



CITY PRACTITIONERS HANDBOOK:

Circular Food Systems

About ICLEI Circulars

ICLEI Circulars facilitates the circular economy transition at the local level. From raising awareness and political momentum on the urgency of shifting away from unsustainable consumption and production patterns to designing policy approaches that address concrete challenges, ICLEI Circulars supports the ICLEI network throughout the transition to a circular economy.

Visit <https://circulars.iclei.org/> to learn more.

Practitioners Handbook Series

The Practitioners Handbook series aims to support local governments, which have already identified priority sectors or materials they wish to apply circular economy principles to. The series offers sector-specific guidance to support city officers in identifying practical circular economy interventions in collaboration with stakeholders from businesses, academia, civil society, and more.

This handbook provides local governments with concrete tools their peers are using to facilitate the transition to circular food systems, from stakeholder engagement to designing effective policies. It draws on experiences from the [ICLEI network and its Circular Development pathway](#), learnings from the [ICLEI-RUAF CITYFOOD Network](#) and best practices from the [Milan Pact Awards](#). This publication features experiences from 50 local governments and was designed by ICLEI experts in collaboration with champion cities for the benefit of city practitioners.

In support of the City Practitioners Handbook

“Applying circular economy principles to the food system will ensure that food actively supports natural systems, production is brought closer to where food is eaten, and the concept of waste is eliminated. Through these actions, cities can generate significant environmental, economic, and health benefits worth an estimated USD 2.7 trillion annually by 2050, within and beyond their boundaries.”

City governments play a key role in transforming the food system but often don't know where to start. The Practitioners Handbook fills this gap, providing tools and resources to support city officers in transforming their city food system to one that is low-carbon, resilient, and circular.”

Sarah O'Carroll, Cities Lead, Ellen MacArthur Foundation

“Perhaps still counterintuitive, but cities have an important role in driving circularity through urban food policies. Taking a systems approach, connecting stakeholders and using their procurement power and jurisdiction over place-making for urban farming and prevention and management of food waste’. The Handbook fills a gap by providing practical guidance.”

Martina Otto, Head, Cities Unit & Head of Secretariat, Global Alliance for Buildings and Construction Economy Division, United Nations Environment Programme

“Transitioning our linear food systems towards a more circular model is critical for reducing our climate footprint, biodiversity loss and improving water quality, while also delivering enhanced food security and health benefits. This guidebook sets out the key steps urban regions can take to start their journey, offering clear and practical tools for practitioners to apply.”

Brian James Shaw, Agrifood Team Lead, Metabolic

“The food sector is a substantial contributor to climate change and biodiversity loss. Both challenges can be addressed through circular economy solutions, where we work with and learn from each other, rethink value and make better use of what we already have. Cities have a pivotal role to play in this transition. It is great to see so many concrete examples of what the circular food system transition can look like at the local level and best practices from cities worldwide compiled in one handbook.”

Tim Forslund, Circular Economy Specialist, The Finnish Innovation Fund Sitra

“There is much more to the circular economy than recycling of wastes by city governments and large businesses. The Circular City Actions Framework presented in this handbook is useful to identify a fuller range of opportunities for stimulating a circular economy, and when applied to each stage of the food value chain can help each actor to recognise the unique role they can play in changing the system.”

Blake Robinson, Senior Strategist Cities, Circle Economy

“There is a pressing need to enhance awareness of local governments, and other stakeholders about the potential of food and urban food systems in climate change adaptation and mitigation, as well as its developmental benefits. This resource brings together helpful tools examples on how CITYFOOD members and other cities have embedded circularity within their food systems. We hope it will stimulate all food system actors to develop actions using the instruments and approaches that are available to them, and to establish enabling, inclusive governance mechanisms.”

René van Veenhuizen, Secretariat of the RUA Global Partnership on Sustainable Urban Agriculture and Food Systems

About this handbook

What are circular food systems?

The High Level Panel of Experts on Food Security and Nutrition (HLPE) defines food systems as follows: “A food system gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food and the outputs of these activities, including socio-economic and environmental outcomes”.¹

The Food and Agriculture Organization of the United Nations (FAO) has framed sustainable food systems as food systems that “deliver food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised.”²

Over the past decade, many local governments have implemented sustainable food systems strategies and have been accompanied in this process by expert organizations such as Ruaf, FAO, UN Environment and ICLEI. A lot can be learned from these experiences.

A key area of commonality between the food system and circular economy frameworks is that both consider all aspects of the value chain, from resource extraction to waste management. Circular food systems prioritize regenerative production, favor reuse and sharing practices, reduce resource inputs and pollution and ensure resource recovery for future uses. As such, they close resource loops and pursue cross-sectoral synergies (e.g. with water and energy systems) that contribute to the resilience of a territory.

This handbook combines learnings from both approaches and builds on existing work and local good practices to offer practical recommendations for designing circular food systems at the local level that also deliver socio-economic benefits. It aims to provide city practitioners with tools and examples to help them turn the concept of circular food systems into tangible local actions.

¹ HLPE, Food losses and waste in the context of sustainable food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome (2014).

² FAO “Sustainable Food Systems: Concept and framework” (2018)

Who is it for?

This handbook is designed for local and regional governments working on the circular transition of their food systems. Local action on food systems can be initiated by different departments, such as environment, health, urban planning, public works or education. To facilitate inter-departmental collaboration, most sections of this handbook have been designed in a presentation-friendly format, allowing them to be used directly in stakeholder outreach materials.

International urban food systems frameworks

In 2014, the city of Milan launched an international protocol aimed at tackling food-related issues at the urban level. Since then, 210 cities from all over the world, representing more than 450 million inhabitants, have signed the [Milan Urban Food Policy Pact](#) and committed to developing inclusive, resilient, safe and diverse food systems through a [set of 37 recommended actions](#). Out of these, 27 actions are directly addressed in this handbook. Download this overview to find out more.

Recommended actions overview

This handbook is also aligned with the [FAO Framework for the Urban Food Agenda](#), which calls for more integrated food system planning and inclusive food governance, shorter food supply chains, innovative and sustainable food business models and supply chain optimization for food loss reduction.

Finally, the handbook outlines concrete steps to develop and implement integrated food policies and strategies to reduce greenhouse gas (GHG) emissions from urban and regional food systems. As such, it constitutes a supporting tool to operationalize the [Glasgow Food and Climate Declaration](#), which brings together all types and sizes of local authorities to speak with a unified voice in renewing their commitments to develop sustainable food policies ahead of the UN Climate Change Conference (COP26).





Fair and inclusive food systems transitions

Both the Milan Urban Food Policy Pact and the Urban Food Agenda place a strong emphasis on food security, sustainable and healthy diets and fair working conditions for food producers. Adopting a circular lens on food systems will support the local economy and help create the enabling conditions and collaboration mechanisms to advance these goals. Many of the actions outlined in this handbook also contribute to an improved access to sustainable and healthy food products.

Yet efforts to guarantee food security and healthy diets span policy realms and actors that a circular economy approach to food systems does not necessarily engage.

Each step of this handbook includes examples of local governments that have paired their circular economy efforts with initiatives to promote social equity and health. These demonstrate the ability of both agendas to support each other provided such synergies are appropriately planned for.

The handbook is built around three key steps to facilitate the transition to circular food systems.

You can *choose to proceed linearly* through each step if you are just starting your journey towards circular food systems, or *jump directly to the section* of most interest to you.

How to use this Handbook

SETTING THE SCENE ►

This section offers information to engage with local government decision makers on the topic of circular food systems. It provides key facts and information on:

- The role of cities in food systems transitions
- The negative socio-economic and environmental impacts of linear food systems
- How the circular economy can help address these impacts

STEP 1: ► UNDERSTAND YOUR CONTEXT AND ENGAGE STAKEHOLDERS

This section provides resources on:

- Defining the food system linked to your jurisdiction and identifying challenges and opportunities
- Mapping and engaging stakeholders in co-creation processes
- Designing a collaborative governance framework for circular food systems

STEP 2: ► DESIGN YOUR CIRCULAR FOOD SYSTEM

This section provides:

- The Action framework for screening circular economy interventions
- Concrete examples of circular economy interventions at the local level
- Guidance on prioritizing circular economy interventions with relevant stakeholders

STEP 3: ► USE YOUR TOOLS TO JUMPSTART IMPLEMENTATION

This section offers:

- An overview of policy tools to achieve circular food system goals
- A replicable methodology to develop policy mixes that address the food value chain
- Concrete and practical examples of circular food systems policy tools implemented by local governments around the world



