



URBAN FOOD SYSTEM THINKING

A Step-by-Step Guide
for Practitioners



SOUTHERN AFRICA
FOOD LAB

Food is not just the meal on the plate. It is the hard-won outcome of the efforts and ingenuity of human endeavour, cultivated from the finite resources of our planet. To understand how food arrives on our plates requires us to track a complex arrangement of actors and processes. This reveals not just the multifaceted relationships and activities that define the food system but also a concerning assembly of negative outcomes for human health and the environment.

Anyone committed to identifying, understanding, and addressing these problems must be equipped to navigate this complex and interconnected food system. For city officials and other practitioners, who often juggle multiple competing demands, this task can prove onerous and opaque. This simple tool is intended as a practical, learn-by-doing means of helping city-level practitioners to look at the big picture created by mutually reinforcing economic, social and environmental challenges, in order to identify what changes need to be made in a specific context.

This tool is designed around 13 steps, split into three deliberate phases – *prepare*, *explore* and *prioritise* – that lead to the adoption of food system thinking in cities and towns. Its core is what we call an “onion” model of food systems, which invites us to “zoom in” on where the food system’s failure is most immediate – the child experiencing malnutrition – in order to then “zoom out” to consider successive levels of social, economic, and other factors.

The objective is to find context-specific, impactful interventions for a stronger, more resilient, and inclusive food system, one that leaves no one behind.

About WWF

In a rapidly urbanising world, the forces of environmental degradation and climate change are concentrated within cities and towns. This is due to dynamics within cities and diverse rural-urban linkages. Consumption within cities changes the environment through demand for food, energy, water, and land. The cities and towns of the developing world are also the sites of greatest human hunger, and this is only expected to increase in the coming decades. The inequitable state of the food system is the result of historical imbalances. WWF recognises that these interconnected humanitarian and environmental challenges are deeply entrenched and cannot be solved by one actor alone. Collaborative solutions are fundamental to stimulating action across sectors and at multiple scales. The *Urban Food System Thinking* tool is a contribution to this collective effort, offering WWF urban partners a means to define their priorities through the lens of the development agenda within their own city and country, while also learning and contributing to WWF’s coordinated effort to improve urban resilience across the globe.

How and when to use the *Urban Food System Thinking*

This guide is for practitioners in government, business, or civil society, who want to engage in a structured process of thinking about problems and possible responses in their city's food system.

It builds on existing guides and tools on this topic, but it is distinct in two important ways.

1. It is a step-by-step process that does not require much time, money, or data.
2. It does not start with the city's food system, as a whole, which can be overwhelmingly complex and somewhat abstract.

Instead, this guide zooms in on a particularly important aspect of the system that requires most immediate attention. We ask, **why do children in particular communities have insufficient nutritious food to eat?**

This approach allows for a zooming out process, in which successively larger and longer-term aspects of the food system – and possible implications for action – are considered in a context-relevant manner. We call this the

“onion model” of system analysis, as we consider larger temporal and spatial scales as we move from one layer to the next.

The guide offers 13 steps as we move across the “onion” layers, as illustrated in the figure below. These 13 steps can help structure a process of reflection alone or discussion in a group. This process could take an hour or a couple of days, depending on the depth of analysis. The themes and possible implications highlighted in this text are meant as prompts.

As you work through the guide, ask yourself the following:

1. To what extent and in what way is this issue relevant in our context?
2. Have we already considered this issue sufficiently?
3. Are other practitioners addressing this issue and do they have sufficient influence and support?
4. If not, how might we go about making a difference?

Such a process cannot replace the more comprehensive stakeholder engagement and system assessment processes recommended by other guides (some of which are mentioned in [Step 2 on page 7](#)), but it should offer some useful insights on key concerns in the local food system and possible responses. This can also help motivate for and focus a more comprehensive, participatory assessment process.

Urban Food System Thinking takes the users – individually or in a group – through a staged process, which includes awareness raising and preparatory work, the identification of key issues, and the prioritisation of intervention options.

We are grateful for various discussions that helped inform this guide with, among others, Jane Battersby, Andrew Borraine, Leanne Brady, Tamsin Faragher, Tristan Görgens, Gareth Haysom, Erica Inches, Louise Scholtz, Pamela Silwana, and Jenny Soderbergh. It has also been shaped by the work of the Southern Africa Food Lab (<https://www.southernafricafoodlab.org>).

Peeling back the layers: How to use this guide

Prepare

Unlocking the power of systems thinking

Steps 1-3

- The first three steps trace the **benefits of systems thinking**, other food system guides, and this guide's particular approach to systems thinking.
- Any attempt to define a system requires an intentional simplification of a complex reality. But the alternative is to risk inaction by getting lost in the complexity. To address this challenge, the tool suggests a focus on where the failings of the food system 'hit the ground', in the consequences for **the child at risk of malnutrition**.

Explore

The "onion" approach to identifying key issues

Steps 4-11

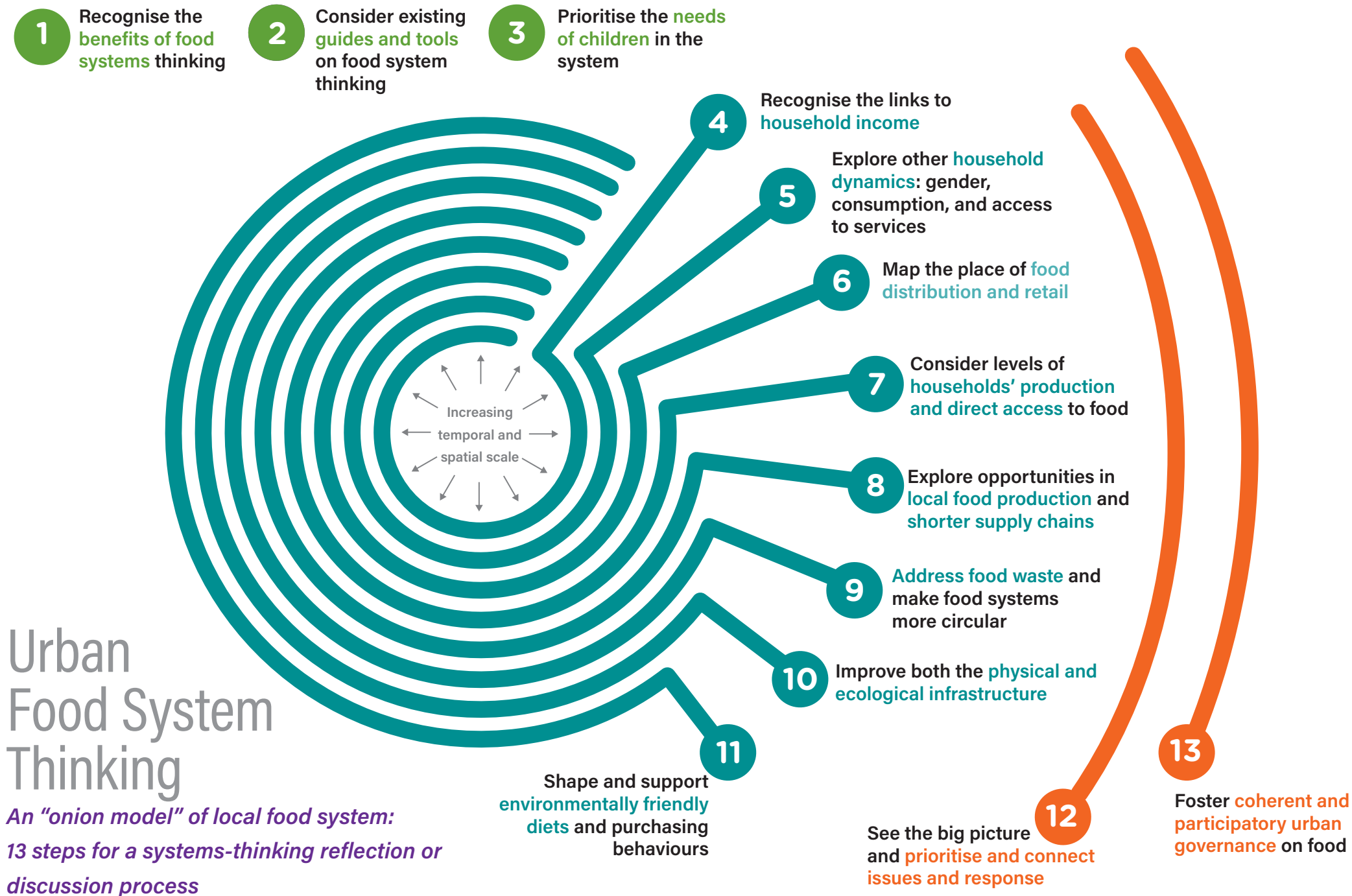
- The layering of the onion makes it possible to identify key food system issues through an **"inside-out" thinking process**. These points need to be considered in your local context and the steps are designed to **enhance consideration of region-specific issues and priorities**.
- Determining objectives and the desired future of the system is an unavoidably values-based process and 'facts' are not always certain, so the information surfaced in this process will depend on your and other participants' ability to **reach a common understanding** of why and how you identify priorities and interventions.
- The **layers are inherently interwoven** but it can help to think through the challenge in stages:
 - **The inner layers 4-8 explore socio-economic issues** related to household dynamics, food distribution and retail, direct access to food, and local food production and supply chains.
 - **The outer layers 9-11 explore environmental issues** related to waste, circularity, physical and ecological infrastructure, environmentally friendly diets and purchasing behaviours.
- Look out for suggestions of **"possible implications"**. These are prompts for practitioners to consider options for context-appropriate action.

