9 Tools for food system change

City Region Food System assessment, planning, and policy

*Guido Santini, Marielle Dubbeling,
and Alison Blay-Palmer*

Introduction

While linked to other concepts such as foodsheds, bioregions, short food-supply chains, and territorial food systems, in recent years, the City Region Food System (CRFS) approach has emerged as a way to connect typically divided urban and rural spaces (see also Chapters 2 & 4, this volume). In addition to spatial integration, the CRFS approach also emphasizes coherence across food-chain dimensions, taking into account environmental and socio-economic aspects as part of fostering more resilient and sustainable food systems (for a more detailed analysis please refer to Blay-Palmer et al., 2018 or Blay-Palmer & Renting, 2015). To realize these goals, city regions can apply a large number of strategies and tools, such as the promotion of (peri)urban agriculture; preservation of agricultural land areas and watersheds through land-use planning and zoning; development of food distribution and social protection programmes; support for short supply chains and local procurement of food; and promotion of food waste prevention, reduction, and management. Developing a resilient CRFS, however, requires political will – integrating available policy and planning instruments (e.g. infrastructure, investment, logistics, public procurement, land-use planning); involvement of various government departments and jurisdictions (local and provincial); and inclusive organizational structures at multiple scales (municipal and district among others). Improved CRFSs offer the opportunity to help achieve better economic, social, and environmental conditions in both urban and surrounding rural areas by activating new or reinforcing existing concrete policy and investment opportunities.

In 2015, FAO and RUAF Foundation, in collaboration with the Laurier Centre for Sustainable Food Systems (LCSFS), and with the financial support of the German Federal Ministry of Food and Agriculture, the Daniel and Nina Carasso Foundation, and the CGIAR Water Land and Ecosystems Programme led by IWMI, embarked on a collaborative programme with regional partners to operationalize the CRFS approach. The goal was to assess and plan increasingly sustainable city region food systems in seven city regions around the world with an emphasis on the Global South.

The pilot cities are: Colombo (Sri Lanka), Lusaka and Kitwe (Zambia), Medellin (Colombia), Quito (Ecuador), Toronto (Canada), and Utrecht (the Netherlands) (FAO & RUAF, 2015; Dubbeling et al., 2017).

The CRFS approach builds on a formalized process of identifying and engaging all relevant stakeholders from the start of the assessment process through to policy review and formulation (see Chapters 2 & 7, this volume). This means that a CRFS process can result in revised or new urban food policies, strategies, and projects, and also in the creation of new – or revitalized – networks for food governance and policy development, such as urban food policy councils and new institutional food programmes and policies (Blay-Palmer et al., 2018).

Following the CRFS research, the approach was translated into a toolkit that provides guidance on how to assess a CRFS and then helps to build a more sustainable city region food system (the methodology is available at <http://www.fao.org/in-action/food-for-cities-programme/toolkit/introduction/en/>). The toolkit was developed out of, and is supported by, three phases of research that produced synthetic reports covering each pilot project. These phases involved data identification and consolidation from existing sources, and then the generation of new data followed by policy assessment and recommendations. The toolkit is available online (<http://www.fao.org/in-action/food-for-cities-programme/toolkit/en/>) as a set of linked documents that guide users through an iterative, non-linear process, including non-sequential phases to establish multi-stakeholder task forces, develop a vision, collect data, identify areas for improved food system sustainability, and work towards policy coherence. The toolkit includes more than 40 tools and resources – such as meeting guidelines and policy examples – developed and identified during the pilot phase. These examples from the cities offer an overview of why and how each city region implemented their changes and what outcomes each achieved. It is meant to be a resource for policymakers, researchers, and other key stakeholders who want to better understand their own CRFS and plan for improvements. In this way the examples and tools provide valuable experiences, expert guidance, and lessons that may accelerate the development of similar initiatives in other city regions that wish to apply, customize, or scale up similar practices.

This chapter provides an overview of the research results from the pilot cities that inform the CRFS toolkit as well as concrete examples that illustrate how pilot city regions adopted and adapted their strengths and peculiarities of their own contexts to generate and share evidence that led to policy outcomes. In particular, the chapter delves into the experiences of the pilot city regions that include Colombo (Sri Lanka), Lusaka and Kitwe (Zambia), and Medellin (Colombia). We also include brief overviews of the work in Toronto and Quito.

The CRFS process in the Colombo region triggered policy discussions beyond the local level that are spreading into provincial (regional) and national levels. It created the basis to start visualizing the importance of

a territorial approach to food systems and the actions needed to offset the impacts of natural resource management challenges, climate change, and shocks on city regions. It shed light on food safety, nutrient safety, value chain management, and food waste and losses in relation to urban spaces (FAO, 2018). In the two Zambia regions, the CRFS approach raised awareness and political momentum to reinforce the role of horticulture to promote diversified food production and sustainable consumption through joint planning specifically as proposed for the Urban and Regional Planning Act and could also be formative for the ongoing National Urbanization Policy. In the Medellin case, the CRFS approach enabled key policymakers, planners, and practitioners to move from a singular focus on urban food security and nutrition to a more integrated food systems vision that was applied across the region. This facilitated the identification and formulation of territorial planning strategies that strengthen more sustainable and resilient food chains from production to consumption. In turn, this enabled cooperation and coordination of the actors, including new forms of integration and collaboration between producers, agents, and markets, for example, the construction of a closer and more equitable relationship between rural and urban areas, which was designed to meet the needs of the urban and rural areas, producers, and consumers.