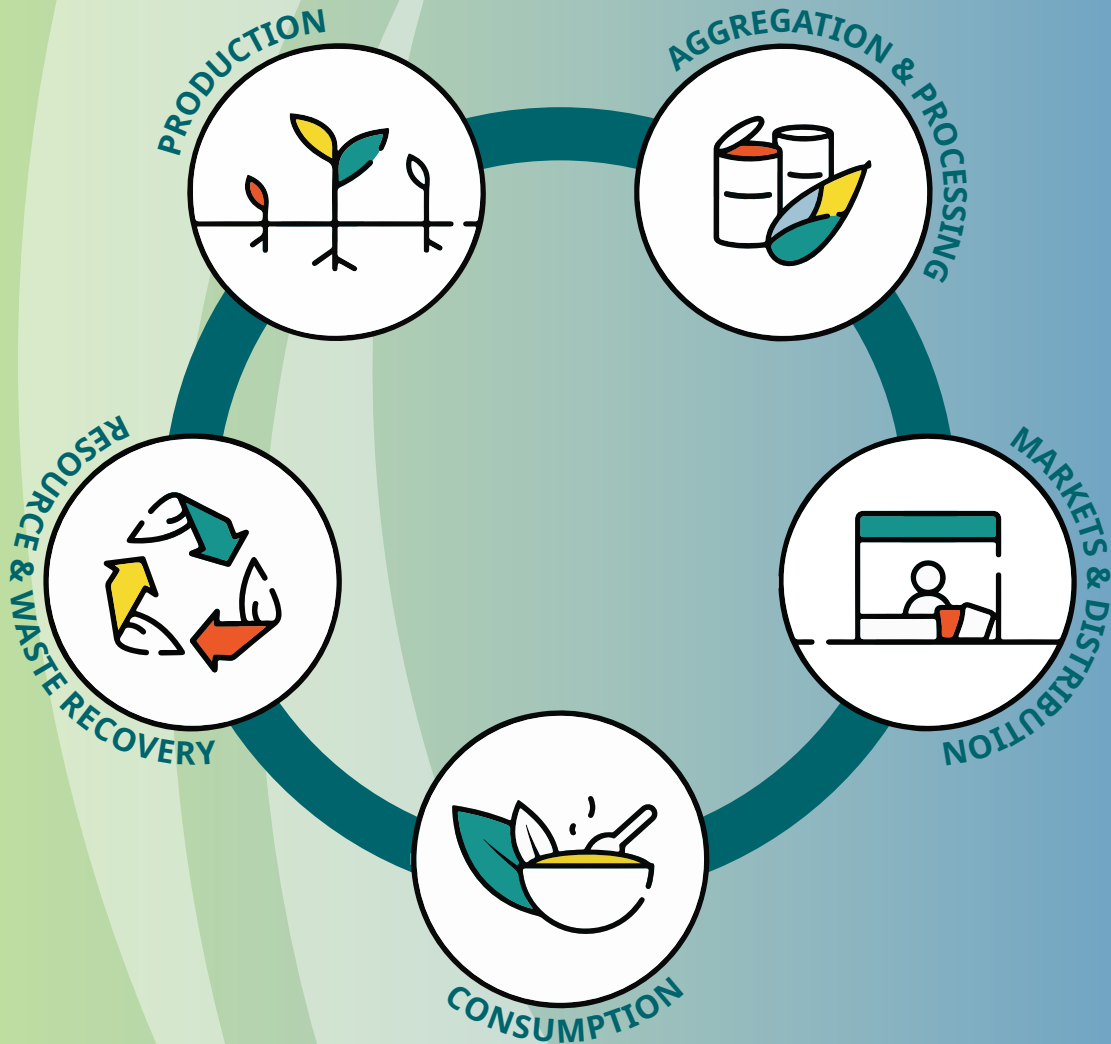
SETTING THE SCENE

The role of cities in food systems transitions

79% of all food produced is destined for consumption in cities.³

Local governments are directly or indirectly connected to all stages of the food value chain. From food procurement and catering services in public facilities to organic waste and land use management, local governments can influence food systems across the value chain. They can also act as testbeds for new policies and public services that can then be taken on at the national level. The ability for key actors – food distributors, processors, and consumers – to come together at the local level also creates a valuable breeding ground for innovative solutions and new business models.

³ FAO, Framework for the Urban Food Agenda (2019)



Why our food systems need to change

Current dominant, globalized food systems trigger far-reaching detrimental socio-economic and environmental effects. As such, they struggle to meet the food demands of a growing population and face external shocks, such as resource scarcity, climate change and health crises such as the Covid-19 pandemic.

Click through the food value chain to explore impacts.

PRODUCTION



Environmental impacts across the food value chain

Natural resource degradation

Today 30 crops supply 95% of the calories that people obtain from food globally, with only 4 crops — maize, rice, wheat and potatoes — supplying over 60%.

Overuse of pesticide and synthetic fertilizer and mismanagement of manure contribute to pollution of soils, air and water.

Approximately 70% of global freshwater demand is used for agriculture.⁴

The conversion of natural ecosystems for crop production or pasture has been the principal cause of habitat loss, in turn reducing biodiversity.⁵

32% of all food loss and waste arises during primary production.⁶

4 AQUASTAT – FAO's global water information system (2014)

5 Chatham House, Food Systems Impacts on Biodiversity Loss (2021)

6 BCG (based on FAOSTAT data from 2015) Tackling the 1.6-Billion-Ton Food Loss and Waste Crisis (2018). Same source applies to all other food waste data in the table.

AGGREGATION & PROCESSING



A polluting industry

Processing plants and distribution fleets are still largely powered by fossil fuels.

An estimated 40% of all plastic packaging is used for food and beverage containers.⁷

33% of all food loss and waste arises during storage and processing, often due to inadequate cold chains.

⁷ ING, Plastic packaging in the food sector (2019)

MARKETS & DISTRIBUTION



People queue for free food as Italians struggle to cope in a tough economic climate amid the coronavirus disease (COVID-19) pandemic in Milan, Italy December 14, 2020. REUTERS/Flavio Lo Scalzo

Disconnection from consumers

Supermarketization trends affect eating habits and product sourcing and leave people disconnected from the sources of their food and food producers.⁸

Not all urban dwellers have access to healthy and nutritious food: in developing countries, extremely poor urban residents may spend 50% or more of their income on food.⁹ In many cities, the Covid-19 crisis aggravated food insecurity. In the U.S., nearly 1 in 4 households experienced food insecurity in 2020, compared to an average 10% in previous years.¹⁰

⁸ UNEP, IRP Food systems and natural resources (2014)

⁹ IFPRI, Global Food Policy Report (2017)

¹⁰ SILVA, C. "Food Insecurity In The U.S. By The Numbers" (2020) National Public Radio. Accessed via: <https://www.npr.org/2020/09/27/912486921/food-insecurity-in-the-u-s-by-the-numbers?t=1611644381158>

CONSUMPTION



Unsustainable lifestyles

Consumption of highly processed food products is growing in both more- and less-developed countries, contributing to growing rates of obesity¹¹ and heart diseases.¹²

Highly processed food products are also usually more resource-intensive (more energy, water, packaging, plastic).

Overconsumption of meat has detrimental impacts on the environment¹³ and on human health.¹⁴ By the end of the decade, global meat consumption is expected to increase by 12%.¹⁵

11 Monteiro, C.A., et al., Ultra-processed products are becoming dominant in the global food system (2013)
12 BMJ (2019) Ultra-processed food intake and risk of cardiovascular disease
13 González, N., et al., Meat consumption: Which are the current global risks? A review of recent (2010–2020) evidences (2020)
14 Richi, E.B., et al., Health risks associated with meat consumption: A review of epidemiological studies (2016)
15 OECD & FAO, OECD-FAO Agricultural Outlook 2020-2029



Wasted resources

The UN Environment Programme's Food Waste Index revealed that 17% of the food available to consumers - in shops, households and restaurants - goes directly into the bin.¹⁶