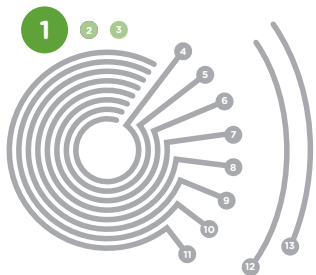
Prioritise

The levers for impactful intervention

Steps 12 and 13

- The last two steps encourage you to take a step back, see the bigger picture, prioritise, and connect issues and responses. The key objective is to **identify issues or combinations of issues** that offer opportunities for impactful intervention.
- The rigour of your approach in the preceding steps will determine the success and value of the deliberations in the prioritisation process but **any level of engagement in the interconnected issues surfaced in the "onion" process will help to paint a richer picture** and strengthen engagement in urban food governance.





Recognise the benefits of food system thinking

Why does systems thinking help us to solve the food security challenge?

It has become common cause to think about food as a system. Generally speaking, a system is a set of interacting elements that fulfils a function. The food system, therefore, consists of the diverse actors and processes that enable the creation and distribution of food – ideally so that all of us have sufficient nutritious food to eat.

What is the food system?

In recent years, there has been an effort to understand the boundaries and complexity of wide-reaching food systems. This has replaced the conventional thinking that focuses on food production and linear supply chains. In this expanded understanding, all the components involved in the production, processing, distribution, consumption and waste of food need to be considered, as well as their multifaceted interactions.³ The behaviour of this interwoven network of nodes and relationships varies, often unpredictably, across time and space, and is heavily influenced by concentrations of power and resources.

The problem, of course, is that our food system often fails in fulfilling this function. Too many people do not have sufficient nutritious food to eat. There are many diverse reasons for this, including a lack of reliable household income, increasing food prices, lacking availability of nutritious food, and so on. This problem is especially severe in low income countries,¹ but it exists in wealthier countries, too.

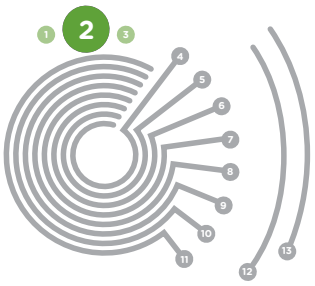
There are also other important problems associated with the food system. It has a [massive environmental impact and significantly contributes to climate change, biodiversity loss, and pollution](#).² Also, many farmers and workers in the food system struggle to make a decent living.

Food system thinking recognises that these various problems and their underlying causes are inter-related in complex ways. This is important because it means we cannot improve food system outcomes by only focusing on a particular element or part of the system. A specific intervention is likely to fail if it disregards the diverse inter-relationships in the system, and it may even have unintended negative consequences.

Another benefit of food system thinking is that it can help identify the most effective interventions. Understanding the cause-and-effect relationships in a system can point to those elements or processes, where even a relatively small effort can give rise to significant positive changes.

The importance of coordinated urban actions

City officials, national policy makers, businesses and NGOs all have different roles to play in supporting child-centred, urban food systems. The jumping off point is recognising the need for coordinated – and more or less simultaneous – interventions at a city level. A food systems approach would aim to improve nutrition and food security through enabling the engagement of actors at all levels; making evident the many connections, trade-offs and opportunities to reinforce one another's efforts to deliver healthy, affordable and sustainable diets to children.



Consider existing guides and tools on food system thinking

Can you improve your skillset for the task by exploring some of the many guides and tools on food system thinking?

Because of these benefits of food system thinking, there have been many reports and studies on this topic. This includes numerous efforts to visualize food systems. The [International Institute for Sustainable Development \(IISD\)](#) has created a very useful overview of some of these diverse visualisations – take a look to see which of them seems most intuitive or useful to you.⁴

There are also numerous guides, handbooks, or toolkits to support practitioners in assessing a city's food system and identifying corresponding actions.

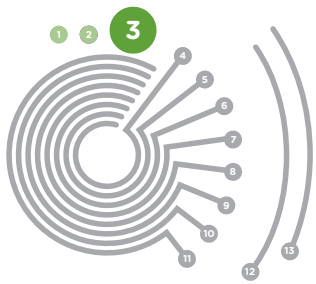
The following are particularly important examples, as they span both a broad range of challenges and contexts:

- FAO has a “[City Region Food System Programme](#),” which includes a toolkit on how to, for example, “collect data on your city region food system.” There are useful reports also on specific cities, in which such assessments have been done, such as Colombo, Lusaka, and Toronto.⁵
- ICLEI has published a “[City Practitioners Handbook: Circular Food Systems](#).” This provides guidance on how to implement a stakeholder engagement process and identifies specific actions and policy instruments that can be used to improve food system functioning. There are again useful examples of efforts in cities such as Quito and Baltimore.⁶
- UNEP and others have developed a “[Collaborate Framework for Food Systems Transformation](#).” Similar to the guides mentioned above, it recommends conducting “a holistic food systems assessment” and implementing “a multi-stakeholder process for dialogue and action.”⁷

These initiatives and reports provide important guidance.

Yet, to fully respond to their recommendations takes significant time, money, and institutional commitment. Because they seek to respond to the complexity of urban food systems, they require a comprehensive approach involving intensive stakeholder engagement and lots of data collection and analysis.

Such a comprehensive approach is indeed recommended, but food system thinking can be applied also in more preliminary and heuristic ways. This guide suggests one approach, possibly a complementary one, in which the power of systems thinking can be unlocked in a shorter process and without becoming overwhelmed by complexity.