The CRFS toolkit and approach

Building from the experiences in the pilot cities, the toolkit was developed to include different considerations typically needed to support a CRFS assessment and planning approach (A diagram of the City Region Food System Approach is available at: <http://www.fao.org/in-action/food-for-cities-programme/toolkit/introduction/en/>).

The phases in the CRFS process are iterative and not intended to be linear. Consistent with other place-based research, the entry points should be defined based on the local contexts including available evidence and information, capacity, stakeholder engagement, and existing policy agendas (Sonnino et al., 2016). In some contexts, setting the policy agenda could be the starting point and an assessment may be used to explore and assess the policy priorities identified moving back and forth between data gathering and policy development. A city may enter at any point in the process suitable to its local context.

To begin, the CRFS team needs to: engage a multi-stakeholder task force, including researchers, policymakers, and food system participants; establish goals and objectives; and then determine what data and information exist. Typically, this initial phase produces outputs including terms of reference for the project as well as a workplan and timeline. Once the task team has been established, the approach develops based on the needs of the specific city region and would include some or all of the following elements:

- **Defining the nature and boundaries of the CRFS:** A key activity in the defining stage will be to conduct a participatory mapping exercise with a wide range of stakeholders to define the nature and boundaries of the local city region and the city region food system. In many cases these boundaries are based on either available data and/or political boundaries and other administrative considerations. In some cases, boundaries were set based on food-flow considerations as, for example, in Medellín.
- **Characterizing the CRFS – the CRFS scan:** The toolkit provides guidelines about how to map and describe the local city region food system. This includes questions such as: who feeds the city region, where is the food processed, how is it marketed, what do people eat and what is their food security and nutrition status, how is food waste managed and who are the government and institutional actors involved in the food system?
- **Visioning:** The toolkit outlines how to build a shared common vision for a sustainable and resilient CRFS. The vision underpins the different parts of the entire CRFS assessment and planning process. The aim is to build a vision that transcends the given project and can eventually grow into a more refined, consolidated – and political – set of priorities that is agreed upon by all stakeholders involved as the project progresses. The vision gives direction to the implementation of the CRFS assessment and planning.
- **Analysis of the CRFS:** The toolkit suggests ways to analyse current food system performance with regards to different sustainability dimensions, food system vulnerabilities, assets, threats, and weaknesses. The analysis also allows for the identification of opportunities to strengthen the CRFS.
- **Policy planning:** The toolkit provides recommendations for concrete policy and planning interventions in the CRFS and identification of stakeholder roles, (new) institutional frameworks, proposal writing, programmes, and action plans. This may also include the identification of lobbying opportunities and elaboration of specific advocacy materials. The policy support and planning could involve further policy analysis, policy formulation and revision, policy integration, and planning of further action. Continued engagement of policymakers across multiple scales and other stakeholders can be key to ensuring policy uptake and effective implementation.
- **Governance and multi-stakeholder dialogue process:** From a governance perspective, the toolkit presents a CRFS approach that aims to be highly participatory and promotes local ownership of the process through multi-stakeholder, multi-scale engagement as it seeks to foster inclusive dialogue among all the relevant stakeholders involved in the CRFS. The goal is to support local governments and multi-stakeholder bodies in taking informed decisions on food planning and capacity building, recognizing the added value in the consultation–participative processes,

and knowledge sharing. In some cases, the CRFS process has improved food system governance by consistently applying a multi-stakeholder participatory approach and process throughout the various steps of CRFS assessment and planning. This, in turn, can lead to strengthened existing, and the creation of new, networks and/or food governance structures, the improvement of government and stakeholder capacity in implementing a CRFS process, and the promotion of food policy design and monitoring.

The tools, material and examples provided on the toolkit website need to be adapted to the specific circumstances and interests of a city region through the creation of a local CRFS team that can use the toolkit according to local concerns and capacities. Examples of this are provided later in the chapter through case-study work. A sound CRFS process takes into account existing and specific agronomic, economic, and institutional–political conditions; the variety, interests, and expertise of the different involved stakeholders; available resources, existing data and information; and specific set goals in the local context (see Chapter 8, this volume, for other examples of toolkits leading to change).

Outcomes of the CRFS assessment and planning process in pilot city regions

Considering that each city region has its own context, the toolkit is not meant to represent a guideline that fits all. Instead, it has been designed to be a flexible instrument and to adapt to the characteristics and needs of each context. In that respect, the seven pilot city regions have adapted the approach, building on their specific contexts.

As discussed below, in each of the pilot cities the CRFS process has built more awareness and information exchange about the characteristics and functioning of the CRFS and has created the basis for a common and shared vision of a sustainable CRFS. In each city, the CRFS process has led to a set of key policy proposals and recommendations. In some cities this has resulted in policy or project activity, including new governance structures. In other cities, processes will be carried forward by local stakeholders or under new projects.