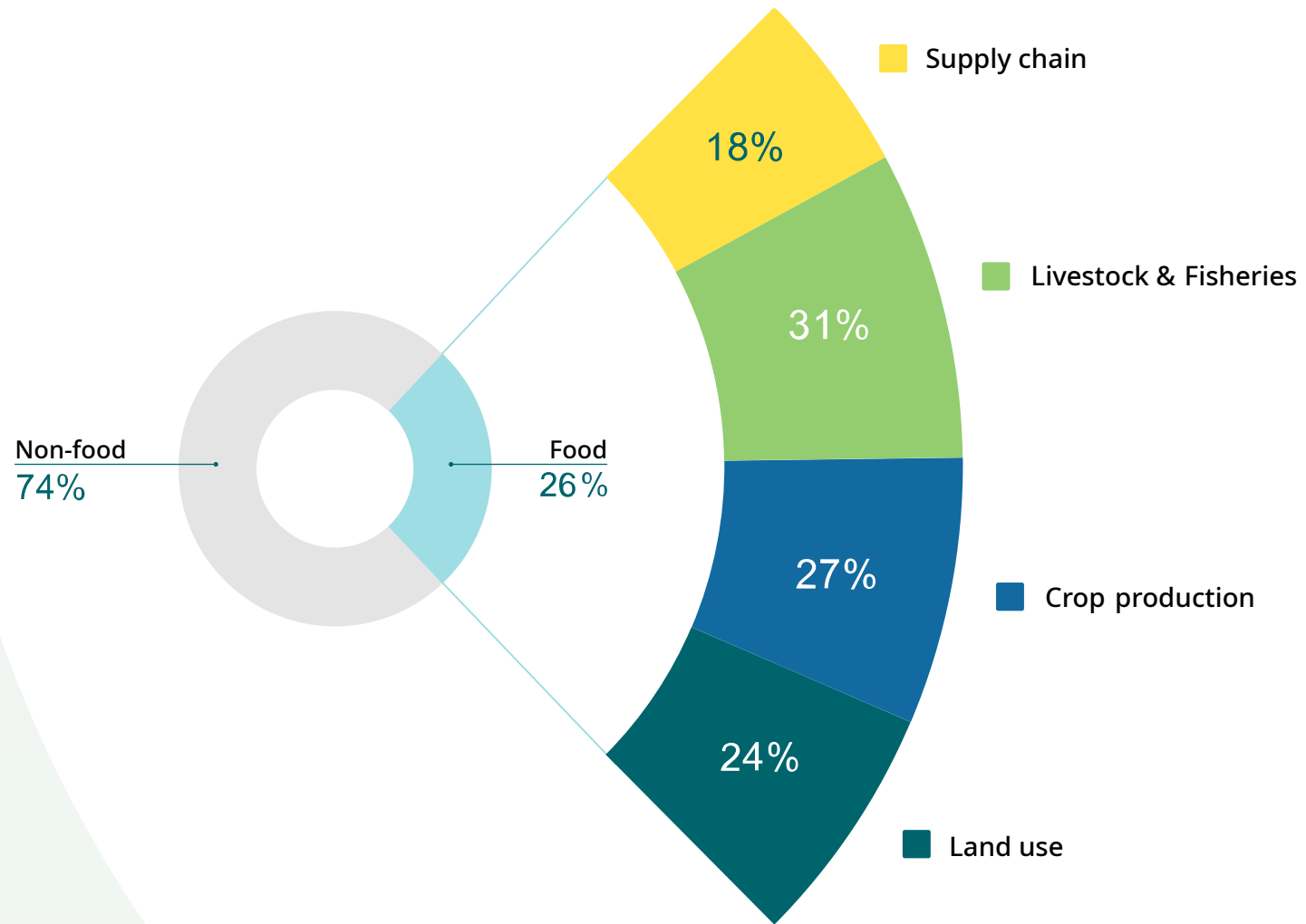
Less than 2% of nutrients in food by-products and human waste generated in cities are valorized safely and productively¹⁷ and instead end up being landfilled, incinerated or discarded in the environment.

¹⁶ UN Environment (2021) Food Waste Index Report 2021

¹⁷ Ellen MacArthur Foundation (2019) Cities and Circular Economy for Food

Food production and climate change

Global GHG emissions & the emissions from food production





How the circular economy can help

Food systems actors, such as farmers, processing industries and retailers, have limited interaction with stakeholders outside of their segment of the food value chain. As a result, adverse impacts up or down the value chain remain unaddressed.

The circular economy is a framework to map opportunities to save resources, build synergies and reduce waste along the value chain while fostering local economic development, resilience and social inclusion. It encourages decision makers to look for interventions as early in the value chain as possible – from the moment resource extraction is planned – and beyond their jurisdictional boundaries.

Circular food systems prioritize regenerative production, favor reuse and sharing practices, reduce resource inputs and pollution and ensure resource recovery for future uses. As such, they close resource loops and pursue cross-sectoral synergies.

They do so by following 5 complementary strategies (see [Step 2 - Circular City Actions Framework](#)).

The benefits of Circular Food Systems in cities

When implemented in a systemic manner using the Circular Cities Actions Framework, circular food systems can support a number of sustainability goals.

○ Climate Action

Circular food systems tackle the embedded carbon in food waste, protect carbon sinks and create new sources of sustainable energy (e.g. from waste heat, anaerobic digestion of organic waste).

Reducing food waste in Cincinnati, United States

Under the [Green Cincinnati plan](#), the city committed to reducing food waste with consumer campaigns and targeted food recovery networks, which collect food that would otherwise be wasted and distribute it to residents facing food insecurity. The city estimates that food waste composting already reduces carbon emissions by 18,500 tons per year.





Resilience

Circular food systems reduce reliance on scarce resources, support resource efficient infrastructure and diversify the sources of key resource flows such as energy and water.

Nutrient recovery in Turku, Finland

In Turku, even sludge does not go to waste. Sludge, a by-product of the city's [wastewater treatment](#), is processed with anaerobic digestion. Besides producing biogas, which is used to help power transport in the city, nutrients recovered from the process are used in landscaping and agriculture, which reduces reliance on fertilizers.



Biodiversity Protection

Circular food systems reduce waste production and pollution as well as pressure on natural resources, they favor production processes that are congruent with the natural regeneration rates of ecosystems (e.g. regenerative agriculture).

Innovation to protect river ecosystems in Lilongwe, Malawi

After realizing the role that food waste played in polluting local rivers, the [UNA Rivers](#) project developed programs to divert organic waste stemming from a market before it entered the river ecosystem. A composting plan was developed; local women volunteers collected organic waste, brought it to a composting site, and earned a small income from the composting products.



Inclusion

Circular food systems increase access to products and services through the promotion of waste prevention and resource sharing. They also offer opportunities for the development of social enterprises.

Bringing composting to the people in São Paulo, Brazil

In 2015, the city of Sao Paulo began rolling out [programs to reduce organic waste](#). What started as a small, voluntary home composting initiative grew to include thousands of families. At the same time, the city began composting organic waste at small, low-tech facilities and a larger pilot composting plant. The initiative proved so successful that more than five new plants have opened, which together process around 15,000 tons of waste annually and employ local residents.



Innovation

Circular food systems create opportunities for local innovations and business opportunities and increase local employment opportunities through shorter supply chains.

Industrial symbiosis in Rizhao, China

In the [Rizhao Economic and Technology Development Area](#), the resource flows of 31 companies in the cereal, oil and food, machinery, paper, textiles, wine refining, and biochemical industries are interlinked. A paper plant receives wood chips from a nearby wood manufacturer as resource inputs, and provides residue for fertilizer and raw materials for construction products in return. A chemical factory is supplied with vinasse, a waste product from sugar produced by the brewery in the same area.

The background features a hand holding a globe, symbolizing global impact or sustainability. On the left side, there is a white silhouette of a city skyline with various building shapes. A large, white, curved graphic element, resembling a stylized 'C' or a protective shield, frames the left and top-left portions of the page. The overall color palette is dominated by blues and greens, with white and yellow accents.

STEP 1:

UNDERSTAND YOUR CONTEXT AND ENGAGE STAKEHOLDERS

Map stakeholders, gather your partners' inputs and identify existing assets



Analyzing a city's food system

Traversed by many actors and environmental, social, and political needs, food systems represent a complex space for which boundaries are not easily drawn. This is particularly visible at the city level. Cities are fed by multiple food sources that are produced in areas beyond their jurisdiction. They are also centers in which numerous food processes connect, from production to transport, storage, processing, distribution and food waste management. In order to understand the landscapes in which food actors operate, food systems planning usually starts with a food systems assessment.

There are different ways to conduct a food systems assessment at the city level. The decision on which methodology to use is based both on the level of human resources available and the role the local government wishes to play in its food systems transition (driving, enabling or convening). It is important to keep in mind that no assessment method will provide a perfect picture of a city's food system. The aim is rather to start engaging with stakeholders (who may point to further relevant actors and support relevant data collection) and to understand their context and needs as well as uncover gaps and challenges across the value chain.

This overview provides a selection of city-level food systems assessment methods which can be used on their own or in combination with each other, depending on your objectives.

[Assessment overview](#)



After having conducted your food systems assessment(s), compile your results in a short summary to share with relevant stakeholders (see next section) and outline in particular:

- Which type of food is most consumed locally? Where is most of the food coming from and how has it been produced? What are the main channels through which it reaches urban dwellers?
- What are the main environmental, social and economic challenges linked to food production and consumption locally? Where are they arising?
- Which local actors, infrastructure and/or assets are already supporting the circularity of food systems (e.g. contributing to regenerative production, shorter food chains or food redistribution)?
- Are local food actors already interacting through specific food platforms?
- Which parts of the food system are local government directly or indirectly influencing?
- Which existing city policies and strategic goals can be connected to food systems change?

