perhaps as many as 70%, live in these towns and small and medium cities and the rural areas more proximate to them, and poverty rates are also higher in small and medium cities than in large urban agglomerations” (p. 5). Just and sustainable food systems aimed at mitigating food insecurity among the most vulnerable (among other goals) must, therefore, be enacted where they can achieve the greatest effect: the city-

¹ In fact, some scholars have argued that midsized cities have the most potential “to lead an inclusive economic future that bridges the urban-rural divide” (McFarland, 2017). They argue that midsized centers offer more affordable housing, less traffic, and faster Internet service than their larger counterparts (McFarland, 2017).

region. Blay-Palmer, Renting, and Dubbeling (2015) define this scale in a RUAF publication as follows:

...the 'city region' actively challenges us to bridge the urban-rural spatial divide and connect the places where food is grown to the proximate places where food is consumed. It thus provides a territorial approach to food systems, linking a geographic space of analysis to a relevant geographic space of action for food related, but also other land use, resource management and climate change policies...an integrated food system lens is used covering all stages of food provisioning (production, harvesting, processing and distribution through to the point of retail, consumption, and food waste disposal) as well as different dimensions (social, economic, environmental, nutritional) of food systems in urban areas. (p. 3)

The importance of small- and mid-sized cities as a focus of food resilience is clear in Paraná State, Brazil, in which only two of the 399 municipalities have a population of more than 500,000 inhabitants, with 367 (92%) having fewer than 50,000 inhabitants. Of the 374,000 rural properties in the state, 317,000 (85%) represent small-scale family agriculture (Emater, 2013). The division between city and rural is less well defined outside of the large municipalities of Curitiba and Londrina, where small- and mid-sized cities are often important hubs for rural connectivity and centers of commercialization.

Pilot project work points to the value of city-region food systems for both capacity building as well as developing relevant, sustainable food systems directions. Kitwe, Zambia, provides another example; with a population of just over 400,000, it falls squarely into the small- to mid-sized city category. The city-region food system project in Kitwe helped build municipal capacity within by connecting people across the region. Proponents describe the inclusive approach taken:

... the food system assessment in the city-region of Kitwe was a highly participatory process promoting local ownership and buy-in for

the work through stakeholder dialogue. Some of the key players involved in shaping the local food system of Kitwe are government departments, civil society and NGOs, the private sector, research institutes and academic institutions. (FAO, 2018b, p. 77)

A task force identified key categories for enhancing sustainability in the city-region food system: value chain supports from production through processing, distribution, and waste, including recommendations about low-cost financing, inexpensive processing and storage facilities, and improved waste recycling facilities; improved understanding of social and environmental trade-offs for land use; and improved governance specifically through urban agriculture-friendly by-laws and a more decentralized approach to agriculture (FAO, 2018b).

Part of the potential of small- and mid-sized cities in strengthening food systems lies precisely in their multifaceted role in connecting food systems actors. Small-scale farmers located in the peri-urban and rural areas of municipalities encounter barriers to entering distribution networks in large cities that require greater supply. Distribution channels in small- and mid-sized cities are better positioned to work with smaller supply but still provide sizable markets. Such distribution channels are also more accessible to organizations that serve multiple producers but are still significantly smaller than corporate food conglomerates. For example, local farmers' unions, co-op markets, and other organizations actively working and providing spaces for interaction within urban areas can find it difficult to penetrate markets in megacities and logistically challenging to operate in largely rural areas. However, small- and mid-sized cities offer a good middle ground to scale up without jeopardizing relationships that are critical to the success of such collective efforts. Our observations to date suggest that there is much promise in this context, but more research is needed to understand the food systems dynamics at this scale.