Case study 1: Two regions in Zambia – The role of the CRFS approach in raising awareness and political momentum to promote diversified food production and sustainable consumption

Zambia is a landlocked country located in south-central Africa. Forty-one per cent of its population lives in urban areas (urbanization rate in Africa: 38 per cent), mostly gathered in two regions (World Bank, 2016); Lusaka, the capital city (1.7 million inhabitants, Lusaka Statistical Office 2010) and

surrounding districts; and the Copperbelt Province, including the city of Kitwe (468,682 inhabitants). With the repetition of droughts and rapid urbanization patterns, both regions face diverse challenges to ensure food security and nutrition for all, while providing decent livelihoods to farmers and making efficient use of natural resources.

In addition, the existing food system in Zambia, built on large-scale mono-cropping of maize, is eroding ecosystems and crop diversity and reducing diversity in consumption and diets. Today, the Zambian diet is mainly composed of cereals, predominantly maize, starchy roots and, to a lesser extent, fruits and vegetables. Cereals provide almost two-thirds of the dietary energy supply. According to the National Food and Nutrition Commission (NFNC), one of the major causes of a high rate of malnutrition in Zambia is the mono-diet practice. The culture of mono-diet is born from mono-cropping food production, which is heavily slanted towards maize (Lusaka Central Statistical Office, 2010; Lusaka Government, 2015; Biriwasha, 2017).

In both city regions, prior to the CRFS pilot project, very little had been done to either analyse or plan the food system. As a result, few data and studies were available, and looking at food through a system and multi-stakeholder lens was still at a very preliminary stage. Despite the existence of a Ministry for Local Governments, food supply and distribution is still mainly handled by the Ministry of Agriculture. Both city councils showed interest in taking up this approach providing the needed political buy-in to initiate the process.

In both city regions, a multi-stakeholder group was formed including: producers, supermarkets, marketeers, processors, cooperatives, ministries, NGOs, municipalities, and consumers associations. The city regions were defined based on administrative boundaries and food flows (i.e. the sources of most of the food items consumed in the city) (FAO). (The map for Lusaka is available at: <http://www.fao.org/in-action/food-for-cities-programme/pilotcities/lusaka/en/>; the map for Kitwe is available at: <http://www.fao.org/in-action/food-for-cities-programme/pilotcities/kitwe/en/>.)

Based on the approach and goals defined through each CRFS process, each of the defined city regions has the longer-term aim to make its CRFS more sustainable and resilient, and to improve the livelihoods of rural and urban dwellers in the city region, with special attention to the challenges of: (a) how to improve access to adequate food for the vulnerable and poor urban population; and (b) how to improve market access for the small-holder farmers in urban, peri-urban, and rural areas in the city regions. This connective approach to assessment examined current and future constraints affecting the local and regional food value chain. It used local knowledge to help analyse and prioritize these constraints and explore new ideas to strengthen the sustainability and performance of the food system.

Since very few data were available, an important focus was made on collecting primary data, unlike in the other project pilot cities. Data were

collected around the main priorities identified by multi-stakeholder groups to enable solid locally owned strategies and advocacy towards the key local institutions. The multi-stakeholder group was mobilized through a series of workshops to discuss, validate the assessment and identify key strategies to be implemented, and define associated action plans, including timeframe, funding needs and sources, as well as actors to be involved.

The CRFS assessment and planning process played a crucial role in contributing to identifying gaps and bottlenecks to create more resilient and inclusive food systems within specific city regions. In particular, as maize occupies a central position in Zambia's agricultural political economy, the CRFS process highlighted the importance of crop diversification and, specifically, the role of horticultural production and the value chain in feeding the urban population and contributing to healthy nutrition.

As a result of this process, there has been an increased awareness of the importance of joint planning between the two cities and their surrounding districts for the implementation of each CRFS. Joint planning is proposed in the Urban and Regional Planning Act, but guidelines and standards are not available yet. This would provide a policy and institutional framework to anchor implementation processes (FAO-RUAF, n.d.).

In addition, there has been renewed interest and policy discussions at institutional levels. In particular, this process has built bridges of communication among institutions to introduce a more integrated and territorial perspective in planning sustainable food systems. For instance, the CRFS project facilitated dialogue between the Ministry of Agriculture and the Ministry of Local Government on the importance of mainstreaming food and agriculture in the process to decentralize authority from the national level. In each city region, the whole process heightened awareness about the importance of going beyond the sectoral approach when looking at food, and the need to integrate all actors in the discussion.