Placing Food Security at the center of your analysis

If you wish to connect your circular food systems work with food security, we suggest using the result of your analysis to conduct a resilience assessment, such as the ones compiled by Quito (Ecuador) in the [Quito's Resilient Agrifood System report](#) (page 286) and [Baltimore as part of the Baltimore Food System Resilience Advisory Report](#) (page 21). Share this short assessment during stakeholders consultations to support the identification of interventions that pursue both circularity and food security goals.

Stakeholder mapping

Over the course of compiling your initial food systems assessment, you will come across a wide variety of formal and informal actors that can play a role in future food systems interventions. It is now time to summarize your learnings in a stakeholders map that you will be able to share with other departments and use for future consultations.

A number of online and offline tools can be used to depict stakeholder relationships in a visual manner.

Download our comparative overview to learn more.

[Stakeholder mapping overview](#)

The following table has been compiled based on stakeholder mapping examples from different local governments around the world such as [Arusha](#) (Tanzania) and [Sao Paulo](#) (Brazil) and expert inputs. The City Region Food Systems Program compiled by FAO and RUAF offers additional [guidelines on conducting food systems stakeholders assessment](#) and UNEP compiled a [Collaborative Framework for Food Systems Transformation](#), which details a process to facilitate multi-stakeholder dialogue and action.

	Primary Production	Agro-food Processing	Distribution & Retail	Consumption	Waste Management / EoI
Public sector	City departments of planning, agriculture	City departments of trade, environment, consumer standards/food safety	City procurement department, food service providers, city planning department	City departments of health, culture, education, social welfare, public catering entities, public schools	Waste management company, city department of sanitation, energy & water company
Private sector	Chamber of agriculture, fertilizer and seeds producers, Small- and medium-farms, large-scale / export-oriented farms, financial and micro-finance institutions, farmer cooperatives	Primary and secondary food processing companies, food brands, wholesalers, cleaner production centers	Retailers, supermarkets, food markets, packaging businesses, logistic companies	Local restaurants, food chains, street food vendors, local events organizers, tourist associations	Local restaurants, food chains, street vendors, local events organizers, food waste related startups
Research & Development	Agriculture and soil research institutes, agricultural extensions	Research initiatives focused on minimizing waste in food processing, reuse of byproducts	Research initiatives focused on packaging or food transport	Research initiatives focused on consumer behaviors	Research initiatives focused on nutrients recovery
Community & Household level	Smallholder farmers and food cooperatives, urban agriculture initiatives, community gardens, land owners	Informal processors, artisan producers	Community food hubs, producers-consumers platforms, street markets, informal retailers	Food cooperatives, Transition Town movement, private schools, universities	Food donation organizations, slow food initiatives, charities, informal recyclers (waste pickers)

Download this food systems stakeholders mapping template to input relevant actors from your jurisdiction.

[Template](#)

The governance of food systems action

We recommend setting up a cross-departmental and multi-stakeholder coalition responsible for coordinating the activities detailed under Step 2 and Step 3 of this handbook. Such coalitions are usually called “Food Policy Councils” and service as forums for food issues and platforms for coordinated action.

Best Practice: Baltimore’s Food Policy Action Coalition and interagency collaboration scheme

Baltimore’s Food Policy and Planning Division oversees [Baltimore’s Food Policy Initiative](#). Understanding that food does not fit solely into one government agency, the city of Baltimore takes an interagency approach to sustainable food systems. With each agency lending its expertise, the City creates food access strategies and implements programs and policies with multi-sector support. The Food Policy Initiative webpage includes an overview of the role of different agencies in sustainable food systems.

In addition, Baltimore’s [Food Policy Action Coalition](#) gathers 60 members, representing nonprofits, universities, farms, businesses, hospitals, and residents. Meetings are held bimonthly and allow members to share updates, learn from presentations, and converse in breakout sessions so they are better equipped for their food systems work. All resources used to facilitate these meetings and publicly available on the Food Policy Action Coalition [resource folder](#).



10 ingredients for successful stakeholder engagement

Strengthening collaboration between actors throughout the value chain is critical to building circular food systems. While there is no single recipe for successful stakeholder engagement, local governments and partners of the ICLEI Network point to a few ingredients that contribute to successful cross-sectoral collaboration.¹⁸

¹⁸ Partners and local governments that contributed to this section include Seoul Metropolitan Government (Korea) represented by Mr. Kwangmo Han, Manager of the Urban Farming Division of the Economic Policy Office; Bonn (Germany) represented by Dr. Darya Hirsh from the Environment Department; Turku (Finland) represented by Ms. Liisa Lahti, Circular Turku Project Manager; Kisumu (Kenya) represented by Mr. Paul O. Opiyo, Programs Management Specialist; Cape Town (South Africa) represented by Ms. Tamsin Faragher, Principal Resilience Officer; Antananarivo (Madagascar) represented by Ms. Jay Ralitera from the Mayor's Office and the Finnish Innovation Fund Sitra represented by Mr. Tim Forslund, Specialist, Circular Economy for Biodiversity



“Our Urban Agriculture Committee was the result of the strong commitment of Seoul to more sustainable food systems. It is organized into subgroups composed of representatives from different sectors that meet regularly to draw the strategic direction of the city’s urban food work. Based on their inputs, we have decided to focus strongly on the social benefits of urban agriculture.”

Mr. Kwangmo Han, Deputy Director
of Urban Agriculture Policy

1. Demonstrate commitment to the process

Stakeholders are more likely to contribute with their knowledge if the engagement process benefits from political support and is aligned with the long-term strategy of the local government. Anchoring the engagement process into international frameworks, such as the 2030 Agenda for Sustainable Development or the Milan Urban Food Policy Pact, is another way to bring legitimacy to the process. In more general terms, having local government representatives share consistent messaging around the objectives of the initiative and showing consistent engagement is key.

2. Invest in careful planning before engaging stakeholders

Set up a schedule for the different engagements and always refer back to this timeline when communicating with stakeholders. Include an estimation of the capacity required for different steps to help stakeholders plan ahead. In a shared file, keep records of issues raised and how these have been or will be addressed, clearly indicating who is responsible for which action item to avoid duplicating efforts or diluting responsibility. Also clearly identify the tasks and associated capacity required from your department and those that may be outsourced.

“We started our Food Systems Working Group to give life to the related food security action in the City of Cape Town’s Resilience Strategy. Our starting point was understanding the City’s work in the food systems space that included unpacking our response to the Milan Urban Food Pact and working towards an integrated programme of actions. We work collaboratively with other city departments, provincial departments, academics and NGOs active in Cape Town’s food system. Our agenda responds to participants’ interests and is geared towards learning and co-creation.”

Ms. Tamsin Faragher, Principal Resilience Officer, City of Cape Town, South Africa

3. Know your stakeholder landscape

It is likely that networks of stakeholders relevant to your work already exist in your city. Invest time in getting to know the local landscape of stakeholders so that you can build on what already exists. Identifying a “captain of industry” (a local actor with a broad overview of the sector and a certain level of influence) will allow you to reach out to the right people in a more efficient manner.

4. Make it worth their while

Take the time to build trust and learn about your key stakeholders’ interests and needs. Highlight the co-benefits of engaging with your municipality on a circular food systems initiative and how the process aligns with the stakeholders’ needs and scope of work.

5. Start with an open mind

Involve stakeholders in the early stages of the process, show receptiveness to learn from their experiences and readiness to adapt the process to their needs. It is useful to start with consultations aimed at understanding the context. From there, you can develop some initial ideas and eventually dive deeper, with a narrower framing. Make sure to allow for time to digest the information shared during each consultation.

“Kisumu supported the set up of a Local Interaction Platform with representatives from universities, civil society, the chamber of commerce, residents association and the local government. This platform offers a neutral ground for stakeholders to share knowledge on some of the projects they are doing.”

Mr. Paul O. Opiyo, Programs Management Specialist, Kisumu, Kenya

6. Convene on neutral ground

Many local governments underline the need to support establishment of a non-city-led platform to connect all stakeholders. Such a platform would ideally bring together representatives of different groups of actors and sectors and could be led by a civil society organization or a third party, such as an international organisation. Providing a neutral space outside city premises is important because it allows stakeholders to share inputs openly. In particular, informal actors are likely to feel unwelcome if consultations take place in city premises.

7. Collectively define what success looks like

Develop a shared vision of success that acknowledges what is feasible and establishes the most widely acceptable outcome given stakeholders' diverging expectations and priorities. Once this outcome has been established, make sure it is consistently included in future presentations and documents shared with stakeholders.



“Our Food Policy Council is developing gardens following permaculture principles in schools to support children’s access to food. We have collaborated with a French region doing a similar project and have done broad stakeholders engagement locally. Showing consistent presence is a good way to build trust and ensure continuity of the project.”