Urban-Rural Linkages Must Be Enhanced

Next, integration of food systems thinking must enhance urban-rural linkages in mutually support-

ive ways. Even with the rural side of the equation given more explicit consideration, food remains a critical part of both conversations (Forster, Santini, Edwards, Flanagan, & Taguchi, 2015). The UN-Habitat (2018) delineates 10 guiding principles² and a framework for action to create an enabling environment for urban-rural linkages that advance integrated territorial development. These are based on “new, inclusive approaches and enhanced synergies between urban and rural communities and spaces” (UN-Habitat, 2018, para. 1). Invoking both the SDGs [notably, SDG 11 (sustainable urbanization)] and the NUA, this body recognizes “the reciprocal and repetitive flows of people, goods and financial and environmental services” (UN-Habitat, 2018, para. 2) within integrated territories. Thus, urban, peri-urban, and rural areas—understood together as a city region—are interconnected and interdependent in myriad ways. Thinking holistically about how a city-region food system overlays on these flows of people, resources, and ecosystem services helps ensure it remains connected, inclusive, and functional.

In the context of urban resilience, ensuring a supply of food produced as locally as possible is the key to having a stable food supply that can be distributed to an urban population as quickly as possible—especially critical in cases of extreme weather events or other disasters. In order to achieve this, urban-rural linkages must be enhanced, with agricultural lands preserved as close to city limits as possible (which may involve a moratorium on urban expansion into arable lands). Protection of peri-urban agricultural land not only augments local food distribution, but also preserves biodiversity near cities, enhances local economies, and reduces greenhouse gas (GHG) emissions from food transport. For context, we provide three illustrative examples: Montréal’s agricultural zone, Brazil’s national food programming, and Ontario’s Golden Horseshoe Food and Farming Alliance.

In 2015, the city of Montréal released a plan

for the development of its agricultural zone (Communauté métropolitaine de Montréal, 2015). Some of the main orientations include ensuring long-term agricultural production capacity near the city, encouraging the development of multifunctional agricultural activities, and integrating commercial agricultural activities into industrial and commercial zones in the city. This kind of forward thinking and planning will enhance urban-rural linkages, and in so doing, help the city become more resilient. To support this plan, Québec’s Ministry of Agriculture, in partnership with the city of Montréal, has signed an agreement to develop the bio-food industry within and around the city (Cabinet Minister of Agriculture, Fisheries and Food, 2019). This agreement aims to support projects and reinforce partnerships and collaborations within the sector. Projects include a study on the economic potential of commercial urban agriculture, a proposed congress on innovation in the bio-food sector, and a feasibility study on neighborhood solidarity grocery stores.

Food and agriculture continue to be central themes across various initiatives in Montréal, due to increasing momentum of food system actors working together—leading up to and following the creation of the Montréal Food Policy Council (the Conseil du Système alimentaire Montréalais). In 2019, the city of Montréal won the Canadian Smart Cities Challenge, a contest aimed at empowering communities to adopt a smart cities approach to improve the lives of their residents through innovation, data, and connected technology. Montréal’s proposal focused on enhancing local production, distribution, storage, and transformation to utilize existing resources better to support the vast number of actors in the food system. The proposed activities included the development of a technological platform, a large greenhouse, and improvements to farm-relevant information delivery. The platform (to manage inventory, sales, food donations, and deliveries) will facilitate easier purchasing of local food, mitigate food waste, and reduce costs. The

² According to the UN-Habitat (2018, para. 7-16), integrated territorial development should be guided by the following principles: 1. Ground interventions locally; 2. Innovate governance structures; 3. Integrate spatially and functionally; 4. Practice inclusive finance; 5. Make partnership permanent; 6. Honor human rights; 7. Provide social protection and do no harm; 8. Be socially inclusive and participatory; 9. Stay action oriented; and 10. Embrace and adapt the data revolution.

greenhouse will produce up to 3,000 tons of fresh fruits and vegetables annually, some of which will be designated for local community food centers. The greenhouse will also use waste heat from a landfill and provide professional training for youth. A smart cities challenge to improve information about supply and demand will benefit peri-urban farms on the West Island of Montréal to increase their productive capacity. Finally, the city of Montréal facilitates collaboration among diverse organizations to more efficiently and effectively improve the quality of food accessible to vulnerable populations (Ville de Montréal, n.d.).

