



## CITY REGION FOOD SYSTEM TOOLKIT

Assessing and planning resilient and sustainable city region food systems

### Tool: Detailed explanation: The food systems approach

<b>Brief description</b>	An explanation of the food systems approach, including how contextual factors condition the experiences of stakeholders, processes and relationships, and how outcomes of activities and interactions in value chains contribute to contextual factors.
<b>Expected outcome</b>	Stakeholders understand the food systems approach and can apply it in project activities
<b>Expected output</b>	
<b>Scale of application</b>	Project workshop
<b>Expertise required</b>	-
<b>Examples of application</b>	-
<b>Year of development</b>	2021
<b>Author(s)</b>	Jess Halliday, RUAF
<b>Relevant CRFS Handbook modules; related tools, examples and activities</b>	Introduction; Define the CRFS module; Rapid Scan module; In-depth Assessment module; Action Planning module. Related to <i>Workshop activities: Building stakeholder understanding of food systems.</i>

### Full description and justification

This document provides an explanation of the food systems approach taken in the CRFS programme. It demonstrates ways in which the contextual factors of food security and nutrition, livelihoods and economic development, environmental and eco-system services, and social inclusion and equity condition the experiences of stakeholders, processes and relationships within the food value chain/food supply chain – and conversely, how the outcomes of activities and interactions in the food value chain contribute to the contextual factors.

The detailed explanation is needed because:

- 1) there is a tendency for stakeholders to focus only on the food value chain (or the food supply chain), overlooking contextual components;
- 2) it is not always obvious to stakeholders who do not work directly in the food value chain (but rather in a government department, institution, or organisation) how their work connects to, and has implications for, the functioning of the food value chain. Consequently, these stakeholders might not engage or remain engaged throughout the CRFS process, with adverse implications for project outcomes.

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## 1 What is the food system?

The City Region Food System (CRFS) programme takes a **food systems approach**. The FAO defines the food system as encompassing:

- **the entire range of actors and their interlinked value-adding activities** involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries;
- and parts of the **broader economic, societal and natural environments** in which they are embedded.

A *city region* food system (CRFS) is the application of this definition in a specific geographical setting, with rural-urban linkages at the centre.

A city region is defined as: “a larger urban centre or conglomeration of smaller urban centres and the surrounding and interspersed peri-urban and rural hinterland”<sup>1</sup>. The term ‘city region’ not only refers to megacities and the immediate rural and agricultural areas surrounding them, but also to small and medium-sized towns that link remote small-scale producers and their agricultural value chains (or supply chains)<sup>2</sup> to urban centre and markets.

Thus, a CRFS encompasses the complex network of actors, processes and relationships involved in food production, processing, marketing and consumption in a given geographical region in which flows of people, goods and ecosystem services operate across the rural-urban continuum, and includes the economic, societal, and environmental components that configure those actors, processes and relationships.

Based on the above definition, Figure 1 shows the different elements of the city region food system, arranged in two circles, with rural-urban linkages at the centre.

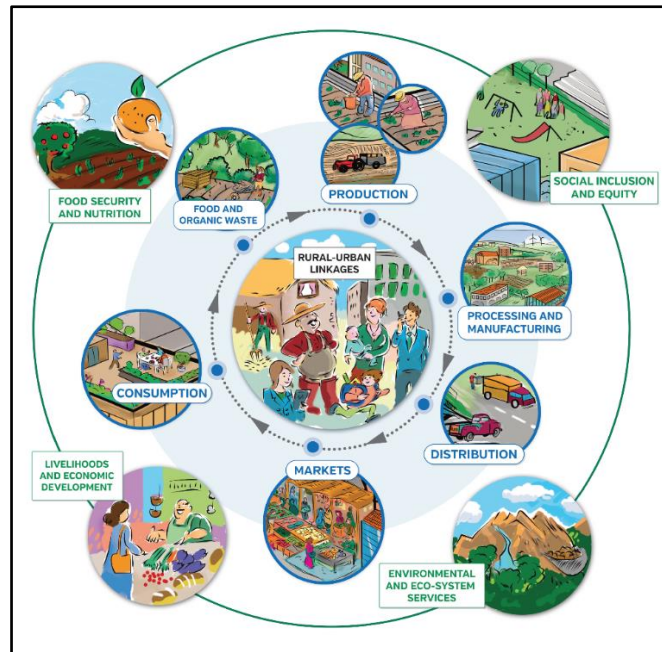
### Figure 1: The City Region Food System

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<sup>1</sup> Rodríguez-Pose A., The Rise of the “City-region” Concept and its Development Policy Implications. The London School of Economics and Political Science. European Planning Studies, October 2008

<sup>2</sup> This document uses the term ‘food value chain’ rather than ‘food supply chain’, while acknowledging that they are not strictly the same. A food supply chain consists of the activities, stakeholders and transactions through which food passes from production to consumption and waste disposal; a food value chain consists of coordinated value-adding activities that take place during some nodes of supply chain, resulting in food products.