Ms. Jay Ralitera, Mayor’s Office,
Antananarivo Madagascar

8. Be aware of potential blind spots

From informal workers to large retailers, food systems are influenced by many actors that do not typically participate in local stakeholder consultations. Taking into account the context and needs of those who are not in the room is essential.

9. Diversify your engagement channels

Encourage broad participation through different means of engagement (from open workshops to thematic working groups, deliberative forums and community listening sessions). By inviting participation on different channels and at different moments in time, you can sustain the momentum of the first consultations.

10. Prioritize continuity of engagement

Identify human, financial or other resources that stakeholders have available that might be able to contribute to the further development of a circular food system while still benefiting their field of work. These synergies will help ensure planned initiatives will be implemented when everybody leaves the room. Create a plan for continuous stakeholder communication and prioritize the identification of champions for the different sub-strategies identified.



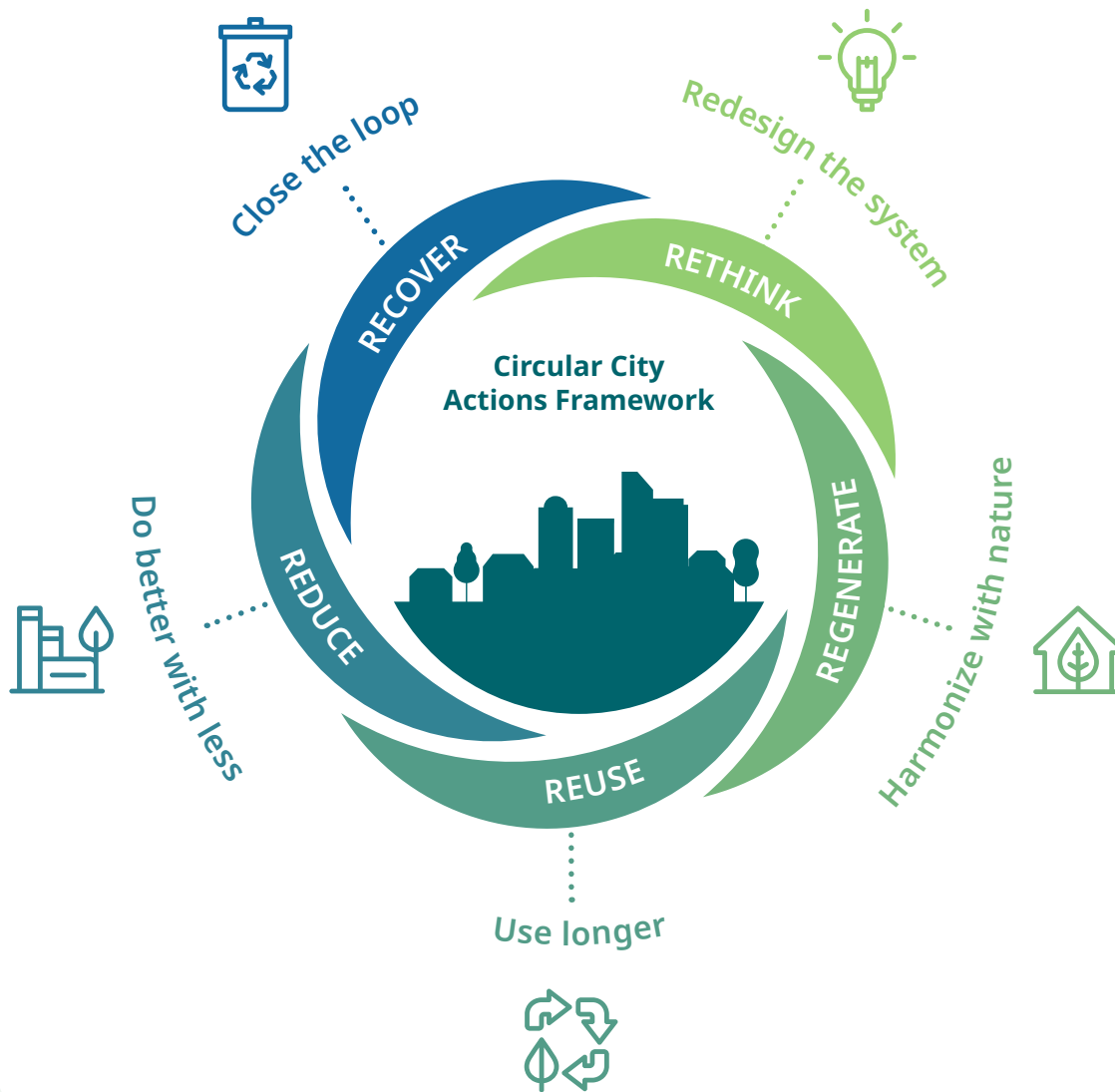
STEP 2:

DESIGN YOUR CIRCULAR FOOD SYSTEM

Develop an initial and collective vision that sets specific goals for circular food systems



Having mapped and mobilized stakeholders, the next step is setting a collective vision and prioritizing sub-strategies for food consumption and production and waste prevention and management. This section takes you through the Circular City Actions Framework as it relates to food systems and suggests steps to collaboratively map interventions relevant to your local context.



About the Circular City Actions Framework

The Circular City Actions Framework provides urban changemakers with five complementary strategies they can use to start working towards a more circular system. The framework is action-based to provide users with concrete strategic direction and showcases the desired outcomes of each strategy.

These five strategies and their sub-strategies address the different roles local and regional governments play, from public service delivery to cooperation with local stakeholders, urban planning and regulation. They can be applied to all resources flowing through a city and are most effective when implemented in parallel.

Applying the Circular City Actions Framework to food systems



RETHINK

Redesign the system

Structurally support circular systems, rethink how value chains are organized and phase out linear incentives

Action	Examples of application in food systems	City cases
<p>Support cross-sectoral collaboration and restructure the urban space and value chains for sufficiency</p>	<p>Support local sustainable food production</p> <p>Enable synergies between water, energy and food systems</p>	<p><i>Brussels (Belgium)</i> has been realigning its food needs with what its peri-urban areas can supply through the LUST programme</p> <p><i>Belo Horizonte (Brazil)</i> food security program connects food producers directly to consumers (eliminating retailer markup)</p>
<p>Support ownership systems and governance models that enable equal distribution of value</p>	<p>Support food cooperatives</p> <p>Design food initiatives that build on the principles of the commons</p>	<p><i>Rosario (Argentina)</i> implemented the Green Belt Project to expand land available for urban agriculture for community organizations.</p> <p><i>Dortmund (Germany)</i> is facilitating access to open source tomato crops</p>
<p>Divest from incentives, policies, investments and assets that support the linear economy</p>	<p>Dedicate city-owned lands to sustainable production</p> <p>Include criteria for regenerative farming in procurement of food services</p>	<p><i>Turku (Finland)</i> has committed to reducing food service related GHG emissions via circular procurement</p>

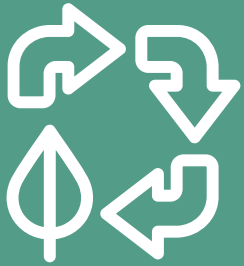


REGENERATE

Harmonize with nature

Ensure all infrastructure and production-consumption systems positively contribute to local resource and nutrient cycles and respect ecosystems' regeneration rates

Action	Examples of application in food systems	City cases
Restore local ecosystems and respect their carrying capacities	<p>Restore polluted agriculture land</p> <p>Restore groundwater bodies</p>	<p><i>Shenzhen (China)</i> turned a 105-acre abandoned agricultural experiment station into a park that incorporates sponge city principles (e.g. small swales to catch runoff, ponds with native rushes, permeable pavement)</p>
Prioritise lowest impact, renewable resources and nature-based solutions	<p>Promote seed diversity and low impact crops and agricultural practices</p>	<p><i>Toronto (Canada)</i> improved access and diversity of locally sourced food with the World Crops and Learning Gardens project</p>
Favor regenerative urban systems	<p>Support regenerative farming practices</p>	<p><i>Amis (Taiwan)</i> implemented traditional agricultural practices on a peri-urban riverbank settlement</p> <p><i>São Paulo (Brazil)</i> implemented successful initiatives and plans to promote regenerative farming and a green belt around the city</p>



REUSE

Use longer

Extend the use of existing resources, products, and infrastructure

Action	Examples of application in food systems	City cases
Support reuse, repair, remanufacturing and maintenance of existing resources, products, and infrastructure	<p>Promote repair and maintenance of cold chain assets and food storage infrastructures</p> <p>Support farming on vacant lots buildings (rooftops) and other unused infrastructure</p>	<p><i>Barcelona (Spain)</i> is improving sustainability of its municipal food markets by upgrading/repairing water and electricity infrastructure</p> <p><i>Pittsburgh (USA)</i> created a streamlined process that lets residents grow food on vacant city land under the Adopt-A-Lot program</p>
Facilitate second-hand markets and sharing and exchange platforms	<p>Facilitate sharing of food that would otherwise be wasted</p>	<p><i>Vantaa (Finland)</i> set up a surplus food terminal, "Shared Table", connecting food factories, wholesalers and retailers to a large network of food aid distributors</p>
Design and regulate for extended use	<p>Support take-back systems for containers for direct reuse (e.g. reusable cups)</p>	<p><i>Bonn (Germany)</i> started the Werde Cupster initiative to encourage adoption of reusable beverage containers</p>