In Brazil, national programs such as the Food in Schools (*Programa Nacional de Alimentação Escolar*, PNAE) and the Food Acquisition Program (*Programa de Aquisição de Alimento*, PAA) have been integral to creating connections between rural communities, peri-urban areas, and cities. The PNAE, for example, purchases food for municipal schools, and 30% of the produce must come from family agriculture. In Paraná State, traditional agroforestry and agroecological systems that include production of *erva-mate* (yerba mate; a tea commonly consumed in southern South America), along with a range of other native food crops such as manioc, beans, and dairy, are an important element in meeting the needs of these national programs. Not only do they produce many of the food products grown in peri-urban and rural areas, but they also contribute significantly to food consumed in local urban centers. Because these traditional family farm systems often include agroforestry and agroecological practices, they have been important in maintaining forest cover in southern Paraná, a state that has suffered extensive deforestation, with only about 1% of its original forest cover remaining as primary forest (Castella & Britez, 2004, Vibrans, McRoberts, Lingner, Nicoletti, & Moser, 2012). These forest environments and agroecosystems also offer important ecosystem services that are necessary for urban resilience and human health, including clean water, carbon capture, enhanced biodiversity, and nutrient cycling. Thus, it is important to consider changes in government priorities that can inadvertently undermine existing programs; clearly, caution is required when relying too heavily on one market.

In Ontario, the Golden Horseshoe Food and Farming Alliance (GHFFA) brings together food system actors from the region of southern Ontario known as the Golden Horseshoe, which includes several municipalities (Toronto among them), and the surrounding rural area, to discuss common interests and develop collaborative projects. One of the successful initiatives is the “Serving Up Local” project to increase local food procurement in municipally operated facilities (GHFFA, n.d.). In fact, Toronto serves as a pilot city and partner for the RUAF City-Region Food System project. Adopting the Greater Golden Horseshoe as its boundary, Toronto seeks to identify key gaps in the regional food system as one way to capture GHFFA expertise and connections. Notably, the city generated a key policy initiative from this assessment: to develop midscale distribution infrastructure to better connect the urban and rural spaces (Miller & Blay-Palmer, 2018).

Policies and Governance Must Better Articulate Across Scale

How to effectively connect policy across scale remains an ongoing challenge. It requires iterative views from the top down and bottom up, involving local-level, grassroots actors with broader perspectives and policy leaders and decision-makers with on-the-ground, local experience and an understanding of the role they can play in the food system.

Within the framings of the Milan Pact, NUA, and SDGs, various panelists recognized the need for policies and governance to better articulate across scale. They cited instances where national policies do not necessarily filter down to connect with grassroots actors, on-the-ground struggles, and lived experiences. Sometimes policies get stuck at the federal level and do not effectively reach the people. And sometimes communities and municipalities have insufficient resources to pitch a project to the federal government to secure funding (in this regard, some communities are better organized than others, and their ability to secure resources inadvertently generates a landscape of uneven development). All agreed that consideration of how these policies get implemented can be very grassroots, place-based, and context-specific. For exam-

ple, Toronto has analyzed overlapping SDG and Milan Pact indicators to assess its revised food strategy during its 2018 review process (Toronto Public Health, 2018).

In reflecting on the need for stronger mechanisms of accountability at, for instance, the city level in relation to national-level commitments, Barbara Emanuel, manager of the Toronto Food Strategy, wondered *how* (and *whether*) these agreements articulate between local and global scales (and all the scales in between). In June 2019, the government of Canada announced its food policy for Canada,³ and, in the context of this discussion, there are two points of caution. First, national food policies must support and be informed by municipal food systems actors. Regardless of scale—whether municipal, provincial, national, or international—effective co-governance (in this case, the involvement of multiple stakeholders in decision-making regarding policies and programs related to food) increases both deliberative democratic process and urban resilience (Ballamingie, 2018), and could provide insurance against shifts in political priorities as governments change. Second, there must be consideration of how these policies get developed⁴ and implemented, for this can be very grassroots and contextualized.