In the framework of the decentralization process in Zambia, the CRFS assessment and planning process, together with its findings and recommendations, were part of the basis to contribute to the ongoing formulation of the National Urbanization Policy (NUP). The NUP aims to provide an overarching coordinating framework to address urban challenges and to maximize the benefits of urbanization, while mitigating potential adverse externalities. The CRFS assessment and planning process will be essential for providing key inputs to ensure that food security and nutrition, as well as food system dimensions, are part of the policy. In addition, the CRFS process highlighted the challenges that arose as a result of the current fragmented governing bodies for food systems that do not normally work in collaboration; a multi-stakeholder and interinstitutional mechanism or body responsible to define food strategies and policies would be key to reinforce the food system, in order to ensure food and nutrition security, including food safety (Hemmati, 2012; Vervoort et al., 2014). Furthermore, the decentralization policy offers a good platform for setting up a food council as it

is linked to certain national government functions such as policy and programme responsibilities for agriculture and health being devolved to local government. This means the local authority, Ministry of Agriculture and Ministry of Health are already working hand in hand but also highlights the other stakeholders that can be included to create well-adjusted strategies and policies, in order to, for example in Lusaka, reinforce the food system.

Case study 2: Colombo, Sri Lanka – from poverty and health focuses to (food) system thinking

Colombo District has more than 2.3 million inhabitants, with a population density of more than 3,300 people/km² and increasing. To meet the needs of this growing population, food is sourced from many parts of the country. However, owing to inefficiencies in the wholesale market system, food prices are high, resulting in high levels of food insecurity. There is also concern for food safety, as pesticide use is not well controlled.

Based on a scan of existing institutions and their connectivity as part of the CRFS assessment, it is clear that at the institutional level there is significant fragmentation in regard to food as there is no specific authority in charge of urban food security, agriculture, or rural–urban food supply. As documented in the pilot city synthesis report, there is a considerable number of relevant government departments and authorities at national, provincial, and municipal levels that oversee the system, especially focusing on food supply, prices, and consumer protection (FAO et al., 2018). Potentially adding to the urban–rural divide, the Sri Lankan government has recently set up the Ministry of Megapolis and Western Development (MoMWD), a dedicated ministry to implement Megapolis, a large-scale, multibillion-dollar urban development initiative in Western Province where Colombo is located.

The Colombo city region food system (CRFS) was defined based on: (a) built-up areas and population density (less dense areas of the region could act as suppliers to Colombo city); (b) jurisdictional and administrative boundaries (governing units that take policy decisions); and, (c) supply areas of macro- and micro-nutrients to the Colombo city region (for more information about boundary setting see Blay-Palmer et al., 2018). From a geographical viewpoint, the Colombo city region has been defined as the Colombo Municipal Council (CMC) and district areas. (The map of the Colombo City Region Food System is available at: <http://www.fao.org/in-action/food-for-cities-programme/pilotcities/activitiescolombo/en/>.)

When the CRFS process was launched, Colombo did not yet have a clear policy commitment and objective to design a more comprehensive and integrated food system agenda involving the rural areas where food is sourced. Nevertheless, at the municipal level, food was already among the priorities of the municipal government in terms of food safety (public health), food waste (waste management), and with attention to food price increases

along the value chain (poverty and food insecurity) in the context of wholesale market system inefficiencies (Tacoli, 2006). At the provincial level, food was prioritized through the promotion of urban and peri-urban agriculture strategies and activities. Nevertheless, food was not analysed or planned in a systemic and integrated manner; current policies and programmes on food systems are fragmented and sectoral, while attempts to achieve macro-level improvements are mostly disconnected and in isolation (FAO et al., in press).

Public health, food security, poverty, and waste issues have been the entry points to initiate a comprehensive and integrated assessment of the food system and were instrumental in fostering stakeholder dialogue and building a common understanding on the interdependence of these issues and their relevance in a broad vision of the Colombo city region food system. This eventually determined further political and stakeholder interest and commitment. In that respect, the CRFS process, while targeting the local-level policy context, allowed initiating the policy discussions and processes at local, provincial (regional), and national levels. In addition, it also contributed to increased attention about the importance of integrated regional food system approaches at provincial and national levels. At the municipal level, the CRFS process has helped the Colombo Municipal Council (CMC) and other institutions to understand the Colombo food system in its complexity and has created the basis to build a common vision on a more sustainable and resilient city region food system. The process has allowed identifying the opportunities, challenges, and needs to be addressed. It was indeed instrumental in understanding the importance of how the urban food system and its regional supply chains and flows across the urban–rural spectrum are interlinked with other high-priority policy objectives. As tangible policy outcomes with the potential for a more coherent regional food systems approach, the CMC agreed to introduce local-level by-laws to promote and regulate Reduction, Reuse, and Recycling (RRR) of food waste at the CMC level. As well, they will introduce a separate division dedicated to food safety within the health department and concentrate more on RRR from food waste.

At the regional level, the Western Province population is growing quickly and the regional Government will have the responsibility to ensure appropriate levels of food security and nutrition in a sustainable manner. While this requires long-term, integrated, and holistic food policies and strategies that include all actors involved in the food system, food continues to be excluded in urban and regional planning. Although a territorial approach is mostly beyond the control of local level authorities, the regional level authority (Western provincial council) has started to recognize the importance of the territorial approach in food systems. In addition, the MoMWD has realized the importance of including the CRFS concept and has made a request for support to build on the findings of the CRFS initiative in integrating prioritized areas of food systems into Western Megapolis urban and regional planning (FAO et al., in press).