REDUCE

Do better with less

Design infrastructures, processes and products to reduce minimize material & energy consumption and waste generation during production, use and end of life

Action	Examples of application in food systems	City cases
Minimize waste across the lifecycle	<p>Regulate disposable food packaging, ban food waste from landfills</p> <p>Optimize or take out unnecessary cold chains and refrigeration</p> <p>Monitor food waste in commercial kitchens</p>	<p><i>The York region municipality (Canada)</i> conducted a food waste audit and waste-reduction pilots with supermarkets and restaurants</p>
Optimize infrastructure and production systems to decrease their resource footprint	<p>Support cleaner processing of agro-food and reduction of harmful ingredients</p>	<p><i>South-Eastern Finland (Finland)</i> maximizes the value of cyprids, an underutilized but highly sustainable fish species, by streamlining logistics processes</p> <p>In <i>Amsterdam (The Netherlands)</i>, Metabolic is leading the development and implementation of an open-source aquaponic farm based on De Ceuvel in North Amsterdam</p>
Encourage sustainable consumption	<p>Promote sustainable food consumption such as incorporating more local and plant-based options.</p> <p>Support deformed vegetables and bruised fruits and other types of “ugly food”</p>	<p><i>The City of Ghent (Belgium)</i> encourages citizens to eat vegetarian one day a week with its “Thursday Veggie Day” campaign</p> <p><i>Melbourne (Australia)</i> partnered with a local nonprofit to create the We Need to Talk About Food guide on sustainable food consumption</p>



RECOVER

Close the loop

Enable the recovery of materials at their end of life and facilitate their reintroduction in production processes

Action	Examples of application in food systems	City cases
Design for separation and recovery	Implement a Pay-as-throw model to support separation of organic waste	<i>Hebron (Palestine)</i> created a market center directly linked to a compost facility, valorizing organic waste and redistributing fertilizer to local food producers
Collect, label and sort waste to facilitate recovery	Organize organic waste collection systems for households, supermarkets, restaurants	A number of <i>regions in Italy</i> have significantly increased bio- and organic waste separation by transforming their waste collection systems
Process waste and ensure its re-entry into industry at its highest value	Leverage microbial processes to turn food waste into municipal compost	<i>Quelimane (Mozambique)</i> composts waste from urban food markets at the “Quelimane Limpa” composting facility <i>Guelph (Canada)</i> is investing in innovation to put organic by-products to good use



Setting a collective vision and deciding on priority sub-strategies

As a next step, organize an online or in-person meeting during which you will present the objectives of a circular economy approach to food systems (the [“Why our food systems need to change”](#) section can be used for this) and the results of the food systems assessment you conducted in Step 1.

As part of the same meeting or during follow-up workshops, we suggest asking your local stakeholders to identify and prioritize circular economy sub-strategies along the Circular City Actions Framework. While this prioritization can be done organically through consultations among stakeholders, we suggest ranking the different sub-strategies according to different criteria, such as the ones outlined in the following template for prioritization of sub-strategies, used as part of the [Circular Turku](#) project.

Template

Once the sub-strategies have been prioritized, it is time to unpack the ones that are now highest on the agenda. Use this template action card to support stakeholders in formulating a vision and potential outcomes for each prioritized sub-strategy.

Template



STEP 3:

USE YOUR TOOLS TO JUMPSTART IMPLEMENTATION

Use the policy toolbox to choose the appropriate levers for reaching your vision and strategy



Having formulated a collective vision and set the strategic path towards a circular food system, the next step is to explore actions and interventions for reaching these main goals. These actions can be guided by and chosen from a set of policy instruments that have already been put into practice by many local and regional governments in collaboration with national and local stakeholders.

In this section, we will explore three circular food systems goals and the implementation steps and policy approaches that can make them a reality. The same approach can be used for any other goal chosen in Step 2.



Getting to know the policy toolbox

Local and regional governments have a number of instruments at hand to build a sound policy framework that enables and supports the uptake of circular economy measures across the entire food system and consumption system. As many of the circular food system strategies require businesses, communities and individuals to take action, local governments' roles involve providing the right infrastructure and municipal services, supplying the financial resources if applicable and creating the regulatory and business environment to enable those actions.

Exploiting the full palette of policy instruments at their disposal and the different roles (legislator, supporter, enabler, convener) they can play in their jurisdiction is critical to the success of circular economy interventions, which most of the time span different aspects of the value chain.

Examples of policy instruments at the local government level include:



Regulatory and planning

- Regulations and strategic plans
- Monitoring and enforcement
- Environmental assessment and permits
- Spatial Planning
- Strategic plans
- Multi-level governance
- Asset management



Economic

- Fees and user charges
- Certificate Trading
- Public Procurement
- Financial support
- Investment programs
- Public-private partnerships
- Tax incentives



Cooperation

- Voluntary Agreements
- Technology Transfer
- Partnerships for knowledge development
- Provide access to space and non-economic resources



Education & Knowledge

- Communication and awareness campaigns
- Education and curriculum
- Guidelines and handbooks
- Monitoring systems
- Research and development

Applying the policy toolbox to value chains

It is useful to understand how policy interventions from local governments can be used to impact food systems in their globality. For this, we suggest systematically assessing how interventions should be supported and taken up within six different areas. In collaboration with local stakeholders, map what needs to change in each of these six areas and what kind of support is needed (i.e. which instrument from the policy toolbox can be mobilized). The next section unpacks what this exercise would look like for three different goals.



Urban infrastructure

Built environment, public facilities and fixed capital equipment fully or partially owned or managed by the local government (e.g. roads, schools).



Innovation and research

Local research organizations (e.g. think tanks, universities) and innovation clusters.



Municipal services

Services provided by the local government to its residents, for which the costs are covered by tax revenue (e.g. sanitation, food services, health, transportation).



Community initiatives

Non-profit organizations or initiatives from an individual or network of individuals dedicated to improving the wellbeing of a community and reducing the effects of social challenges.



Businesses and industries

Private sector organizations operating within the jurisdiction of the local government.



Residents

People residing or working in the city.

Overview of Circular Food Systems Policy Instruments for Local Governments



Regulatory & Planning



Economic



Cooperation



Education & Knowledge

Urban infrastructures

Local **norms to prioritize organic farming** and local food production
Plan for peri-urban agriculture on city-owned land and vacant urban spaces

Investments in composting facilities

Access to unused urban space for gardening

Development of regenerative farming practice **guidelines** for use on city-owned lands
Partnership with schools to reduce food waste



Municipal services

Waste prevention and management plans
Bans on single use items and on food waste entering landfills
Addressing regulatory barriers to food redistribution via policies (e.g. liability limitations)

Food waste mitigation, GHG or regenerative farming **criteria in food services tenders**
Tax breaks to facilitate **deposit systems** for food packaging

Collaboration between local food actors through local platforms by allocating city-owned space for collaboration

Guidelines for alternatives to single use items and municipal domestic waste separation
Provide **training to food service providers** to facilitate the use of seasonal food in catering and fight food waste



Businesses and industries

Public private partnerships for composting facilities or other circular economy innovations

Provide tax breaks and subsidies for businesses supporting circular economy measures
Resource Efficiency **Credit Facilities**
Pay-as-you-throw scheme applied to private sector

Promotion of **communal or group ownership** of machinery and storage facilities through cooperatives or collaboration other mechanisms
Facilitation of **challenges and incubators** for local food innovators

Business and marketing trainings to local food producers (e.g. through partnerships with chambers of commerce)
Help desk for small businesses



Innovation & Research

Local development policy recognizing the role of research centres and clusters in transitioning to circular food systems

Municipal **grant schemes** linked to open innovation challenges

Eco-entrepreneur **business development programmes** in partnership with business support organizations
Access to unused urban space for food innovation

Estimation of **local baseline level of food waste and/or resource inputs**
Development of a **standard / label** on local sustainable food



Community initiatives

Supporting the integration of informal waste pickers and collectors in formal waste management systems

Circular Credits for informal waste pickers
Support of **social and solidarity economy activities in public procurement** of food services

Municipal waste separation and collection **partnership with informal waste picker cooperatives**
Platform to connect private sector actors to community initiatives to **facilitate food donation**

Information centres and training facilities for community groups, informal waste pickers
Facilitate **access to trainings** on small-scale regenerative agriculture, composting or food reuse.