In addition, CRFS is inter-dependent with a number of other sectors and systems (e.g. public transportation, road network, electrical power system, telecommunications, fuel supply, transportation, storage and distribution). The smooth functioning of these systems supports the CRFS, while any problems in these systems will impair the functioning of the CRFS<sup>3</sup>.

#### Inner circle: food value chain

The inner circle shows the value chain nodes of production, processing and manufacturing, distribution, markets, consumption, and food and organic waste. The dotted line and arrow show the general direction of travel of foodstuffs through the value chain (although waste occurs at every value chain node and not just post-consumption). We understand that impacts on the actors and activities at each node have repercussions elsewhere in the value chain.

For example:

- If a food crop fails due to impacts of a hazard, this will have immediate implications at the **production** node. It will also affect quantities that are available for **processing/manufacturing** and **markets**, and eventually for **consumption**. This is likely to result in higher prices throughout the value chain, as demand outstrips supply and other, more distant (national or international) sources are sought to make up the shortfall.
- If **distribution** channels are impacted by a hazard (e.g. flooded roads, fuel shortages), the **production** node will be affected as farmers will have no means to get produce to market. Post-harvest loss of perishable produce will lead to more **food and organic waste**. **Markets** and **consumption** will also be affected by a food shortage (likely accompanied by price increases).
- If **consumption** patterns change as a result of a hazard (e.g. residents stopping eating meat because they believe it constitutes a pandemic infection risk), there will be knock-on effects on demand and livelihoods at all the other food system nodes.

<sup>3</sup> Zeuli, K., Nijhuis A. and Gerson-Nieder, Z. 2018. Resilient Food Systems, Resilient Cities: A High-Level Vulnerability Assessment of Toronto's Food System. [http://icic.org/wp-content/uploads/2018/07/ICIC\\_Toronto-Food-System\\_FINAL.pdf](http://icic.org/wp-content/uploads/2018/07/ICIC_Toronto-Food-System_FINAL.pdf)





### Outer circle: contextual components

The outer circle shows the components relating to livelihoods and economic development, food security and nutrition, social inclusion and equity, and environmental and eco-system services. These components both condition the actors, processes and relationships at each of these nodes and/or are affected by them.

The outer circle components can also affect each other. For example:

- **Livelihoods and economic development** affect **food security and nutrition** because poor livelihoods and lack of economic opportunities mean people cannot afford nutritious food.
- **Social inclusion and equity** affect **livelihoods and economic development** because some people are excluded from educational or economic opportunities that would enable them to have a viable livelihood, thereby contributing to local economic development.
- **Food security and nutrition** affects **livelihoods and economic development** because people who are malnourished are unable to achieve their full educational and economic potential.
- **Environmental and ecosystem services** affect **livelihoods and economic development** because pollution or degradation of resources such as soil and water affect the quality and quantity of produce that farmers can grow.

### Connecting the circles in the CRFS diagram

Recognising the connections and interdependencies between components in the outer (contextual) circle and those in the inner (value chain) circle of the CRFS, as well as connections between components in the same circle, enables us to understand:

- i) How the current state of, or policy related to, food security and nutrition, social inclusion and equity, livelihoods and economic development, and natural resources and ecosystem services in the city region can affect the situations of actors (and their vulnerability and resilience capacities in the face of climate- or pandemic shocks and stresses), the processes they are involved in, and their relationships within the value chain.
- ii) How the outcomes<sup>4</sup> of activities and interactions in the food value chain can, in turn, affect the state of *food security and nutrition, social inclusion and equity, livelihoods and economic development, and natural resources and ecosystem services* in the city region.

The activities and interactions in the food value chain are likely to be better (greater success for stakeholders, sufficient quantity, good quality, fairly priced, etc) when vulnerabilities of stakeholders, infrastructures and ecosystems within it are reduced and resilience capacities increased.

Some examples:

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<sup>4</sup> For example, the viability of stakeholders' livelihoods; the characteristics of the food itself, such as quantity, quality, type, nutritional composition, safety, fair and affordable price





- **affect consumption**, because people who are food secure are able to acquire and consume adequate, nutritious, safe food.
- are **affected by production, distribution, processing and manufacture, and markets** because activities at each node and fair exchange relationships between them result in sufficient quantities of good quality, nutritious, safe food at fair and affordable prices.