At the national level it emerged that existing food policies needed to be evaluated and adjusted. This was well taken by the national authorities, and initial policy discussions to integrate the results of the CRFS assessment into the National Agricultural Policy, the National Nutrition Policy, and the Food Act have begun. However, concrete measures to align local, provincial, and national strategies and action plans are still needed.

Overall, the CRFS process has shed light on food safety, nutrient safety, value chain management, and food waste and losses in relation to urban spaces. Using the CRFS framing triggered policy discussions beyond the local level to provincial (regional) and national levels (Blay-Palmer et al., 2018). It has created the basis for starting to visualize the importance of a territorial approach to the food systems and actions needed to offset the impacts of natural resource management, climate change, and shocks on city regions.

Case study 3: Medellín's approach to city region food systems and enhancing rural–urban linkages

The Municipality of Medellín is the second largest city in Colombia after the capital city of Bogotá, with close to 2.5 million inhabitants. The department of Antioquia, where Medellín is located, is made up of 125 municipalities grouped into nine sub-regions. The definition of the city region was based on the social, economic, and political dynamics around the food system associated with Medellín and its Metropolitan Area (a region called Valle de Aburrá) that is constituted by ten municipalities, in which 59 per cent of the population of Antioquia resides.

The Medellín city region was defined using five different criteria: (a) food supply: the municipalities contributing more than 1 per cent of the food consumed through the supply centres; (b) production including those municipalities contributing 1 per cent or more of the total food produced in the Department of Antioquia; (c) proximity with those territories within the Aburrá Valley that currently have agricultural production; (d) potential for agricultural expansion based on food-flow analysis by volume (weight in tons); and finally (e) political participation to consider municipalities important to governance even though they do not participate significantly in the production or supply of agricultural products for Medellín (Dubbeling et al., 2017; FAO-RUAF, 2018). (The map for the Medellín City Region Food System is available at: <http://www.fao.org/in-action/food-for-cities-programme/pilotcities/medellin/en/>.)

The city of Medellín is a pioneer in its approach to urbanization by ensuring the well-being of its citizens through food. For example, food security and nutrition issues have received growing interest from decision makers over the years, which has now spread to the public and media of the city and the Antioquia region. In 2009, Medellín became the first city in Colombia with a dedicated Food and Nutrition Security unit. The role of the municipal authorities in public policy on food and nutritional security

has been growing – the government of Antioquia also institutionalized the issue of food security and nutrition as public policy in 2003 through the Management of Food Security and Nutrition (MANA) programme (Hackett et al., 2008).

Accordingly, these food-flow and programme initiatives were the entry points to initiate the CRFS process that started with a solid urban food policy agenda as a basis to promote a city region food system perspective. The process focused on the policy phase to ensure that a CRFS approach was embedded in new political programmes and agendas. Once support was ensured, the CRFS approach continued with the assessment, while work on policy processes proceeded in parallel.

The CRFS assessment and related processes highlighted the strong interdependence of the city with surrounding territories and the need to address issues of fragmentation and the inefficiency of the supply system as well as the significant social and economic territorial inequalities between urban, peri-urban, and rural areas. There are limited direct relationships between rural and urban spaces, with a lack of interaction among producers, marketers, and consumers. As a consequence the food provisioning systems in and around the city of Medellín are quite inefficient, resulting in considerable food loss and waste and limited market regulation for prices, due to the hegemonic role of a limited number of actors involved in food logistics and commercialization that act as an oligopoly without real control on price generation. This points to opportunities to strengthen food production in the peri-urban areas of cities in the Medellín city region, as well as to improve linkages between urban food demand (especially from lower-income neighbourhoods) and cooperatives of small agricultural producers in the city region (Blay-Palmer et al., 2018). Considering interventions in other food systems, public administrations could focus particularly on improving the logistical infrastructure of publicly supported markets and possibly creating ‘food hubs’ for local food to enter and be distributed throughout the city (Blay-Palmer et al., 2013; O’Connell and Kiparisov, 2018). Local leaders could enable this through inclusive food governance mechanisms that address the complexity of the food system in the city region of Medellín to generate political, administrative, and economic synergies that facilitate the implementation of actions in the city region.

The CRFS process facilitated institutional integration between the regional government of Antioquia, the Medellín Mayor’s Office, and the Metropolitan Area of the Valley of Aburrá. Advances have been made in starting the creation of a new governance structure and institutional platform in which the three public authorities collaborate. This tripartite platform on territorial food policy issues, called the ‘Alianza por el Buen Vivir’ (the ‘Alliance for Good Living’), serves as a forum and mechanism for coordination, knowledge sharing, and articulation of the collective development and implementation of policy and project interventions from a territorial governance perspective in the Medellín food system. Some examples of

this tri-partite collaboration are: (a) The commissioning of a study to further assess possibilities for the production and commercialization of food products from the region's rural villages; (b) A proposal has been developed to renovate the *Campo Valdes* urban food market into a regional food logistics centre or 'food hub' within the city to make it more accessible for producer associations in the rural areas around Medellin; (c) The platform is also exploring strategies for the regulation of intermediaries to allow these fresh products to reach consumers at much more accessible prices (Dubbeling & Santini, 2018).