Residents

Waste separation and organic waste collection at household level, with cost structure supporting low-income households

Pay as you throw scheme with cost structure supporting low-income households

Partnerships with universities to identify food waste prevention champions in student housing

Partnership with schools for integration of sustainable food consumption in school curricula
Information campaigns (e.g. on local food suppliers, waste separation guidelines)



Exploring actions towards a circular food system

This section explores policy mixes for three synergistic circular food system interventions: increasing regenerative agriculture in peri-urban farmlands, supporting shorter food chains and minimizing food waste. The same methodology can be applied to any of the prioritized sub-strategies identified in Step 2. The success of this exercise will, however, lie in the ability of local stakeholders to set a collective agenda that addresses needs and implementation challenges.

○ Regenerate

Increase regenerative agriculture in peri-urban farmlands

Chemical pesticides in agriculture contribute to soil, water and air pollution, biodiversity loss and can harm non-target plants, insects, birds, mammals and amphibians. It is therefore critical for human health, biodiversity and climate goals that local governments prioritize regenerative agriculture practices that encourage and enhance biological cycles, maintain and increase the long-term fertility of soils, build on renewable resources and minimize all forms of pollution.



Examples of policy instruments

Practical examples from other cities



Urban infrastructures

Education and knowledge instrument: Develop regenerative farming practice guidelines, such as reference material for good land management practices

Regulatory instrument: Set up policy frameworks that facilitate access to land and improved tenure for regenerative agriculture practices or collaborate with national government actors to implement such frameworks

Regulatory instrument: Dedicate city-owned arable land to regenerative agriculture

Bonn (Germany) joined the organic cities network in 2019 to promote organic farming and processing and to stimulate demand for locally-produced organic foods. Along with increasing the quota of organic food in public food services, the Council passed a resolution in February 2019 to prioritise organic farming on leased urban agricultural land.

[Read more](#)


Municipal services

Economic instrument: Include regenerative farming criteria in public procurement with a focus on soil health, water management, fertilizer use

Education and knowledge instrument: Provide training to food service providers to facilitate the use of seasonal food in catering

The municipality of *Copenhagen (Denmark)* aims at achieving 90 percent organic ingredients across the entire city's public food system. To achieve this, the municipality restructured its food procurement criteria and increased its procurement budget for food services, with organic food procurement now representing 88% of all food procurement in Copenhagen. In addition, the city facilitated and funded training and counseling on seasonal home cooking in 900 public kitchens.

[Read more](#)


Businesses and industries

Cooperation instrument: Facilitate access to land and space for food businesses supporting regenerative farming

Economic instrument: Provide tax breaks and subsidies for businesses supporting regenerative farming

As part of its Parisculteurs initiative, the city of *Paris (France)* is issuing tenders for sustainable urban agriculture projects with the ambition of dedicating 100 hectares to sustainable agriculture in the city and its surrounding suburbs. This initiative led to numerous projects being implemented on unused spaces, such as a 3.500m² underground parking lot that was turned into a mushroom farm.

[Read more](#)

Examples of policy instruments

Practical examples from other cities



Research and innovation

Education and knowledge instrument: Develop a standard / label to differentiate regenerative agriculture products from other food products

Cooperation instrument: Partner with knowledge organizations to map point of purchase for food produced through regenerative practices

In *Seoul (South Korea)*, the city-affiliated Seoul Agricultural Technology Center provides training and technical support on sustainable urban farming development to citizens who are interested in urban and peri-urban agriculture. The center is continuously expanding its curriculum. In 2020, a training on circular aquaponics systems was introduced.

[Read more](#)


Community initiatives

Cooperation instrument: Provide access to land and space for community initiatives supporting regenerative farming

Education and knowledge instrument: Facilitate access to trainings on small-scale regenerative agriculture for community groups

Rosario (Argentina) is recognized worldwide for its city-wide urban agriculture program which contributed hugely to providing access to organic food to an impoverished population. The city has been focusing especially on supporting urban organic farming in slums. In 2014, a rapid process for formalizing grants of vacant urban land to residents for agricultural purposes was established to provide gardeners with security of tenure.

[Read more](#)


Residents

Education and knowledge instrument: Raise awareness on the benefits of regenerative agriculture for human health and environmental protection

As part of its food city strategy developed during its year as European Green Capital, *Bristol (United Kingdom)* started a campaign to safeguard best value agricultural land for food: the 'Soil Culture' month. Workshops and art exhibitions about how conservation of soil is linked to human health were organized. It has led to increased awareness about the importance of organic agriculture and the collective writing of a first ever 'City Soil Declaration'.

[Read more](#)



Rethink

Support shorter food chains

Short food chains can take a wide variety of forms, from farmer cooperatives to farmers-consumers platforms and partnership agreements with large-scale retailers. They have in common the goal to reduce the geographic distance and number of intermediaries between farmers/food producers and consumers. Shorter food chains originally stem from the desire to increase local food sovereignty and resilience and reduce local farmers' economic uncertainties by guaranteeing their supply will be met by a local demand. As such, they contribute to fairer incomes for food producers and increase the circulation of community income. Shorter food chains are also linked to food loss reduction and sustainable innovations in farming and production methods.¹⁹ Finally, sustainable short food chains contribute to climate goals by reducing food miles.²⁰

¹⁹ Jarzebowski et al. Short Food Supply Chains (SFSC) as Local and Sustainable Systems (2020)

²⁰ Krievald et al. Hungry cities: how local food self-sufficiency relates to climate change, diets, and urbanisation (2019)

Examples of policy instruments

Practical examples from other cities



Urban infrastructures

Regulatory instrument: Provide standards and guidelines on what can be considered local food

Regulatory instrument: Plan for peri-urban agriculture on city-owned land and vacant urban spaces

In 2014, *Ljubljana (Slovenia)* set a 6-year goal to promote quality agriculture and short food chains. This was achieved through different means, from organizing a rural festival each year, to supporting local food markets (through a city-owned company) and cooperation among catering service providers and local farmers. The “Basket of Ljubljana” initiative also provides guidelines on how food can be grown in the city.

[Read more](#)


Public goods and services delivery

Regulatory instrument: Include local food quotas in food service contracts

Cooperation instrument: Act as convener to facilitate collaboration between different local food actors

Medellín (Columbia) started a municipal program of urban and peri-urban gardens, Huertas para el Abastecimiento, to support the development of proximity markets. The city council is very active in strengthening food distribution channels, such as by connecting local farmers with transportation services. During the Covid-19 pandemic, the authorities have also facilitated the transport of food from local producers to popular canteens to benefit the most vulnerable populations in Medellín.

[Read more](#)


Businesses and industries

Cooperation instrument: Promote communal or group ownership of machinery and storage facilities through cooperatives or collaboration other mechanisms

Economic instrument: Establish tax reduction measures and/or credit facilities for farmers to improve or expand their production

Amidst the Covid-19 crisis in *Beijing (China)*, the Municipal Agricultural and Rural Bureau has assisted local farmers in connecting with input enterprises through the “Agricultural Products Supply and Demand Platform”, to avoid physical contacts. Through this platform, farmers are able to do joint purchases in bulk to lower costs.

[Read more](#)

Examples of policy instruments

Practical examples from other cities



Research and innovation

Education and knowledge instrument: Provide business and marketing trainings to local food producers

Cooperation instrument: Organize challenges for local innovators to develop short food chain solutions (e.g. sustainable local logistics, local food products)

Farmers in *Ede and Barneveld (the Netherlands)* have the opportunity to participate in “Short Food Chain Masterclasses” organized by the municipalities in cooperation with Wageningen Economic Research. Local farmers are supported in developing products and services for the local market, tailored to consumer demand and based on the strength of their businesses.

[Read more](#)


Community initiatives

Cooperation instrument: Provide space for community initiatives bringing producers and consumers together at food hubs

Economic instrument: Support social and solidarity economy activities in public procurement of food services

The Liège Food Belt (Ceinture Aliment-Terre Liégeoise, CATL), is an association created by the city of *Liège (Belgium)* and local citizens to foster local food production and distribution in the Liège region, with a special focus on vegetable growers. 20 citizen-led food cooperatives now exist under the CATL banner. For instance, CREaFARM is a combined project, set up by the city of Liège together with CATL to make suitable plots available for local agricultural production.

[Read more](#)


Residents

Education and knowledge instrument: Provide residents with information on local food suppliers and restaurants in the city

Economic instrument: Facilitate the introduction of an alternative currency to support local food chains

Located in the Lambeth district of London, *Brixton (United Kingdom)* is home to one of the first local-currency networks in an urban environment. The Brixton Pound project was initiated by the Transition Town movement in close collaboration with the Lambeth Council in 2008 in response to the economic crisis. The alternative currency is now accepted by 250+ independent businesses, many of which contribute to local food chains. As per a decision of the Lambeth Council, these businesses can pay part of their taxes in local currency and public servants can receive part of their salary in Brixton Pounds.