- affect **production**, because people who are excluded / suffer inequity (e.g. on the basis of gender, religion, age, socio-economic status etc) may lack access to land, inputs, information, skills/education, and markets for their produce.
- affect **distribution, processing and manufacture, markets, food and organic waste**, because people who are excluded / suffer inequity may lack access to opportunities, including finance and knowledge/skills for diversification of activities.
- **affect consumption** because when people are excluded or suffer inequity in practicing economic activities there is less household income – and less money to buy food. Inequality within household can mean some people are prioritised in food distribution (e.g. on basis of gender, age).
- are affected by successful economic activity in **any value chain node**, as having an income gives a person higher standing in society. Where exclusion or inequity are based on socio-economic status, having an income can break the cycle.



- affect the business environment at **all food value chain nodes** because a thriving local economy means there is more likely to be support and business opportunities available.
- are affected by activities at **all value chain nodes** because a business' ability to make a profit, provide jobs, and purchase inputs from the local area all contribute to the local economy.
- are affected by **consumption**, because people who consume adequate nutritious food are more likely to fulfil their educational potential and are less likely to suffer ill health, enabling them to have a viable economic activity.





- affect **production** as they regulate climate, water flows, and water purity/quality. If the environmental and ecosystem services are disrupted due to the degradation of local/regional ecosystems, food production can be impacted. Ecosystems also serve as also act as natural buffers against climate shocks, such as healthy flood plains and forests that can absorb excessive rainfall, thereby avoiding flooded farmland and crop loss.
- affect **all value chain nodes (e.g. distribution, processing and manufacture, markets, food and organic waste)** as well as inter-dependent systems because the service of flood impact prevention can reduce the impact of hazards on infrastructure and assets.
- affect **processing and manufacture**, which requires a lot of fresh water. For healthy ground water to be available to meet this need, rivers and soils must be healthy.
- are affected by **production, distribution, processing and manufacture, markets, food and organic waste** because activities/practices can harm or protect the environment. For example, use of pesticides and fertilisers on farms can cause chemical run-off into ground water; and food and organic waste management can impair ground water quality.

Moreover, each component may condition or be affected by multiple other components, with connections either acting in synergy to shape the situations, activities and relationships, or counter-act each other.

For example:

- A smallholder farmer may lack access good agricultural land – for economic reasons and/or because of social inequity or exclusion on the grounds of race, religion, age, gender, etc. They may, however, have access to land that is flood prone, contaminated, or has poor soil fertility, all of which have a negative effect on production.

In this case, **livelihoods and economic development** and **social inclusion and equity** have a synergistic negative effect on **production**; poor **production**, in turn, affects the farmer's **livelihood**.

- E.g. Separation and composting of food and organic waste – as opposed to sending it to landfill – reduces release of greenhouses gases from landfill sites and contamination of soil from toxic leachates. The application of compost by farmers at the production node also helps build soil fertility. Meanwhile, however, if the same farmers also use excessive pesticides, this may lead to infiltration of harmful chemicals into soils and groundwater

In this case, **food and organic waste** and **production** can have synergistic positive effect on **environmental and ecosystem services**, while some elements of **production** practices can counteract the benefits.





The above simple examples are provided for the sake of explanation. Many more connections between food system components exist in real life, some of which are unique to the setting or to the value chain. The activities in section 4 will enable stakeholders to identify locally-applicable connections, some of which may be more complex.

## 2 Implications for CRFS project activities

The benefits of taking a food system approach are:

- i) to help stakeholders visualise and take into account the ways in which components condition and are affected by each other;
- ii) then, to identify the ways in which stakeholders might leverage these connections to positively impact sustainability and resilience of the CRFS.

The connections between the outer (contextual) and inner (value chain) circles mean it is very important to take **both circles into account in all activities, throughout the CRFS process.**

In particular, the connections should be highlighted in the following key activities:

### 2.1 Stakeholder mapping / inception workshop

Core project teams initially need to understand the connections between the outer (contextual) and inner (value chain) circles if they are to identify and map all relevant CRFS stakeholders, and invite them to participate in multi-stakeholder meetings. In order to understand risks by climate and/or pandemic shocks and stresses to the food system, it is also important to invite stakeholders who are involved in risk management and resilience building (e.g. national disaster management agencies, etc.).

