

Working paper

Case-based learnings [Urban] food systems Uganda

Feeding Cities and migration

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Wageningen, December 2020



This research was carried out by Wageningen University & Research within the context of the KB-motif 'Feeding cities and migration settlements' as part of the programme Food Security and Valuing Water (KB-35-002-001) and was subsidized by the Dutch Ministry of Agriculture, Nature and Food Quality

Rooij, L.L.¹ de, Pittore, K.², Linderhof, V.³, 2020. *Case-based learnings [Urban] food systems Uganda - Feeding Cities and migration*. Wageningen, Wageningen University & Research

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This report brings together the exploration and the main findings of the case-based learnings in the perspective of the food system approach and transition pathways for Uganda. As part of the project Feeding Cities and migration settlements -dedicated to gain a better understanding to create sustainable, resilient urban food system- three different cases studies have been explored and reflected along the wider food system approach and each other. Next to Bangladesh and Kenya, one of the case studies is Uganda.

Keywords: Uganda, food system approach, migration, city region food system, food security

Acknowledgements

We thank Nina de Roo of Wageningen Centre for Development Innovation for the guidance, assistance and review in the process of this case-based learnings and her valuable insights which link this case-based learnings to transformative pathways.

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The pdf file is free of charge and can be downloaded at <https://doi.org/10.18174/536750>

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Photo cover: *Outskirts of Kampala* (Photo credits: Wageningen Environmental Research)

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Food vendors Kampala
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Summary

Cities all around the world are ever-expanding and becoming more complex in terms of logistics and administration. These cities need a robust and sustainable food system to secure food for everyone with enough healthy food. But how do you feed growing cities? How do you strengthen their connections with the surrounding farmland and how can sufficient nutritious food be produced? More knowledge is needed about the dynamics of urban food systems and their interaction with the surrounding areas. The project Feeding Cities and migration settlements is dedicated to gain a better understanding to create sustainable, resilient urban food system. Within the project three different cases studies have been explored and reflected along the wider food system approach and each other. Next to Bangladesh and Kenya, one of the case studies is Uganda. This report brings together the exploration and the main findings for Uganda.

While Uganda still has a relatively small urban population (25% of the total overall population); this is projected to increase to 50% by 2040 (World Bank 2020). Kampala is one of the fastest growing metropolitan areas in Uganda, a country that is still predominated by agriculture. Besides Kampala, the importance of secondary cities is currently fully in sight.

The starting point in this case-based learning are the different projects Wageningen University and Research are already involved in Uganda. These differ in scale and scope. In short, the following questions are raised:

- Which insights derive from using a food systems perspective in projects?
- Are there clear linkages between regions and projects within the food system perspective within Uganda?
- What is the role of secondary cities in the food system perspective and in supporting urban food security in Uganda?
- What does this mean in view of food system transitions, future strategies and interventions?

With a structured analysis for food systems transitions, reflections of the different projects and a common understanding of practice and policy are made on the role in and the means of the food system perspective and approach and food system transition and pathways. There are differences in focus and approach, but also clear similarities. Most of all, the major lessons-learned and gaps are highly relevant for all activities and future strategies and interventions.

To summarize, the implications of or conditions for activities in the projects from a broader food system perspective are currently not seldom included. Secondly, limited insight is shown in the connection or non-connection between the regions and all the area and secondary cities in between. Thirdly, there is still a gap between the formal structures, policies and insights and the informal. And when looking at the policy frameworks in which actions take place there is a large difference on how 'food' finds it way. Finally, the real challenge is often beyond the direct food system itself, but is strongly impacting the food system.

The different case studies together highlight that especially the alignment and awareness should be raised that they all matter in the broader food system perspective and the urban-rural linkages alike. Connects themes, connect scales and connect people... and perhaps connects formal and informal, but within its own action perspective. Scale, space and connections do matter.

To conclude, the food system approach should and could facilitate this, when put in the proper position in project implementation, policy and governance.

1 Introduction

Cities all around the world are ever-expanding and becoming more complex in terms of logistics and administration. These cities need a robust and sustainable food system to provide everyone with enough healthy food. But how do you feed growing cities? How do you strengthen their connections with the surrounding farmland and how can sufficient nutritious food be produced? More knowledge is needed about the dynamics of urban food systems and their interaction with the surrounding areas.

Within the 2019-2022 KB programme '*Food Security and Valuing Water*', the project '*Feeding Cities and migration settlements*' aims to gain a better understanding of, and therefore a better grip on, urban food systems while paying particular attention to the impact migration has on food security to create sustainable, resilient urban food systems. The Water-Food-Energy-Ecosystem Nexus plays an important part in meeting these challenges, but most of all the development of clear food system transition pathways. For this purpose a parallel KB-project dedicated to these pathways and the development of a transition support system is also clearly linked to this project and its activities (Elzen et al. 2020).

In 2019, the project '*Feeding Cities and Migration settlements*' explored valuable concepts and methodologies for a better understanding of the dynamics of urban food systems and migration settlements (Van Berkum, 2020), the spatial dimensions of urban food systems (De Rooij, 2020) and City Region food systems governance (Roosendaal, 2020). Close connections were already made with different potential case studies in Uganda, Kenya and Bangladesh.

Based on these further understanding, the activities in 2020 were dedicated to make a deep dive in the case study areas, reflect on the lessons learned across the three case studies finding similarities and differences in focus and approach and link these lessons-learned with transformative pathways and the food system approach. The case studies each have a unique focus and entry point, but are connected by the way these focus and entry points are placed and reflected in the broader food system approach. In Kenya, the case study starts from the activities and perspectives in a slum in Nairobi, in Bangladesh, the case study relates to an analysis of the metropolitan food system of Greater Dhaka and in Uganda the aim is to reflect different rural and urban projects and their possible relationship in a food system perspective.