[Read more](#)



Reduce

Minimizing food waste from retailers to end consumers

Food is discarded all along the value chain, from harvest all through the end consumer. In this section, we look at city-led actions to decrease food waste, i.e. the food that ends up being wasted due to decisions and actions by retailers, food service providers and consumers. It is estimated that 13% of all food loss arises during retail and 22% during consumption.²¹ Addressing these waste streams is critical to a cities' food resilience and leads to more efficient land use and better water resource management. It also contributes to Target 12.3 on Food Loss and Waste Reduction of the Sustainable Development Goals and offers opportunities to redistribute food to vulnerable groups.

²¹ BCG Henderson Institute Tackling the 1.6-Billion Food Loss and Waste Crisis (2018)

Examples of policy instruments

Practical examples from other cities

Urban
infrastructures

Regulatory instrument: Ban food waste from being sent to landfills

Cooperation instrument: Partner with local schools to include food waste reduction lessons in school curricula

Cooperation instrument: Set guidelines for food waste reduction from public actors

Vermont's (United States) Universal Recycling Law included the first legislated food recovery hierarchy (source reduction, food for people, food for animals, composting, energy recovery) in the U.S. Since 2020, food scraps have been banned from landfilling and are instead collected separately. This approach was first implemented with larger restaurants and food manufactures and prompted investments in food scrap collection and processing infrastructure.

[Read more](#)
Public goods
and services
delivery

Cooperation instrument: Act as convener to facilitate collaboration between different local food actors

Regulatory instrument: Include food waste reduction criteria in public procurement programs

São Paulo (Brazil) has been linking its municipal food markets to its Municipal Food Bank to divert food items that are still fit for consumption but do not have commercial value. After initial pilots, the program has been extended to food vendors and other street markets.

[Read more](#)
Businesses and
industries

Cooperation instrument: Encourage local businesses to develop measures to reduce food waste

Economic instrument: Pay-as-you-throw scheme applied to private sector

Partnership instrument: Connect private sector actors to community initiatives to facilitate food donation

Economic instrument: Apply tax reduction measures for businesses that engage in food waste reduction activities and/or donate surplus food

Cremona (Italy) engaged with large scale retailers to analyze their supply chain to reduce surpluses and minimise waste production. The city convened a network of exchange between large-scale retailers, nonprofits and public authorities to enhance the recovery and the donation of food surpluses.

[Read more](#)

Examples of policy instruments

Practical examples from other cities



Research and innovation

Education and knowledge instrument: Estimate local baseline level of food waste

Cooperation instrument: Partner with universities and research institutes to pilot food waste prevention guidelines in specific sectors

Education and knowledge instrument: Partner with research organizations to develop innovative products from perishable food commodities, such as fruits and vegetables, to promote whole food utilization.

In 2015, *Bruges (Belgium)* launched the Food Lab, a platform for local stakeholders to create food guidelines for the city. These include targets on reducing food waste from public organizations, which prompted four healthcare institutions to start pilots to decrease food waste. Learnings were compiled in methodologies for replication at other healthcare institutions.

[Read more](#)



Community initiatives

Education and knowledge instrument: Assess and expand food rescue system capacity

Regulatory instrument: Remove barriers to food redistribution via policies (e.g. liability limitations, tax breaks) that make it easier for food suppliers to donate safe (but unsold) food to charities or to those in need

Cooperation instrument: Allocate city-owned buildings and space to community initiatives on food waste

Since 2015, *Milan (Italy)* has created Local Food Waste Hubs to recover food surpluses from local supermarkets and canteens and redistribute it to people in need through local neighbourhood networks. The Municipality allocated city-owned buildings for stocking and redistribution of recovered food and implemented a tax reduction measure that rewards businesses that donate food with a 20% reduction on the waste tax.

[Read more](#)



Residents

Education and knowledge instrument: Increase public awareness and provide concrete strategies on how households can prevent food from being wasted

Economic instrument: Pay-as-you-throw scheme (provided organic waste is collected separately)

Seoul (South Korea) implemented a pay-as-you-throw scheme on food waste in 1995 and has been improving it ever since, with automatic food recycling bins in apartment blocks and public spaces. Low-income households receive standard bags for food waste disposal free of charge. To prevent illegal dumping, flower gardens were installed where illegal dumping was common and penalties for illegal waste disposal were introduced.

[Read more](#)

Additional resources

Urban and regenerative agriculture

- [Urban Agriculture Magazine no. 16 – Formulating Effective Policies on Urban Agriculture](#) and [Urban Agriculture Magazine no. 33 - Urban Agroecology from Ruaf](#) document relevant developments in the field of sustainable urban agriculture
- [E-college for regenerative farming](#) available in Finnish and Swedish (English version in planning) supported by Sitra

Food waste

- ICLEI's [Sustainable Procurement Platform](#) offers a number of resources and case studies on food waste
- The publication [City region food systems and food waste management](#) from RUAF documents 13 case studies on prevention, reduction and management of food waste in city regions, and lessons learned.
- The report [Reducing Food Loss and Waste](#) from the World Resources Institute identifies an actor-specific "to-do" list and 10 "scaling interventions" that can be used as guidelines for private sector actors.
- The [Coalition Circular Accounting \(CCA\)](#) led by Circle Economy is a multidisciplinary coalition with the goal of identifying and overcoming accounting-related challenges that hinder the recovery of food waste
- Compiled as part of the [Refresh project](#), the report [Policy options for behaviour change including public campaigns](#) offers a comprehensive analysis of the impacts and limitations of different instruments. It provides concrete examples to address the "intention-behaviour gap" and avoid rebound effects in campaigns on food waste.

- The Natural Resources Defense Council developed a [food waste baseline assessment methodology](#) for cities and the World Resources Institute developed an online [food loss and waste calculator](#).
- The Food Loss & Waste Protocol offers a [free food loss and waste value calculator](#) (in beta test version) to create a snapshot of the impacts related to the loss and waste of different types of food.
- [Urban Agriculture Magazine no. 32 – Urban Food-Waste-Energy Nexus and the Private Sector](#). This issue discusses the urban-food-energy nexus with a focus on the role of the private sector. Emphasis is on its enabling environment in promoting a circular economy.

Circular food systems in general

- The [Cities and Circular Economy for Food report](#) from the Ellen MacArthur Foundation offers insights on how cities can support regenerative food production, healthier food products and make the most out of food.
- Circle Economy's [Knowledge Hub](#), an open access collaborative library with 2500+ examples about the circular economy, includes numerous best practices on food systems at the local level
- FAO's [Urban Food Actions Platform](#) offers access to a large number of best practices from cities and regions worldwide
- Metabolic and WWF developed an [Analysis of the Global Food System](#) which includes numerous datasets and infographics which can be included in presentation to stakeholders on the different challenges linked to linear food value chains
- The ["Collaborative Framework for Food Systems Transformation: A multi-stakeholder pathway for sustainable food systems"](#) compiled by UN Environment provides an approach for collaborative policymaking and governance improvement for sustainable food systems.

NEXT STEPS

IN THE ICLEI CIRCULARS JOURNEY





After completing the three steps detailed in the handbook, you should have:

- A good understanding of what circular food systems interventions entail for your city and an overview of related opportunities and challenges;
- Stakeholder engagement processes and a governance structure in place to support the development and implementation of planned actions;
- A shortlist of potential strategies for transitioning to circular food systems in your city and an overview of accompanying policy instruments that would support their implementation.

The next steps would include:

- setting specific goals for the selected strategies (for example reduce post-consumption food waste by 50%), which might require sampling and data collection if not readily available;
- drafting policy instruments and conducting cost-benefit analysis and feasibility analysis where required;
- developing an implementation plan;
- setting up a monitoring and evaluation system to follow up on the implementation.

While these elements are beyond the scope of this Handbook focused on planning and prioritization, It is the aim of ICLEI Circulars to provide local governments with tools to accompany implementation steps, based on learnings from local governments worldwide. Visit [ICLEI Circulars](#) to learn more and stay up to date with further resources.



About CITYFOOD

This handbook was compiled in cooperation with the *ICLEI-RUAF CITYFOOD Network*.

ICLEI and RUAF launched the ICLEI-RUAF CITYFOOD Network – Cities and Regions for resilient food systems in 2013 to facilitate exchange and peer-to-peer learning among local governments that are committed to transitioning to sustainable food systems. The Network encompasses 30 local and regional governments from all world regions, whether they are engaging with food for the first time or leading the way towards innovative food systems.

Best practices and experiences from the CITYFOOD Network are featured throughout the handbook and have helped shape the content of this publication.





Acknowledgements

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CITATION

This publication should be cited as: ICLEI - Local Governments for Sustainability, 2021. City Practitioners Handbook: Circular Food Systems. Bonn, Germany.