Prioritise the needs of children in the system

Why does this child have insufficient nutritious food to eat?

One of the challenges in food system thinking is that it is easy to become overwhelmed. Because so many elements and processes are inter-related with each other, where do we even start? Most existing guides and tools recommend that we conduct a “holistic analysis” of the system as a whole. This is a daunting task and it can also make things seem quite abstract.

In contrast, in this guide we zoom into a particular point in the system, in order to then zoom out. We start by imagining a young child residing in a low-income urban community. Focusing on such a child responds to the fairness principle, which prioritises the needs of the most vulnerable.⁸

Reorienting food systems towards a healthy and sustainable diet for children (0-18 years) recognises the importance of adopting a life-course approach to nutrition. It is well understood that there are critical time points in a child's physiological development during which a failure to provide the necessary nutrition and support can have irreversible consequences for health and development.⁹

Such a child is most reliant on the effective and fair functioning of the food system. If the system fails, it contributes not only to suffering in the immediate term but also to long-term disadvantage. Our approach thus kicks off with the question, “Why does this child have insufficient nutritious food to eat?”¹⁰

How does the income of the household influence the child's diet?

What other household-level drivers diminish the child's food and nutrition security?

Is the child's access to nutritious food being constrained by what's on offer at local retailers?

Is the urban child benefiting from the community level efforts to improve overall welfare?

How can more emphasis on local food production benefit the child?

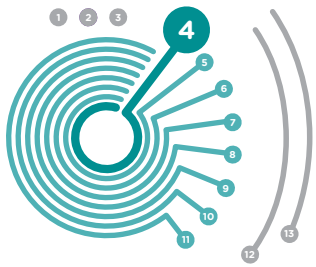
Will focusing on food waste make a material difference in the life of the child?

What foundational infrastructure needs to be improved to change the nutritional outcomes for the child?

Can small behaviour changes deliver big wins for the child's nutrition?







Recognise the links to household income

Can the household afford sufficient food?

Whether or not a young child has sufficient nutritious food to eat depends in large measure on household characteristics and dynamics. Household income is a key factor because this determines whether there is money to buy food. We highlight three ways, in which households may gain income.

Formal employment

Food security is likely greater in households with at least one member in formal employment. Communities with high levels of unemployment are more vulnerable to hunger and employment data can thus be used to spatially map such areas.

Employment shocks will reduce food security, and this can have both temporal and spatial aspects. For example, government enforced lockdowns in response to COVID-19

reduced work opportunities and incomes, contributing to an estimated additional 6.7 million children with wasting in lower- and middle-income countries.¹¹ Such effects were also discernible in wealthier economies.¹²

Apart from large-scale crises such as COVID-19, employment impacts and the resulting effects on food security can also occur in more localised areas, for example, due to a natural disaster or the closure of a large factory.



What can practitioners do?

Possible implication: Practitioners should recognise the links between long-term unemployment and household food insecurity. This includes a focus on areas with high levels of unemployment. Where there is a temporal or spatial shock to employment, targeted food relief measures or welfare payments may be necessary as a response, at least as an interim measure.



How does the income of the household influence the child's diet?

Informal work

In many low income communities, especially in developing countries, many households rely on informal economic activities (such as pavement vending of fresh produce or clothes). Local governments typically have few data on such activities, but an understanding of the spread and importance of such informal work is vital.

Importantly, local government and other spheres of government have a range of economic development interventions, and these typically privilege formal economic activities. Government crisis responses sometimes have particularly harsh implications for informal workers, as was the case during the COVID-19 lockdowns.



What can practitioners do?

Possible implication: An integrated approach to food security within government requires that informal economic activities are duly recognised and supported in economic development, urban planning, crisis response, and other policies and operations.

Social safety nets

In many countries, a third important source of household income is government grants. These play a critical role in ameliorating hunger and malnutrition in many households. This has been demonstrated again during COVID-19. International comparative research has shown that such government grants are particularly effective when they are coupled with other government services, including health and social work.¹³

Ration Cards in India

In India, the Public Distribution System, which provides low-income households access to grain through a network of ration shops, is one of the government's most important instrument to address food security and hunger.

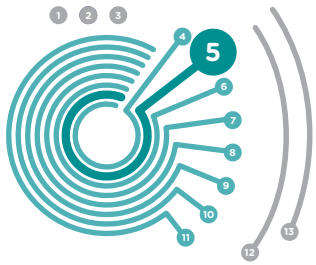


What can practitioners do?

Possible implication: Practitioners working on food security and nutrition should petition national governments, adding their voice to broader calls for improved and expanded social welfare programs, and they should develop integrated approaches with other practitioners focusing on welfare, social work, and health, among others.



How does the income of the household influence the child's diet?



Explore other household dynamics: gender, consumption and access to services

What are the dynamics that shape how households' resources are allocated?

Household income informs whether there are funds to buy food, but there are other important household dynamics that shape how these resources are allocated.

Gender dynamics

Even if a household has access to income, it is not necessarily the case that a sufficient proportion of this income will be spent on food. Research has found that gender dynamics are a key determinant of whether sufficient income is allocated to food.¹⁴ Specifically, where women have influence over financial decision-making, there are likely better food security outcomes.



What can practitioners do?

Possible implication: Food security efforts should support, expand, and build upon initiatives by government, business, or civil society to foster women's empowerment at multiple points in the food system.

Consumption choices

In low-income households, food can be of lower quality nutritional value. There are a variety of reasons for this. One is that lower-quality food is often cheaper and more accessible, and it often requires less energy to store and prepare. Unhealthy choices can also be driven by aspirations created and reinforced by advertising and shaped by retailers' offerings. (A broader theme related to environmentally friendly consumer choices will be addressed in [Step 11 on page 24.](#))



What can practitioners do?

Possible implication: Practitioners have important roles in shaping consumption choices. They can design, implement or contribute to campaigns to share knowledge about healthy nutrition, and this could include targeted behaviour change efforts in schools. Practitioners can also shape, enforce, or abide by regulations on advertising. Those with influence over media (including TV, radio, online, and print), advertising, and branding can seek to prioritise healthy food information and choices.

Access to essential services

In developing countries, many low income households lack essential services such as reliable energy, water and sanitation, and waste removal. This is especially so in informal settlements, but such concerns also apply in established, formal settlements. This lack of essential services diminishes food and nutrition security in diverse ways. For example, lacking access to water and waste removal reduces hygiene and can contribute to diseases like diarrhoea, which leaches the body of nutrients. Lacking access to reliable energy and refrigeration disables households from keeping food fresh. Such challenges linked to lacking public services are more prominent in developing countries, but they occur in wealthier countries such as the USA, too.