Moreover, stakeholders whose day-to-day work is related to the contextual components must themselves understand the impact of their work on food value chains on the one hand, and the effect of food value chain outcomes on their core work objectives on the other. This is key to securing their initial engagement and retaining ongoing engagement in the project, as they will recognise how decreasing vulnerabilities and increasing coping capacities within the CRFS can help them achieve their objectives.

See Activity 1 in section 5.1 below for how to involve the stakeholders directly in understanding how the food system works and their place and role in it, within a workshop setting.

### 2.2 Determining priorities and indicators; preparing for the in-depth assessment.

#### *Understanding wider contextual relevance*

Following identification of the priorities for building CRFS sustainability and resilience to climate and pandemic hazards, the most relevant indicators will have been selected and customised as part of preparing for the in-depth assessment.







While the indicators need to connect to specific priorities and desired outcomes that mostly relate to the various food value chain nodes, overall they all also connect to wider purpose – to improvements that relate to one or more of the contextual components. An indicator might appear as only relevant to one set of stakeholders, but in fact it is relevant to a much wider group of stakeholders in terms of desired outcome and overall purpose.

Consequently, when stakeholders are drawing up priorities for the in-depth assessment and selecting, adjusting or developing indicators, it is important to bring the priorities and indicators' 'hidden' relevance to the contextual (outer) components to light, in order to avoid:

- an exclusively value chain approach that overlooks contextual components;
- disengagement of actors located within the contextual (outer) circle of the CRFS;

Example 1: A **food production** indicator:

- Indicator: An increase in the number of farmers who have adopted new risk-sensitive farming practices.
- Desired outcome: National food production sub-sector has the capacity to withstand climate shocks/stresses.
- Wider contextual relevance: a more secure food supply, a more secure natural environment, more secure livelihoods from the farmers through to traders.

Example 2: A **food storage** infrastructure indicator that appears to be quite specialist and technical:

- Indicator: An increase in the number of food distribution centres and warehouses located outside areas that are exposed to likely hazards.
- Desired outcome: Distribution centres and warehouses store (surplus) food in *safe, hygienic conditions that are secure* from the impacts of hazard.
- Wider contextual relevance: greater food security, steady supply of food into markets keeping the food economy & livelihoods operational, avoidance of losses and any polluting consequences for the natural environment.

Example 3: An indicator that is focussed on **food retailers and meal providers**

- Indicator: An increase in the number of food retailers and meal providers involved in communications and preparedness planning for climate events.
- Desired outcome: Food retailers and meal providers are able to keep safely operating in times of crisis.
- Wider contextual relevance: safe provision of food by retailers and meal providers (eg school canteens) means food security and nutrition, and social inclusion and equity, are safeguarded or improved. As a result, beneficiaries have greater capacity for coping with other challenges, such as maintaining employment and livelihood.

Identifying drivers of vulnerabilities

When we ask *why* a certain vulnerability exists, the answer often lies within the contextual (outer circle) components.

It is important that stakeholders are able to identify *not only* vulnerabilities within the CRFS *but also* the drivers or causes of those vulnerabilities, which can be located in all parts of the food system.







Only when the drivers/causes are identified will it be possible to effectively address the vulnerabilities.

For example:

- Why have some farmers not adopted new risk-sensitive farming practices?  
Because marginal farmers and certain socio-economic groups (e.g. women, elderly farmers) are not eligible for financing to invest in the equipment needed (**social inclusion and equity**);
- Why is key food storage infrastructure located in areas that are exposed to hazards?  
Because the land prices are cheaper near the flood plain and historically this area has been the focus of large warehouse developments (**economic development** context of land prices and investment choices);
- Why are food retailers and meal providers not involved in communications and preparedness planning for climate events?

Because the agencies convening this work are more focussed on the **environmental and ecosystem** issues resulting from a climate hazard, and overlook **social inclusion and equity** aspects (and do not include stakeholders working in this area).

Therefore, changes within the contextual components have the potential to reduce vulnerability and increase resilience capacities – and vice versa.

See Activity 2 in section 5.2 below on how to identify relevance of priorities and indicators to contextual components in a workshop setting.

### 3 Action planning

All stakeholders, in both the (inner) value chain and (outer) contextual circles, need to understand how addressing vulnerabilities and coping capacities within the CRFS can contribute to advancing objectives of their core role or organisations – even if those objectives are not ostensibly food related.

This understanding is required before solid arguments can be made to invest time and resources, and to develop policies, programmes and actions that will make a material impact on vulnerability and coping capacities across the CRFS.

See Activity 3 in section 5.3 below on how to enable stakeholders to understand how they might address the problems through their organisations/departments and day-to-day work.





## Annex 1: Further reading on food systems

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