In Brazil, the implementation of national policies such as PNAE faces challenges at the local level. This is because most small-scale producers who have traditionally planted organic and agroecological gardens do not have the capacity to meet the needs of the program. To address this, local farmers' unions have worked with small-scale farmers to develop cooperatives that bring several families together to meet the demands of the program. Local grassroots initiatives are essential in implementing these national policies, so policies need to be flexible enough to deal with local realities, particularly in terms of food. For example, small-scale farmers faced challenges providing the quantity or type of foods outlined in the contracts, leading to a criminal investigation of diversion of

funds from the national programs by local cooperatives in 2013 (Fernandes, 2017). While all those imprisoned were eventually exonerated, such an example shows the need for flexibility in applying national policies to local realities. The case had a major impact on many communities, some of which no longer belong to the program, leaving the families without an important source of income. Although these programs have seen much success across Brazil (and in Paraná, they will continue through 2020), new government policies that favor large agribusiness are threatening their long-term continuation, and as such the economic and socio-environmental outcomes of many small-scale farmers in the country are in jeopardy.

There Is No “One-Size-Fits-All” Solution

A note of caution goes to funders and policymakers when contemplating how to implement global objectives at the local level, or, conversely, how to scale up and/or diffuse out successful local projects to broader or different geographic contexts. Our extensive work as a community of scholars and practitioners has repeatedly highlighted that a diversity of models may be more appropriate for differently sized centers. As a civil society colleague posited, “Funders often require replication models as the basis of collective impact change, but projects that work well in one location rarely translate in ways that are effective, or place-appropriate to another without allowance for critical re-design to fit the social, political, cultural and environmental context” (M. Garahan, personal communication, November 1, 2018). Thus, enthusiasm to translate projects from one geopolitical or cultural context to another, or from one scale to another, should be tempered by respect for the specificity of place and scale—including the unique constellation of existing actors working on related topics in each context. As examples, Sonnino, Marsden, and Moragues-Faus (2016) argue in favor of a place-based approach; Marsden (2013) reflects on place-based governance considerations; Mount and An-

³ For insights into governance recommendations emerging from the national food policy development process, see analysis by Andrée, Coulas, & Ballamingie (2018).

⁴ See the work of urban planner, Yves Cabannes, on participatory budgeting (Cabannes & Lipietz, 2017) and the integration of food in urban planning (Cabannes & Marochinno, 2018).

drée (2013) visualize the intricacies of community-based food initiatives in Ontario; and Flora, Flora, and Gasteyer (2015) found that adapting models to local contexts helps to avoid failure.

As an illustrative example that emerged during the panel discussion, a representative from Nutrition International questioned how to facilitate food policy councils in non-industrialized (“developing”) countries. We discussed how some of the most celebrated examples from industrialized countries might offer only limited lessons to efforts in non-industrialized contexts. For instance, the Toronto Food Policy Council, formed in 1991, is recognized as a pioneer in the field (see Blay-Palmer, 2010; Mah & Baker, 2013).⁵ But we noted that while these models work well in a Canadian context and elsewhere, they hardly represent a “one-size-fits-all” solution and should therefore be assessed for their appropriateness on a case-by-case basis. A representative from the Global Alliance for Improved Nutrition echoed our reply, noting that in some places there are existing structures that can be adapted for better urban policies, rather than starting a food policy council from the ground up (Ballamingie, 2018). From our FAO-RUAF-LCSFS/FLEdGE City Region Food Systems work, we learned the tremendous benefit of convening multistakeholder groups across scales to tackle problems (such as food access or food waste) together. Of course, attention to such specificities and reconciliation of multiple perspectives takes time, patience, and flexibility, but fortunately, there is an increasing number of exemplary practices to draw on.