Policy outcomes in other city regions

Other city regions participated in the CRFS pilot project, including Toronto, Canada and Quito, Ecuador. In the example of Toronto and the surrounding Greater Golden Horseshoe region, while the CRFS work was only one minor contributor to food policy considerations at multiple scales, pre-CRFS work helped to shape other food policy initiatives either directly or indirectly. In Toronto, complex, long-term, and strong food-related ties between food and governance have existed for many years. For example, the Toronto Food Policy Council was established 30 years ago within the Public Health department of the City of Toronto. This deep history enabled the CRFS process and the coherence of the work by the CRFS Task Force. The multi-stakeholder Task Force included municipal officials from: Toronto Food Policy Council, and Toronto Food Strategy as part of the City of Toronto Public Health as well as City of Toronto Food and Beverage Sector; the provincial Ministry of Agriculture Food and Rural Affairs; a representative from the Golden Horseshoe Food and Farming Alliance; and academic experts in food policy, food security and nutrition, and sustainable food production and food systems. Through the CRFS Task Force review, these key food system actors who normally attended to specific, narrower responsibilities and related policies and programmes were able to come together to identify common issues and cross-cutting solutions to recommend systemic policy changes. The CRFS project contributed to increased awareness about regional food opportunities and concerns, a growing awareness of multi-scaled policy interactions starting with the Toronto Food Policy Council and opportunities to build synergies through, for example, a food-energy-water nexus (Miller and Blay-Palmer, 2018).

In Quito, Ecuador, participatory governance in the territorial food system is recognized as a way to guarantee the achievements of the set goals and outcomes of the food strategy (Dubbeling et al., 2017). These contribute to initiatives across the sustainability spectrum, including the Right to Food, promoting sustainable diets, improving urban-rural linkages and ensuring participation of small producers and local authorities in the city region. The CRFS research in Quito helped to advance this work by supporting network capacity building. Through a consultative process, Quito has designed

an appropriate food system governance structure that takes the form of a food policy council, seeking involvement of local, provincial, and national government actors, the private sector, and civil society. This has helped to further reinforce the regional food system and provide a platform for more robust urban/peri-urban/rural networks.

Conclusions

The CRFS approach confirms that each city region food system is unique. Each has its own peculiarities, challenges, and solutions (Marsden, 2013; Sonnino et al., 2016; see also Chapters 2, 3, 4, 6, & 7, this volume). The CRFS process in the different pilot city regions has generated a broad variety of policy results and has faced several challenges that have limited the impacts as documented in the toolkit.

Overall, the assessment process as part of the CRFS pilot projects allowed multiple stakeholders in the city regions to understand how urban and surrounding rural areas are fed and what their food dependencies are and to identify weaknesses and potential pressure points. This raised general awareness and enabled the basis for policy transformation and the implementation of more sustainable and resilient CRFS through targeted strategies to improve their food systems. With the current pressures from climate change and related disasters, the CRFS approach could offer a way to mitigate, adapt to, and prepare for these changes, creating more resilient regions by providing a method to define place-based challenges, identify solutions, and build capacity (Blay-Palmer et al., 2018).

The assessments helped city stakeholders to recognize the interconnections between food and agriculture and several other sectors, such as transport (as a large part of city transport is food-related), health (malnutrition, obesity, school feeding), education (awareness on sustainable diets through curricula), land-use planning for agricultural and food (land allocation for food and green infrastructure, food market relocation), community development and revitalization, employment generation (in food production, processing and retail, food waste management), and waste management (productive use of waste and waste water, management of food waste) (Tacoli, 2006). In addition, a CRFS approach helped cities such as Medellin and Quito to understand the potential and opportunity to shorten the supply and value chains of key foods by localizing production and reinforcing existing local initiatives. The process also helped evaluate the extent to which urban food security is dependent on rural production areas and how the food system impacts both urban and rural populations in the city region. This understanding helps city governments to start seeing food as a driver for other sustainable urbanization policies (Dubbeling & Santini, 2018).

The process also encountered significant challenges and obstacles in operationalizing the CRFS concepts. Some of the hurdles were common in most of the city regions and can be summarized as: (a) limited data availability;

(b) challenges in building political buy-in and stakeholder engagement; and (c) limited governance and regulatory instruments for food planning at the city region level. The CRFS assessment illustrated the significant challenges arising from the scarcity of data and empirical information at the subnational level on food systems. In some cases where data were available, information at the city region level did not match jurisdictional boundaries. In addition, some data were sensitive or subject to copyright. To tackle these challenges, a combination of secondary and primary research, coupled with expert knowledge, was used to complement missing data (Miller & Blay-Palmer, 2018). Addressing data gaps requires identifying innovative and efficient methods to combine secondary information, primary data, and expert opinions and analyse this data in systematic and consistent ways to produce the information required for local decision-making.