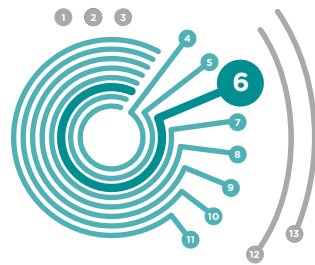
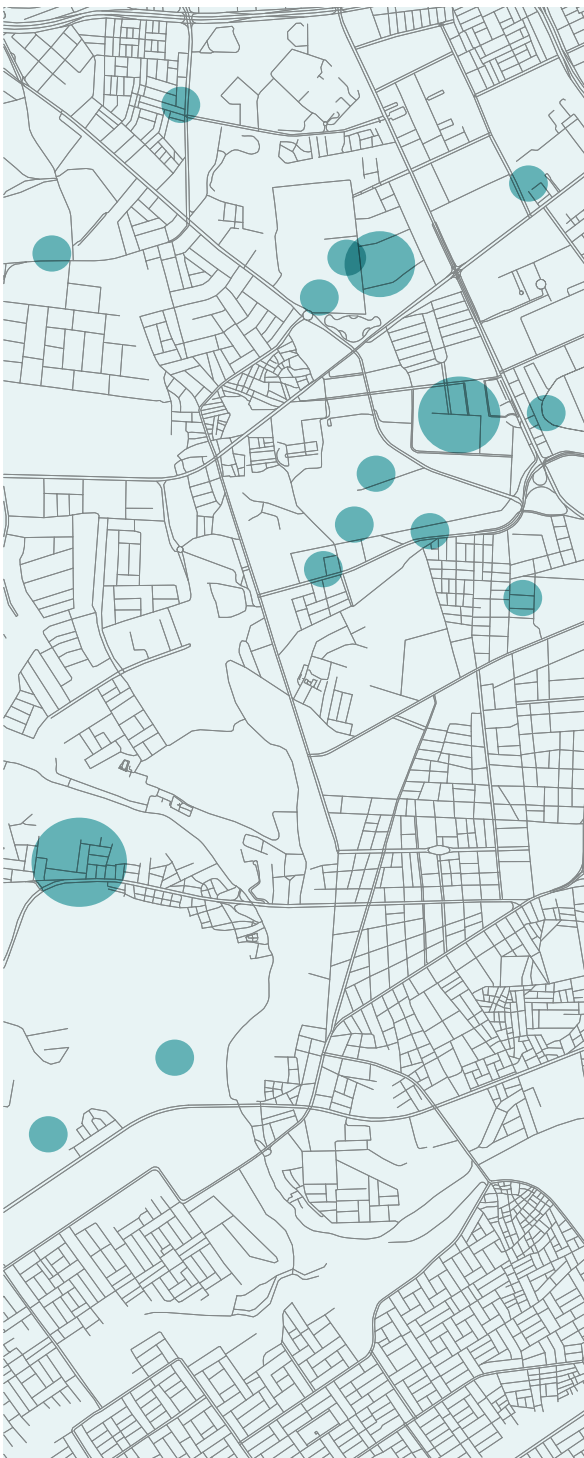


What can practitioners do?

Possible implication: The human rights associated with essential services are widely recognised but not always realised. Practitioners working on food and nutrition security must add their voice to the realisation of such rights. Recognising the linkages between essential services and food security adds impetus to avoiding temporary or spatially defined cutbacks to such services (e.g., due to non-payment).



What other household-level drivers diminish the child's food and nutrition security?



Map food distribution and retail

How does retail help or hinder access to nutritious food?

Even if households have access to income in order to buy food, their ability to do so may be constrained by limitations in the local food distribution and retail system. Households may rely on very few retailers, which may mean that they have limited food choices or are more vulnerable to food price increases. So-called “food deserts”¹⁵ are neighbourhoods where there is limited access to nutritious food. A consequence is that households are more likely to consume unhealthy food.

Food prices and competition

A key concern is an increase in food prices. At the local level, an important reason for such price increases may be a lack of competition among retailers and price gouging. There are a range of factors that may constrain competition. At the local level, some retailers may have a quasi-monopoly in some areas. This is especially if large retailers have pushed smaller food shops out of communities. Practitioners should recognise the importance of smaller and more widely distributed food shops for community members’ access to food.

Practitioners working on land use planning and business registration, for example, can make sure that retail businesses are not obstructed in competing in specific areas. Planners should ensure that smaller food shops are not disadvantaged unduly by zoning or other regulations. More broadly, the competition authorities play an important role, though they need to be encouraged and supported to pay attention to food prices.



What can practitioners do?

Possible implication: Practitioners in city governments play an important role to ensure that retailers of diverse sizes and types are not constrained in operating and competing in specific areas. More broadly, practitioners in all sectors can help monitor food prices, raise possible concerns in the media, and encourage the competition authorities to investigate if there are signs of possible price gouging.

Food safety

There are well-established protocols, rules, and regulations on food safety in most countries, but these are not always effectively enforced, especially in informal settings. As an urban practitioner, you can support colleagues in monitoring compliance with such standards in various parts of the city's food system, including in formal restaurants and retail, as well as more informal shops and fast-food retail. Studies suggest that consumers can play a particularly important role in such efforts.¹⁶



What can practitioners do?

Possible implication: Practitioners should assess the efficacy of existing efforts to enforce food safety protocols, rules, and regulations, and contribute to strengthening such efforts where necessary. This would likely benefit from working with consumer organisations and associations of informal traders.

Informal retail and restaurants

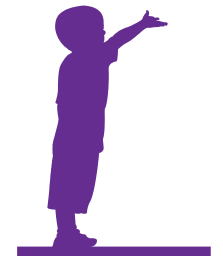
In many countries, the informal sector plays an important role in food distribution and retail. In many low income communities, they are the closest and most accessible source of food for many households.

In that context, it is problematic that informal vendors are often disadvantaged by city governments and other formal actors. They are often harassed by police and forced to pay bribes, or they are displaced by new malls and supermarkets.¹⁷ At the same time, some of the risks associated with informal retail also need to be considered. Informal retailers can gain competitive advantage over formal firms by evading taxes, product safety and labour regulations, as has been seen in the Latin American and the Caribbean.¹⁸



What can practitioners do?

Possible implication: Practitioners should recognise and better understand the important role of informal retailers in providing access to food for low income households. Many city governments have policies and practices in place to regulate informal trading – often with an emphasis on constraining its spread rather than supporting legitimate enterprise development. The advocacy actions of practitioners working on food and nutrition security should pay attention to the causes of informality. Officials should avoid harassment and seek means to provide support to and collaborate with informal traders.



Is the child's access to nutritious food being constrained by what's on offer at local retailers?

Crime's impact on food distribution and retail

Another factor that influences food distribution and retail in some communities is crime. Small food vendors are often harassed and charged protection money from gangs.¹⁹ Sometimes food distribution companies do not make deliveries for fear of crime in some places.



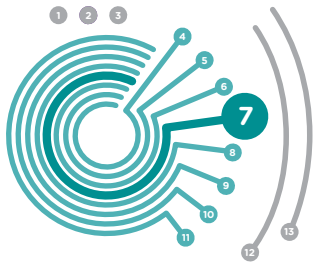
What can practitioners do?

Possible implication: Practitioners working on food and nutrition security may need to work with security actors, including the police, to help ensure that food distribution and retail are not constrained by crime.

The essential service of informal retail shops and street vendors

Informality thrives across the world but is particularly essential in the urban food systems in Africa, Asia and South America. In South African townships residents rely on *spazas*, as well as informal restaurants. Similarly, it is in such street restaurants where many people in Southeast Asian countries get most of their meals. In Mexico the urban informal food markets, *tianguis* and *mercados sobre ruedas*, play a fundamental role in the supply and distribution of food staples.





Consider households' production and direct access to food

What opportunities for self-sufficiency might exist?

The food distribution and retail system described above is generally governed by market mechanisms, including competition in matching supply and demand. However, there is an alternative food production and distribution system that is shaped by values of self-sufficiency, solidarity, and welfare.



Household food production

There are important opportunities for households to grow nutritious food, even if they have limited space and even if household members know nothing about growing plants. Planter boxes can be distributed with seedlings that are easily grown (such as herbs, spinach, or celery) and matched with each other (so-called “companion planting”). Such boxes could include a “wicking” design to include a reservoir that supplies the plants with water from the bottom up. This reduces the amount of water required and it also diminishes the need for regular watering. The distribution and use of such boxes could be linked to school projects for children in such households.²⁰



What can practitioners do?