Deep Adaptation to Climate Change Must Frame All Work Moving Forward

Finally, the imperative to adapt deeply and proactively to climate change has come to the fore of public consciousness, and ICLEI recently released a response to the IPCC’s (2018) dire warning. First, ICLEI’s (2018b) call for “more ambitious national targets that align to the 1.5-degree scenario” (para. 5) encourages close examination of ways to mitigate GHG emissions associated with conventional

mainstream agriculture, in addition to the role of ecological and regenerative agriculture in carbon capture and sequestration. Second, ICLEI’s advocacy for a “strong urban perspective in climate science and policy” (para. 6), underlies the role that just and sustainable local food systems might play in achieving that. Third, ICLEI’s vision for a “full reorientation towards multi-level climate governance” (para. 7), requires the effective articulation of policy across scale—started in the Talanoa Dialogues between cities and regions and national governments. Fourth, ICLEI’s call for “a rapid, all-hands-on-deck transition to achieve climate neutrality and a fully decarbonized economy” (para 8), demands a timely transition to renewable energy and divestment from fossil fuels, as well as serious examination of the critical role ecological agriculture might play in achieving carbon neutrality. Fifth, ICLEI’s demand for “action on urban resilience that addresses severe possible climate impacts, based on at least a 2-degree scenario” (para 9), highlights the obvious: food lies at the foundation of Maslow’s hierarchy of needs, and deep adaptation to a rapidly changing climate should prioritize human food security, if only to mitigate suffering.

Considering that small-scale traditional erivate producers in southern Brazil have been responsible, in part, for conserving important natural forest resources and native food seed banks due to their use of agroforestry and agroecological practices, it is clear that they play a key role in helping to mitigate the coming effects of climate change (Nicholls & Altieri, 2019). However, these systems are being threatened due to misinformed policies focused on monoculture and antagonism between farmers and government environmental agencies, particularly in terms of the extremely strict laws forbidding forest management. Policy and government research and outreach agencies must reframe their relationship with these small-scale producers to support them as stewards of forests and biodiverse agroecosystems. This could help ensure that the biodiversity, water, and carbon capture services provided by these agroecosystems are maintained around urban centers. Grassroots initiatives,

⁵ Though others, such as the Knoxville-Knox Food Policy Council pre-date its formation by almost a decade, having been formed in 1982 (Knoxville-Knox County, n.d.).

such as heirloom seed saving and exchange programs among small-scale family farms, require further institutional support and expansion so that the wide diversity of native food varieties continues, which in turn will enable food crops to adapt to future climate transformations, improving urban and rural resilience.

Urban Resilience Must Be Reframed to Include Food Systems Thinking and Social Innovation

As Ballamingie (2018) argues, since ICLEI's inception, urban resilience and sustainability have largely been framed in terms of climate change mitigation and adaptation. But as food system scholars and practitioners know, food serves as a portal to myriad socio-economic and environmental issues. Cities play a crucial role in achieving food security, optimizing health, and advancing environmental sustainability. Municipal food access programs target predominantly urban populations, where they prove most effective and efficient to deliver. At this level, direct engagement with citizens can be more comprehensive and meaningful, and citizens can better appreciate the social and environmental value of policies and programs that have a visible effect on their communities.