As with other approaches, multi-stakeholder dialogue is a crucial element in the process to enable transparent and inclusive participation. Through this, decision makers and organizational representatives have the opportunity to guide implementation and discuss findings and implications for local strategies (Hemmati, 2012). However, any multi-stakeholder dialogue process comes at the cost of a high degree of engagement across as many sectors and stakeholders as possible. Engagement requires time and resources that can be challenging for many stakeholders to commit. In many cases, engaging with key stakeholders may be difficult due to other reasons – for example, lack of institutional versus individual engagement, conflicting agendas, no history of collaboration, and/or no clear outputs from the start of the process. The identification of a political champion (a recognized and respected policymaker from a key institution involved in the CRFS) from the very beginning of the process can be a successful driver to ensure the engagement of key stakeholders and political buy-in (Bagdonis et al., 2009; Kania & Kramer, 2015). The involvement of key stakeholders throughout the process can also ensure ownership and commitment as the policy or action plan will be shaped – as much as possible – according to the needs, demands, and contributions of all the stakeholders involved (Vervoort et al., 2014).

In most of the city regions involved in the pilot programme, appropriate governance structures and regulatory instruments often do not exist that allow for multidimensional and multi-sector food systems planning or facilitate the realization of policies and investments to reinforce the CRFS. In most cases, food policy, if it does exist, is segmented by particular areas of interest, for example public health or farming, and does not have a strong cross-sectoral mandate (Jenning et al., 2015). As revealed in the CRFS pilot process, and consistent with other multi-stakeholder initiatives (Rivera-Lirio & Muñoz-Torres, 2010; de Zeeuw & Dreschel, 2015), governance arrangements are the key to promoting and operationalizing the CRFS concepts – putting the right structures in place to drive and facilitate the creation of new kinds of rural–urban linkages. Accordingly, a critical challenge is creating more inclusive territorial governance structures in

which cities, regions, and other levels of government can work constructively together towards complementary, beneficial outcomes (Jenning et al., 2015). Interaction, coordination, and joint planning are necessary between different institutions and levels of governments involved in the CRFS (urban and rural entities, larger and smaller cities in the city region, city and provincial/national government). While there is value in integrating across different sites of food production to include rural, peri-urban, and urban agriculture in a more linked up manner (Neilson & Rickards, 2017; Clancy & Ruhf, 2018) typically, such institutions, urban and rural authorities, or city level versus provincial authorities, do not often have the institutional capacity for engaging in joint policy and planning, due to the limitation of their jurisdictional mandate or when different political orientations are at play. As elaborated in the toolkit, task forces and institutional focal points were key enablers to realizing improved linkages and more effective policy and programmes. This, in turn, can foster more sustainable, resilient food systems. This applies to all city region food systems – ones that exist, are being revitalized or are in their beginnings. Building resilient and sustainable CRFS requires opening space for democratic participation from all spheres of society, fostering a multi-stakeholder dialogue process so that citizens can play a stronger role in the policy development process. In future work, it will be essential to include medium and smaller cities and their regions as this is where the most people in the world live and so would have the most potential for impact (Berdegúe et al., 2015) and to broaden the scope of the toolkit to include considerations such as climate resilience and migration issues. Using the toolkit's CRFS approach, five pilot communities were able to gain new insights, but also discover important limitations. The toolkit provides a suite of tools from visioning, assessment, and policy creation so that city regions can activate to enable sustainable food system change.

Acknowledgements

We are grateful for the financial support of the German Federal Ministry of Food and Agriculture, the Daniel and Nina Carasso Foundation, and the CGIAR Water Land and Ecosystems Programme led by IWMI, and the Social Sciences and Humanities Research Council of Canada that enabled this research.

References

- Bagdonis, J.M., Hinrichs, C.C., & Schafft, K.A. (2009) The emergence and framing of farm-to-school initiatives: Civic engagement, health and local agriculture. *Agriculture and Human Values*. 26(1–2), pp. 107–119.
- Berdegúe, J.A., Carriazo, F., Jara, B., Modrego, F., & Soloaga, I. (2015) Cities, territories, and inclusive growth: Unraveling urban–rural linkages in Chile, Colombia, and Mexico. *World Development*. 73, pp. 56–71.