Possible implication: Practitioners can distribute planting boxes to vulnerable households, and this can be linked to education programs in schools, sports clubs, or other organisations.

Food gardens in schools and other spaces

Another valuable opportunity for local food production is in schools. Such food gardens can become “edible outdoor classrooms,” in which diverse aspects of food gardening can be linked to the school’s education programs, and their produce can contribute to school feeding schemes.

This concept need not be limited to schools; any commonage or city land could be seen as an opportunity for edible community garden projects in collaboration with local residents. Also, such gardens do not necessarily rely on open land. For example, they may be cultivated on rooftops, or up walls in so-called “vertical gardens.”



What can practitioners do?

Possible implication: Practitioners can encourage and support schools to develop edible outdoor classrooms. They can also support the creation of edible community gardens, by identifying suitable land or space for such purposes, fostering local community groups to make use of such opportunities, and providing them with resources to get started.

School feeding schemes

One of the most important sources of food for children in low income communities is school feeding programs. In some countries, the emphasis is on establishing or expanding such schemes, while in other countries, the focus is on improving the nutritional content of school meals. School feeding schemes can help shape children's understanding of healthy food choices and support regional agricultural production through local procurement.

School feeding schemes in South Africa and Brazil

In South Africa the vital role of the school feeding scheme was demonstrated by the significant increase in hunger in low income communities during the COVID-19 lockdown when schools were closed.

The Brazilian National School Feeding Programme (PNAE) is a standout example of the importance of these schemes, catering to 40 million students across 5,570 municipalities.

Feeding in Early Childhood Development (ECD) centres

There are a wide variety of ECD centres in poor communities, ranging from those that are formally registered and government subsidized, to informal arrangements in people's homes (which are sometimes informal dwellings). Some ECD centres provide important meals to their children, while others do not.



What can practitioners do?

Possible implication: Practitioners in various sectors or levels of government can consider ways, in which they can establish, expand, or improve school feeding schemes, including the nutritional value of meals and local food procurement



What can practitioners do?

Possible implication: Working with education authorities and civil society organisations, practitioners might explore ways in which they could encourage or support ECD centres in providing nutritious meals to their children.



Community kitchens, NGOs and their intermediaries

The COVID-19 lockdown created a hunger crisis in many urban communities. In many places around the world, one of the most important responses to this crisis was by civil society groups: established and new community kitchens and diverse NGOs that distributed food, food parcels, or vouchers. This included established NGOs working on food security issues, such as food banks, as well as diverse others that prioritised food relief during the crisis.

These civil society groups created and relied upon an ethos of solidarity and volunteering, as well as a vibrant network of communication and the sharing of information resources across communities that previously had little interaction. Different groups played different yet complementary roles in these networks. Some focused on distribution of food within vulnerable communities. Others focused on creating linkages across communities. (See

also [Step 9 on page 21](#) on how NGOs can help in distributing underutilised food to communities in need.)

The importance of such civil society organising – both in crisis response and in “normal” times – is thus being recognised by a broader array of practitioners. There are encouraging signs of collaboration between such civil society groups and government actors. However, government actors sometimes struggle to support or collaborate with civil society groups, whose informal nature makes them unusual partners. In some cases, larger, formally registered NGOs have emerged to play valuable intermediary roles – for example, by obtaining large grants from donors or government and then distributing this among smaller and more informal civil society groups.



What can practitioners do?

Possible implication: Practitioners should recognise the vital role of local civil society groups, NGOs, and their networks in addressing food and nutrition security in vulnerable communities. They should collaborate in the sharing of information and resources, and this may require innovative efforts to connect formal government efforts to the emergent and informal ways of working among civil society groups. The emphasis should be on building coherent networks of support – including large and small, formal and informal partners – that can support food security in communities. A systems approach implies we need webs of actors working across the system.

Is the urban child benefiting from the community level efforts to improve overall welfare?





Explore opportunities for local food production and shorter supply chains

Is there an opportunity to shorten value chains for greater sustainability, nutrition and a more inclusive urban food system?

There is a growing recognition, accelerated by the supply chain disruptions of COVID-19, that more localised food production can shorten food supply chains. This can make local food availability cheaper and more resilient, because local supply chains may be less susceptible, for example, to rising fuel costs or disruptions caused by extreme weather.

Also, shorter supply chains can more easily make use of circular material flows. Organic waste collected during production, distribution, or consumption of food can be used for the creation of compost, which is a valuable resource in making soils more productive and resilient. (See also [Step 9 on page 21](#) on this theme.)

Currently, much of the food that is consumed in urban areas is produced in distant parts of the country, or even in other countries or continents. Yet an important and valuable source of food is in the rural or peri-urban parts of the city region – despite such land often coming under significant pressure for housing and other forms of development.

There is also a growing emphasis on school food gardens, as mentioned in [Step 7 on page 17](#), and other community food gardens within urban settlements. Such community gardens can make use of diverse kinds of spaces, such as rooftop gardens or vertical gardens that grow up the sides of buildings.

Such urban farming can have significant benefits. For a start, if grown in low income communities, at least some of their produce is often directed towards particularly at risk households in that community. Such gardens can also provide a valuable opportunity for gainful work. Finally, urban food gardens offer some respite from hard and hot concrete: Vegetated urban areas will become an increasingly important response to rising temperatures in urban areas due to climate change.

The suggestion is not to become entirely self-sufficient in the local food system. This would probably be unfeasible and economically inefficient, and thus raise prices. Rather, the suggestion is to diversify supply and to give more emphasis to local production and distribution. This can also help make food systems more circular, as described in the next step.

Transforming vacant urban lots in Argentina

The municipality in Rosario designated 800 hectares of peri-urban land for agroecological production with a view to reducing food insecurity, alleviating poverty, and adapting to changing environmental conditions. The focus on low-income communities and a holistic approach were successful in reducing food insecurity and shortening supply chains. Water retention zones also helped improve flood management.²¹

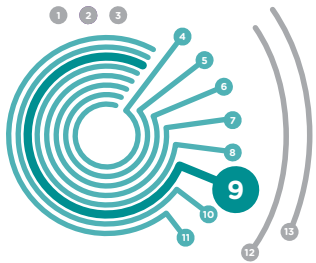


What can practitioners do?

Possible implication: Practitioners should encourage local food production in diverse ways and places, ranging from community food gardens to urban farming. They should protect and expand the land that is available for food production in and around the city. They should support investments and innovation in productive use of such land, as well as innovative production methods, such as vertical gardens. Such support should take care to further foster the ethos of solidarity and community building that underpins many local food supply chains. Finally, practitioners can help connect local food supply to local consumption – this could include, e.g., the promotion of local food markets and the prioritisation of local supply in government school feeding schemes.



How can more emphasis on local food production benefit the child?



Address food waste and make food systems more circular

What can be done to eliminate the linear “take, make and waste” approach?

Currently, food supply chains are very linear and wasteful²²: Food is produced on mostly large farms and manufacturing facilities, transported to retail outlets, and consumed in homes, restaurants, and so on; and in each of these stages, there is significant amount of food that is wasted.

Food waste needs to be reduced, reused, and recycled. As an urban practitioner, there are a number of things that you can contribute to this end. First, you can help to identify significant sources of food waste; for example, by working with colleagues in the city’s waste management department. Identifying significant food waste sources is a useful first step in reducing, reusing, or recycling waste. Waste segregation at source is often critical to enable food waste diversion and recycling, but it is too rarely implemented.