ICLEI and RUAF joined forces in 2013 to create the CITYFOOD network during the Resilient Cities Congress in order to advance "local and regional government action on sustainable and resilient city-region food systems by combining networking with training, policy guidance and technical expertise to its participants" (ICLEI, 2018a, p. 3; RUAF, 2017, para. 1). CITYFOOD became operationalized in 2017 to provide online (e.g., through webinars) and face-to-face (e.g., through international meetings such as the Milan Pact annual gathering) opportunities to network and share information. Willing to work with both established and emergent city-region food systems, ICLEI and RUAF argue that sustainable and resilient city-region food systems are critical, and ultimately serve to:

Enhance food security and nutrition for all;

Improve livelihoods of urban, peri-urban and regional food producers, especially women, youth and other vulnerable groups; Promote job creation, with an emphasis on green jobs, through local and regional production, agro-processing and marketing; Protect and restore ecosystems and natural resources, including biodiversity, air, soil and water quality; Reduce greenhouse gas emissions through climate friendly production, transport, processing and consumption of food; Advance climate change adaptation by greening cities through urban and peri-urban agriculture; Support the achievement of national and international goals and agendas, such as the Paris Agreement, the Sustainable Development Goals, the New Urban Agenda and the Milan Urban Food Policy Pact (ICLEI, 2018a, p. 4); Reduce food waste and losses and promote safe reuse of organic waste and wastewater; Increase the resilience of the food system by diversifying food supply sources and building resilient food production, transport, storage and marketing systems; [and,] Facilitate public-private-civil society participation by engaging stakeholders in food governance across sectors and levels of government. (ICLEI, 2018a, p. 5)

During the ICLEI World Congress 2018, the program sought to accommodate and feature priorities identified by ICLEI regional offices and partners. The food systems team worked to ensure food served as a cross-cutting theme, highlighted in other sessions, workshops, and high-level discussions, as well as during site visits⁶. Moreover, food systems have been a core theme of Resilient Cities Congress since its inception with dedicated forums and track of sessions in almost every edition of the congress.

In fact, these goals are not unique to ICLEI or RUAF. Several other initiatives around the world offer similar visions, from global initiatives like the Milan Pact to local measures like the Toronto Food Charter. Local governance offers unique pathways to achieve more just and sustainable food

⁶ To view the featured sessions associated with the theme, Sustainable and Resilient City-Food Systems, see <https://worldcongress2018.iclei.org/sustainable-and-resilient-city-region-food-systems/>

futures as they provide space for place-based innovation.

Innovation Must Include Social Aspects

In contrast to social innovations possible through place-based local governance, national governments emphasize innovation across sectors—what they typically refer to as technology development. For example, in Canada, the federal government has developed an innovation plan, *Positioning Canada to Lead: An Inclusive Innovation Agenda* (GoC, 2016), that aims to foster “a confident nation of innovators—one that is globally competitive in promoting research, translating ideas into new products and services, accelerating business growth and propelling entrepreneurs from the start-up phase to international success” (para. 3). Community food initiatives and small agri-food enterprises are sites of significant innovation, which includes social innovation alongside business and process innovation (Agri-food Economic Strategy Roundtable, 2018; Knezevic et al. 2017; Stephens et al., 2019). However, a closer look at the Canadian government’s agenda uncovers a focus on digital technologies, green technologies, commercialization of ideas, acquisition and training of talent, and investment in research superclusters. All five research superclusters funded under this agenda in 2018, in the first round of funding, were digital technology superclusters (GoC, 2018), although two included some aspect of food systems (Protein Industries Supercluster, and the fisheries and aquaculture components of the Oceans Supercluster; see GoC, 2018). In other words, officially, innovation has become synonymous with new technologies, despite the growing public attention paid to social innovation (see, for instance, CSI, n.d.). Initiatives at local and regional levels, as the prior sections illustrate, offer more space for inclusive and multifaceted innovation. Lessons from successful on-the-ground initiatives demonstrate that a broader approach to innovation can have a greater impact on social and environmental sustainability without compromising economic well-being—all of which is essential to greater urban resilience.⁷

Conclusion

This essay has sought to demonstrate the value of integrating a food systems lens into discussions of urban resilience, considering three key international agreements: the Milan Urban Food Policy Pact, New Urban Agenda, and Sustainable Development Goals. Food systems thinking holds tremendous integrative potential to address myriad, complex, and thorny issues at once, and can no longer be relegated to an afterthought.