- Biriwasha, M. (2017) *HIVOS: Opinion. Why media matters to sustainable food in Africa*. Report available at: <https://southern-africa.hivos.org/opinion/why-media-matters-to-sustainable-food-in-zambia/>.
- Blay-Palmer, A., Landman, K., Knezevic, I., & Hayhurst, R. (2013) Constructing resilient, transformative communities through sustainable 'food hubs'. *Local Environment*. 18(5), pp. 521–528.
- Blay-Palmer, A., Renting, H., & Dubbeling, M., (2015). City Region Food Systems: A literature review. *Carasso Foundation*. Available at: <https://www.ruaf.org/sites/default/files/City%20Region%20Food%20Systems%20literature%20review.pdf>.
- Blay-Palmer, A., Santini, G., Dubbeling, M., Renting, H., Taguchi, M., & Giordano, T. (2018) Validating the city region food system approach: Enacting inclusive, transformational city region food systems. *Sustainability*. 10(5), pp. 1–23. Available at: <https://doi.org/10.3390/su10051680>.
- Clancy, K. & Ruhf, K.Z. (2018) New thinking on 'regional'. *Journal of Agriculture, Food Systems, and Community Development*. Advance online publication. Available at: <https://doi.org/10.5304/jafscd.2018.083.008>.
- de Zeeuw, H. & Drechsel, P. (Eds.) (2015) *Cities and agriculture: Developing resilient urban food systems*. London, Routledge.
- Dubbeling, M. & Santini, G. (2018) City region food systems assessment and planning. *RUAF Urban Agriculture Magazine*. May(34), pp. 6–9. Available at: https://www.ruaf.org/sites/default/files/RUAF_UAM34_p6-9.pdf.
- Dubbeling, M., Santini, G., Renting, H., Taguchi, M., Lançon, L., Zuluaga, J., De Paoli, L., Rodriguez, A., & Andino, V. (2017) Assessing and planning sustainable city region food systems: Insights from two Latin American cities. *Sustainability*. 9(8), p. 1455. Available at: <https://doi.org/10.3390/su9081455>.
- FAO, IWMI & RUAF (in press) *Assessing and planning city region food system, Colombo (Sri Lanka) Synthesis Report*. Rome, FAO.
- FAO & RUAF (2015) *A vision for City Region Food Systems*. Available at: <http://www.fao.org/3/a-i4789e.pdf>.
- FAO & RUAF. (n.d.) Building more sustainable and resilient food system in the Lusaka city region: Policy brief. Available at: <http://www.fao.org/3/I9954EN/i9954en.pdf>.
- FAO, RUAF & Laurier Center for Sustainable Food Systems (LCSFS) (2018) *CRFS toolkit*. Available at: <http://www.fao.org/in-action/food-for-cities-programme/toolkit/introduction/en/>.
- Government of Zambia. 2015. Urban and Regional Planning Act No. 3 Of 2015. Available at: <http://www.parliament.gov.zm/sites/default/files/documents/acts/The%20Urban%20and%20Regional%20Planning%20%20Act%2C%202015.pdf>.
- Hackett, M., Melgar-Quinonez, H., & Uribe, M.C.A. (2008) Internal validity of a household food security scale is consistent among diverse populations participating in a food supplement program in Colombia. *BMC Public Health*. 8(1), p. 175.
- Hemmati, M. (2012) *Multi-stakeholder processes for governance and sustainability: beyond deadlock and conflict*. London, Routledge.
- Jenning, S., Cottee, J., Curtis, T., & Miller, S. (2015) *Food in an urbanised world: The role of city region food systems in resilience and sustainable development*. London, 3Keel.
- Kania, J. & Kramer, M. (2015) The equity imperative in collective impact. *Stanford Social Innovation Review*. October, pp. 36–41.

- Lusaka Central Statistical Office (2010) *Zambia, Lusaka province analytical report: 2010 census of population and housing*. Available at: https://www.zamstats.gov.zm/phocadownload/2010_Census/2010_Census_Analytical_Reports/Lusaka%20Province%20Analytical%20Report%20-%202010%20Census.pdf.
- Lusaka Government (2015) *Lusaka urban and regional planning act 2015*. Available at: <http://www.parliament.gov.zm/sites/default/files/documents/acts/The%20Urban%20and%20Regional%20Planning%20%20Act%2C%202015.pdf>.
- Marsden, T. (2013) Sustainable place-making for sustainability science: The contested case of agri-food and urban–rural relations. *Sustainability Science*. 8(2), pp. 213–226.
- Miller, S. & Blay-Palmer, A. (2018) *Assessment and planning of the Toronto City Region Food System – Synthesis Report*. The Hague, Prepared for the RUAF Foundation.
- Neilson, C. & Rickards, L. (2017) The relational character of urban agriculture: Competing perspectives on land, food, people, agriculture and the city. *The Geographical Journal*. 183(3), pp. 295–306.
- O’Connell, J. & Kiparisov, P. (2018). Kyrgyzstan value chain gap analysis. Rome, FAO. <http://www.fao.org/3/i9199en/I9199EN.pdf>
- Rivera-Lirio, J.M. & Muñoz-Torres, M.J. (2010) Sustainable development in the Spanish region of Valencia and the social responsibility of SMEs: A multi-stakeholder vision on the role of public administrations. *Journal of Environmental Planning and Management*. 53(5), pp. 573–590. doi:10.1080/09640561003694419.
- Sonnino, R., Marsden, T., & Moragues-Faus, A. (2016) Relationalities and convergences in food security narratives: Towards a place-based approach. *Transactions of the Institute of British Geographers*. 41(4), pp. 477–489.
- Tacoli, C. (Ed.) (2006) *The Earthscan reader in rural–urban linkages*. International Institute for Environment and Development. London, Routledge.
- Vervoort, J.M., Thornton, P.K., Kristjanson, P., Förch, W., Ericksen, P.J., Kok, K., Ingram, J.S., Herrero, M., Palazzo, A., Helfgott, A.E., & Wilkinson, A. (2014) Challenges to scenario-guided adaptive action on food security under climate change. *Global Environmental Change*. 28, pp. 383–394.
- World Bank (2016) World Bank micro data catalogue: urban population (% of total). Paris, World Bank. Available at: <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS>.