Second, you can help raise awareness about the need to reduce food waste among farmers, producers, retailers, and so on. It is also possible to incentivize the reduction of food waste by setting appropriate charges for the disposal of food and other organic waste. Relatedly, rules to avoid illegal dumping of such waste need to be strictly enforced.

Third, you should explore various options to recycle food waste in order to make material flows more circular. Organic waste should be collected effectively and processed sustainably. Food waste can be processed into fertilizer, energy, and value-added products using solutions like composting, anaerobic digestion, and waste-to-animal feed systems. This type of processing extracts value from unavoidable food waste. It also reduces the significant methane emissions from food waste rotting in landfills.

India’s waste powered buses

In Kolkata, India, several stakeholders came together to launch a bus service powered entirely on biogas from animal and plant waste, which is both renewable and cheaper than conventional fuel.²³

There are other means to enhance a reduction in waste and improve circularity. For example, food banks collect unsold food that is still fit for consumption from producers and retailers, in order to distribute this to people who are at risk of hunger or malnutrition. If such food banks exist in your city, there may be means to support them in terms of advocating for enabling policies and infrastructure. If they do not exist, you could invite reputable food banking organisations to your city to explore establishing one or more of them.

Finally, urban practitioners can help support or even set up “industrial symbiosis” networks of firms. This is where some firms’ waste products are used as inputs by other firms. Such symbiotic networks often require spatial proximity and / or effective infrastructure to facilitate the efficient exchange of relevant materials or energy. Urban practitioners can promote such firm linkages, establish the supporting infrastructure, and help with the corresponding planning and permitting processes.

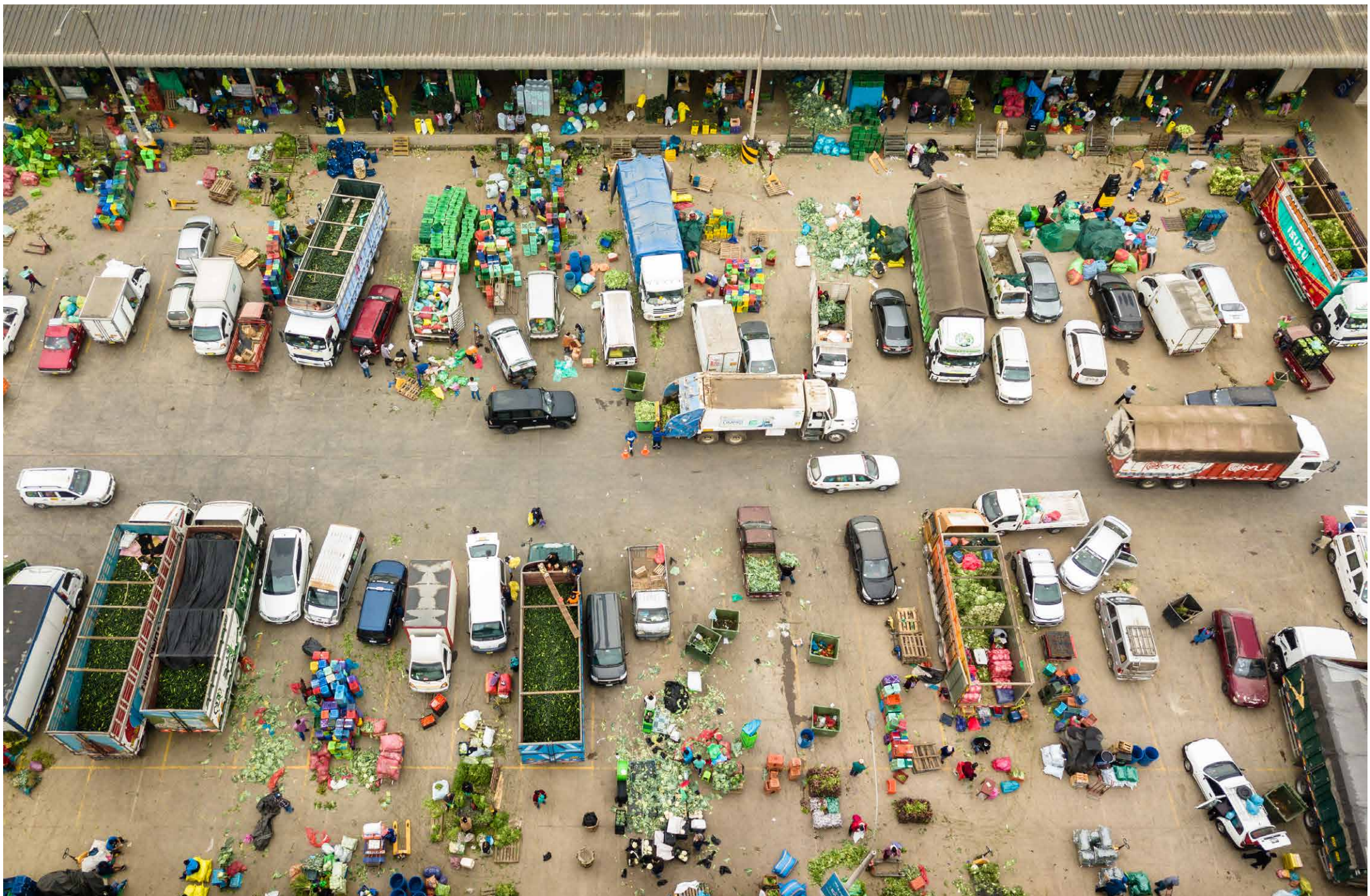


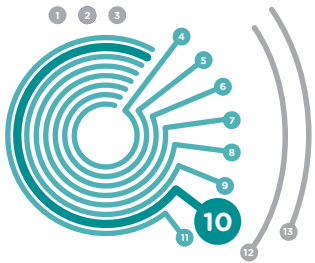
What can practitioners do?

Possible implication: Practitioners should help reduce, reuse, and recycle food waste through several means, including the identification of significant sources of food waste in the city, raising awareness about food waste, creating incentives to reuse, reduce, and recycle food waste, supporting effective composting in the city’s waste system, fostering a local food banking network, and supporting local “industrial symbiosis”.



Will focusing on food waste make a material difference in the life of the child?





Improve both the physical and ecological infrastructure supporting the urban food system

What larger and longer-term aspects of the food system need to be considered now?

As noted, much of the food consumed in the city is imported from elsewhere. There is hence a need to ensure that the infrastructure for this import and distribution process is sufficient and well-maintained. This includes the highways, roads, railways, and ports. Infrastructure planners may make decisions that inadvertently raise food transportation costs, and hence food prices for local consumers.

Food pricing and infrastructure in South Africa

The deterioration of South Africa's rail network in the last two decades has contributed to increased food prices. Distribution by road has also contributed to increased emissions.

There are limits to what urban practitioners can do about national infrastructure networks, but there are important local nodes in such networks, such as railway stations and ports, that deserve attention. Specifically, the connections between such transportation nodes and key nodes in the local food distribution network – e.g., fresh produce markets – need to be continuously enhanced and maintained. Care should be taken to ensure that food storage facilities in such nodes are adequate and appropriate, to avoid spoilage.

Over and above such attention to physical infrastructure, there is a need to attend to a city's ecological infrastructure – the various

aspects of the natural environment that provide valuable services to residents and businesses in the city. For example, wetlands often play a vital role in reducing pollution in rivers and this can be very valuable for those who rely on river water for irrigation or for the local fishing industry.

As an urban practitioner, you can help identify, recognise, and protect the existing ecological infrastructure. You can also help create new ecological infrastructure, for example, through creating bioswales and green gardens, which have diverse benefits including the reduction of storm-water runoff.