Drawing on diverse examples, various prescriptive recommendations and calls to action emerge from this work. Small- and mid-sized cities must be considered as key sites through which food systems are enacted, potentially affecting significant portions of the global population (illustrated by a pilot project in Kitwe, Zambia). Urban, peri-urban, and rural linkages across the city-region food system must be enhanced (here, Montréal’s planned agricultural zone and smart cities approach hold promise). Policies and governance must better connect and translate across scale, with appropriate mechanisms in place to monitor progress and ensure accountability. However, mechanisms to achieve goals cannot be “one-size-fits-all.” Thus, enthusiasm to translate projects from one geopolitical or cultural context to another, or from one scale to another, should be tempered by respect for the specificity of place and scale, including the unique constellation of existing actors working on related topics in each context. Certainly, the Milan Pact tries to do this by recognizing the myriad distinctive ways cities engage with food and the critical role food plays in adapting to economic, environmental, social, and political challenges. This insight is also consistent with UN-Habitat’s (2018) guiding principle to “ground interventions locally” (para. 7). Next, deep adaptation to climate change must frame all food systems thinking moving forward. And finally, innovation must be conceived of beyond the narrow construct of technological advancement to include social and ecological innovations. Since many jurisdictions still lack food policies, we hope these insights will be useful as they advance in their adoption of a food systems lens.

⁷ For examples of such initiatives, see the Social Economy of Food video series on the Laurier Centre for Sustainable Food Systems YouTube channel or visit <http://nourishingontario.ca/the-social-economy-of-food/social-economy-of-food-video-series/>


Thinking strategically while moving forward, first, mayors and municipal governments around the world should adopt a city-region food systems lens by availing themselves of experts (vis-à-vis CITYFOOD, RUAF, and FAO) and coupling that with knowledge of local food systems actors from civil society and academia (Kago et al., 2019). In this regard, future research into the benefits of adopting a food systems lens broadly, and into motivations for small- and mid-sized cities to sign onto the Milan Pact specifically, would be of value.

Second, the governance of municipal food systems is best achieved through participatory and collaborative processes that bring together diverse stakeholders. The Toronto Food Policy Council, founded in 1991, remains a leading example. It is based within and funded by the city of Toronto and gives community members and food system experts a role in advising the municipal government on food issues. Case studies of exemplary practices in this and other more established municipal food policy councils could serve to inform more emergent governance bodies.

Third, initiatives to interconnect food policy actors must be supported. In this regard, the work of the Food Policy Networks (n.d.), a project of the Johns Hopkins Center for a Livable Future, is notable in North America. In British Columbia, Kent Mullinix and colleagues at Kwantlen Polytechnic University (KPU) have developed a comprehensive food system policy database (KPU, n.d.), and the Food Communities Network⁸ recently emerged as a bilingual, pan-Canadian network aimed at building food resiliency. Such initiatives connect actors across the country who are seeking to engage effectively in food systems governance, network and share best practices, build capacity, create a database of policies, diffuse social and environmental innovations, enable compara-

tive research, and aggregate technical assistance.

Fourth, it will be necessary to engage planners and planning departments as critical actors in urban policy-making and urban design. Notably, Growing Food Connections, an initiative aimed at “developing an educational framework for the next generation of food systems planners” (GFC, n.d., para. 1) led by Samina Raja and Jill Clark in the United States, seeks to ensure the necessary formation.

Moving forward, our goal as a research collaborative will be to formally encourage food systems thinking in discussions of urban resilience, governance, and related policies. This essay has offered a high-level analysis of the policy environment within which a food systems lens might be applied and argued the (as yet unexplored) potential of doing so. The adoption of a food system lens involves a paradigm shift that will move food analysis and action to the next level. 

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⁸ For more information, see <https://foodcommunities.ca/>

⁹ For more information, see <https://researchcentres.wlu.ca/centre-for-sustainable-food-systems/index.html>

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