What can practitioners do?

Possible implication: Practitioners should understand the value of both physical and ecological infrastructure in a city's food system and contribute to the creation and maintenance of this infrastructure.

Such attention to infrastructure includes not only a focus on the physical and ecological infrastructure, such as roads, equipment, and wetlands, but also the capabilities of those organisations managing this infrastructure.



What foundational infrastructure needs to be improved to change the nutritional outcomes for the child?



Shape and support environmentally sustainable diets and purchasing behaviours

What trends are you watching and where are the opportunities to raise consumer awareness?

Consumers play a vital role in shaping the food system through their purchasing behaviours. Many of them are becoming increasingly conscious of the broader environmental and social implications of the products they buy. As an urban practitioner, you can reinforce this trend by helping to raise awareness about the following trends:

Buy local

Food products that are imported from far away contribute to climate change because of emissions associated with transportation. Buying local produce as much as possible also contributes to the welfare of local farmers and to local economic development. It can contribute to the development and maintenance of the local region's food identity, based on distinctive interplay between local environment, history, and culture.

Buy plant-based food products²⁴

There is growing awareness of how industrial meat production is contributing to significant environmental harms. This includes large contributions to climate change through land use transformation and methane emissions, as well as declines in biodiversity. It also includes ethically problematic treatment of animals. Consumers should thus be encouraged to reduce meat consumption and increase the proportion of plant-based foods in their diets. Practitioners can also support this by advancing plant-based food choices in school feeding schemes.

Avoid inappropriate packaging

A growing number of consumers are conscious about plastic pollution and how packaging is exacerbating that problem. At the same time, we need to recognise that packaging plays an important role in reducing food waste.²⁵ Some retailers are developing innovative responses to reduce both packaging and waste, for example by establishing fresh produce markets or aisles, in which locally grown fresh produce is sold without packaging. Consumers should be encouraged to make use of such options and to appreciate that such produce need not always be as perfectly shaped as the neatly packaged

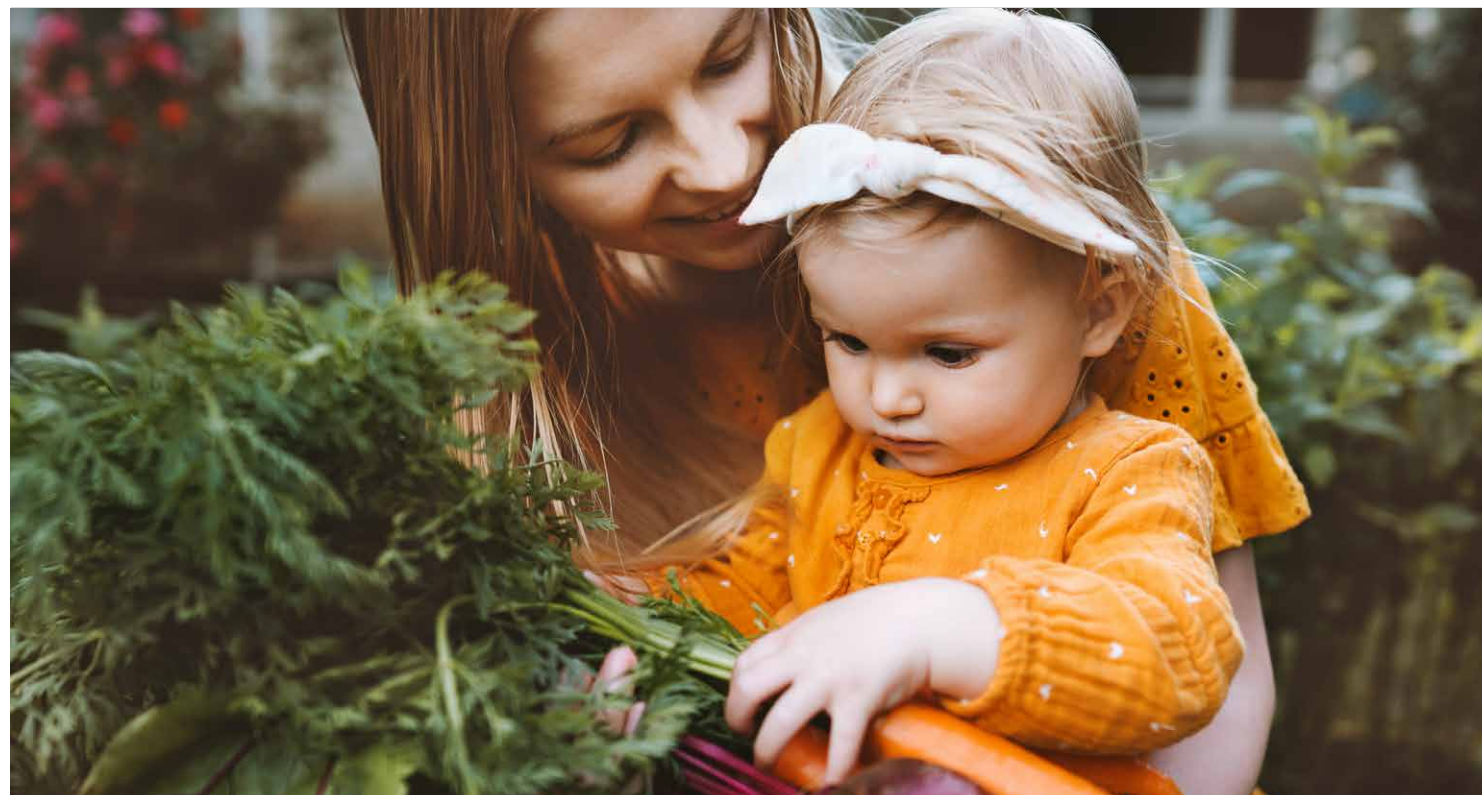


variants. Relatedly, consumers, producers and retailers should be encouraged to advance principles of the circular economy in their design and use of packaging.²⁶

It may seem that such broader shifts to firms' marketing and consumers' purchasing behaviours are beyond the ambit of urban practitioners. But there are various examples of urban practitioners working with others on such causes.

Melbourne's Sustainable eating guide

The City of Melbourne has published a guide to help people support a more sustainable local food system, and this includes recommendations to "buy local and seasonal" and "increase vegetarian and dairy-free options on the menu," among others. It also includes locally relevant information, such as where to find farmers' markets.²⁷



What can practitioners do?

Possible implication: Practitioners should encourage and support food production and retail companies and consumers to shift towards more environmentally friendly products and consumption behaviours, with a focus on local, seasonal, and plant-based products and reduced, recycled, and recyclable packaging. This may include awareness raising campaigns and the sharing of locally relevant information to consumers.



Can small behaviour changes deliver big wins for the child's nutrition?



Foster coherent and participatory urban governance on food

How do you go about getting the necessary multistakeholder, multi-level governance response?

A common concern is that many of the interrelated issues discussed above are addressed only partially by diverse actors in government, business, and civil society working in isolation of each other. This often leads to gaps, duplication, or even counter-productive efforts.

As an urban practitioner, you can contribute to more coherent and participatory food system governance. For a start, it will help to identify the main organisations working on the various issues discussed above, and to understand their relationship.

Some quick wins might include putting different organisations in touch with each other and recommending they coordinate their activities. A more committed effort might include the creation of a working group that meets regularly to discuss key priorities and strategies and related experiences.

Such coordinating and facilitating efforts should ensure that civil society and community organisations are involved especially from vulnerable communities. Their knowledge of such communities is often important to ensure that the most residents who are most vulnerable receive the necessary attention and support.

Toronto and municipal food policy leadership

The Toronto Food Policy Council (TFPC) was established in 1991 to advise the city on food policy issues. The TFPC connects diverse people from the food, farming and community sector to develop innovative policies and projects that support a health-focused food system, and provides a forum for action across the food system.²⁸

If such initial steps show that there is interest and motivation for a more substantial process, then a group of urban practitioners could help motivate, design, and implement a more thorough participatory process to develop an urban food system governance framework. This would involve a dedicated stakeholder participation process, creating a vision for the local food system, establishing policies for local government and other organisations to achieve this vision, and creating ongoing mechanisms for communication, coordination, and collaboration between local government and other stakeholders.



What can practitioners do?

Possible implication: Practitioners should assess how the local food system is governed – that is, how the various issues mentioned in this guide, and others, are being addressed (or not) by actors in government, business, and civil society. Coordination and collaboration in this governance system can be improved through informal working groups or a more formal participatory process of establishing and implementing a local food system strategy.



See the bigger picture and prioritise and connect issues and responses

Where are clearest opportunities for impactful positive intervention and what are the next steps?

The above points have identified a range of issues and corresponding implications. This is obviously not an exhaustive list, but rather a set of prompts to help you systematically think about local food systems. Instead of mapping the system, from the get-go, our approach has been to first focus on a specific, important part of the system and then to expand outwards.

Crucially, each of these points needs to be considered in your local context. Some of them, such as those about a lack of basic services (see [Step 5 on page 12](#)), may be more pertinent in developing countries than in more developed economies. But they are nevertheless worth considering even in the latter context. For example, they may become salient during and after a flood or some such disaster.

Once you have identified key food system issues through our proposed “inside-out” thinking process, you will need to prioritise them for action. The key objective is to identify issues or combinations of issues that offer opportunities for impactful intervention.

For a start, you can deprioritise those issues that are already receiving dedicated attention by influential actors in the system (yourself or others). You could also exclude those issues where you feel you have little influence. But bear in mind that there are diverse forms of influence – some issues may be important enough for your attention even if you lack a direct mandate, and where your intervention may focus on catalysing action by others.

Another way of creating an action agenda is to design an intervention that simultaneously addresses a combination of issues in the food system. For example, fostering local and circular supply chains can help address a few issues mentioned above related to production, distribution, and consumption.

Finally, this food system thinking process may well foreground concerns and possible responses that require more comprehensive exploration, including research and stakeholder engagement. Motivating and creating a focus for such exploration is a valuable achievement.

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Further Reading

The document includes active links to the following information sources:

- 1 WWF Agri-food Systems: Facts and Futures: https://www.wwf.org.za/our_research/publications/?27341/agri-food-systems-facts-and-futures
- 2 Food Security Index <https://impact.economist.com/sustainability/project/food-security-index/>
- 3 Living Planet Report <https://livingplanet.panda.org/en-za/>
- 4 <https://www.iisd.org/articles/visual-representations-food-systems>
- 5 <http://www.fao.org/in-action/food-for-cities-programme/overview/crfs/en/>
- 6 <https://circulars.iclei.org/wp-content/uploads/2021/03/ICLEI-Circulars-City-Practitioners-Handbook-Food.pdf>
- 7 https://www.oneplanetnetwork.org/sites/default/files/un-e_collaborative_framework_for_food_systems_transformation_final.pdf
- 8 The fairness principle has been articulated as a crucial component of social justice by various authors, including John Rawls (who referred to it as the "difference principle"). For an introduction, see <https://plato.stanford.edu/entries/rawls/#TwoPriJusFai>.
- 9 Child-centered food systems: Reorienting food systems towards healthy diets for children. See https://www.researchgate.net/publication/345973930_Child-centered_food_systems_Reorienting_food_systems_towards_healthy_diets_for_children
- 10 In focusing on child nutrition, this guide follows the lead of diverse initiatives and reports that take this approach (e.g., May J., Witten C., & Lake L. (eds.) (2020) South African Child Gauge 2020. Cape Town: Children's Institute, University of Cape Town).
- 11 Impacts of COVID-19 on childhood malnutrition and nutrition-related mortality [https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(20\)31647-0.pdf](https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(20)31647-0.pdf)
- 12 <https://www.oecd.org/coronavirus/policy-responses/combating-covid-19-s-effect-on-children-2e1f3b2f/>
- 13 <https://theconversation.com/landmark-study-shows-how-child-grants-empower-women-in-brazil-and-south-africa-157537>
- 14 Gender Equality and Women's Empowerment in the context of Food Security and Nutrition https://www.fao.org/fileadmin/templates/cfs/Docs1920/Gender/GEWE_Scoping_Paper-FINAL04oct.pdf
- 15 <https://www.theguardian.com/society/2018/may/15/food-apartheid-food-deserts-racism-inequality-america-karen-washington-interview>
- 16 Note that the FAO has a dedicated guide for urban practitioners on informal food systems: <http://www.fao.org/3/y4312e/y4312e.pdf>
- 17 Latin American and Caribbean Competition Forum: Informal Economy in Latin America and the Caribbean: Implications for Competition Policy [https://one.oecd.org/document/DAF/COMP/LACF\(2018\)4/en/pdf](https://one.oecd.org/document/DAF/COMP/LACF(2018)4/en/pdf)
- 18 <https://theconversation.com/why-food-safety-in-africas-informal-markets-must-be-driven-by-consumers-118402> [https://one.oecd.org/document/DAF/COMP/LACF\(2018\)4/en/pdf](https://one.oecd.org/document/DAF/COMP/LACF(2018)4/en/pdf); for a discussion on the risks of an overly simplistic approach to the informal sector, see <https://theconversation.com/the-world-bank-and-imf-are-using-flawed-logic-in-their-quest-to-do-away-with-the-informal-sector-170325>

- 19 <https://www.dailynews.com/2015/01/22/street-vendors-fall-prey-to-gangs-will-las-move-to-legalize-them-help/>
- 20 We are grateful to Erica Inches for advice on this point.

- 21 <https://prizeforcities.org/project/sustainable-food-production-rosario>
- 22 <https://www.worldwildlife.org/publications/driven-to-waste-the-global-impact-of-food-loss-and-waste-on-farms>
- 23 <https://www.wri.org/insights/moving-beyond-take-make-waste-developing-cities-show-possibilities-circular-economy>
- 24 <https://planetbaseddiets.panda.org/>
- 25 <https://sustainablepackaging.org/the-role-of-packaging-in-preventing-and-causing-food-waste/>
- 26 <https://www.ellenmacarthurfoundation.org/explore/plastics-and-the-circular-economy>
- 27 <https://www.melbourne.vic.gov.au/sitecollectiondocuments/we-need-to-talk-about-food.pdf>
- 28 <https://tfpc.to/> and see the example in New Haven, CT USA which has a strong justice-oriented approach <https://foodpolicy.newhavenct.gov/>



This publication is a follow-up publication to the WWF report titled *Urban lockdown lessons for South Africa: Insights and opportunities for equitable food Systems* (Moyo, Pereira), which focuses on the sphere of local government, which in South Africa has no discrete formal mandate to address food-security issues. It is a first attempt to assist local governments in developing a coordinated and equitable approach to optimising food systems, by providing a snapshot of the difficulties that come with this "absent policy mandate" for urban responses towards the current and future impacts of global climate change on our urban food systems. Available online at www.wwf.org.za/our_research/publications/?32945/urban-lockdown-lessons-for-South-Africa-insights-and-opportunities-for-equitable-food-systems.



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