This report brings together the main outcomes of the exploration of the case study Uganda. From a food systems perspective and enriched with insights from the case-based learnings, we aim at unraveling the challenges of the (urban) food systems in Uganda and work towards strategic interventions at different scales and across sectors and food system dimensions. A start towards strategizing Ugandan food systems has been made, based on the outcomes of this case-based learnings and together with strategic stakeholders in Uganda. In November, two dedicated webinars were organized. The report of the these webinars can also be found in the series of reports of this KB-program.

The main objective of this exploration was to provide input for an initial narrative of the case studies and reflect which lessons can be derived in valuing the food system approach and reflection on food system transition pathways in urban areas and migration settlements.

The main research questions for this project were:

- Which insight derive from using a food systems perspective in projects?
- What are useful tools to work on food system transitions? Which have been used and which tools should be further developed?
- Which potential strategies, actions and (transition) pathways are in place or should be developed further?

More specifically we would also reflect on the potential linkages between different urban and rural projects in a food systems perspective:

- Are there clear linkages between regions and projects within the food system perspective within Uganda?
- What does this mean for future strategies and interventions?
- What is the role of secondary cities in the food system perspective and in supporting urban food security in Uganda?

The outcomes of this specific case-study of Uganda will be reflected together with the outcomes of the case-study learnings from Bangladesh (Dhaka) and Kenya (Nairobi -Kibera) as input for the related KB-project Transition Pathways. Vice versa this project will also provide valuable reflections in bringing the case studies, the projects and -last but not least- the urban food systems to the next level.

Reading guide

In chapter 2 a broad perspective and analysis is presented on (urban) food systems in Uganda and the overall challenges of these (urban) food systems. Chapter 3 is dedicated to the analysis of specific case studies and in chapter 4 the main conclusions about these case studies in the overall perspective of (urban) food systems in Uganda are presented. Finally, in chapter 5 reflections are made on these outcomes in the light of the food system perspective and transitions.

What to consider a transition?

In the program Food Security and Valuing Water and in this specific project Feeding Cities and migration the food system approach and transition pathways play crucial roles. But what do we consider a transition?

- ✓ Taking a food systems transition perspective implies we consider radical forms of change which affect not only the production side but also the consumption side and governance arrangements as transitions.
- ✓ A critical aspect of a transition is that not only technology changes but also various non-technical aspects of a system (e.g. social relations, governance, ...).
- ✓ A transition process is non-linear, difficult to predict in detail, and per definition involves/implicates many parties (actors).
- ✓ Controlling the process of a transition as a whole is impossible, even if someone would want to (Grin et al. 2010).
- ✓ Some examples of historical transitions are the industrial revolution and the rise of capitalism. More recent examples of on-going transitions are the energy transition (in the Netherlands) or the modernization of agriculture in many LMIC (including mono-cropping and market integration).



2 Urban food systems in perspective

While Uganda still has a relatively small urban population (25% of the total overall population); this is projected to increase to 50% by 2040 (World Bank 2020). Kampala is one of the fastest growing metropolitan areas in Uganda, a country that is still predominated by agriculture.

Agriculture is one of the main sectors of the economy of Uganda. Around 70% of the working population is employed in agriculture (UBOS), but mainly on a subsistence basis. Almost 80% of Ugandans rely directly on land, agriculture and fishing for their livelihood. The primary livelihood strategy for the majority of the population is subsistence agriculture as there are high levels of poverty. Living below the poverty line, people are trapped in the vicious circle of poverty, and do not have many prospects to leave poverty.

Over 71% of the land in Uganda is used for agriculture, and the agricultural land is divided into three main categories :47.8% arable land, 36.8% pastures, and 15.2% permanent crop land. Despite favorable climatic conditions and soils, good agricultural practice is still limited. Major subsistence crops are plantains, cassava, sweet potato and maize, while coffee, tea, tobacco and cotton are key export products. Most food production takes place at smallholder and subsistence level. Productivity levels are relatively low and availability is highly seasonal. Only one third of the crop production is marketed and less than 7% is exported (CIAT, 2017). Over 85% of farmers sell crops directly in local markets (FAO, 2019).

Market information systems, market access and limited post-harvest activities hamper a structural food system; in general, but also in rural-urban linkages. The developments of the agricultural sector, the value chain and market uptake are low.

Nevertheless, Uganda is self-sufficient in terms of staple foods and plays a major role in regional food supply and trade. Staple foods are exported to neighboring structurally deficit countries like Kenya, South Sudan and DRC (FEWS, 2017). Within the country there is wide variability in terms of surplus, adequacy and deficiency among different commodities. Often agriculture and economic development strategies employment strategies seem often decoupled in policies. Nevertheless the country has potential to develop a vibrant food system which contributes to healthy diets.

The National Agricultural Policy of Uganda (MAAIF,2013) as well as the third National Development Plan 2020/21-2024/25 (NPA, 2020) has been focusing on supporting a transformation from small scale, subsistence level agriculture to support households to be able to earn consistent and reliable incomes from farming. Additionally, this policy seeks to support nutrition and food security for the Ugandan population by focusing on support for better links to agro-processing, storage infrastructure, and improved food handling, marketing and distribution which can facilitate better links to domestic, regional and international markets (Mugagga, Kakooza, and Asiimwe 2018). This policy provides a strong foundation for supporting city-regional food systems.

2.2 Greater Kampala and secondary cities

In 2018, 23.8% of the total population of Uganda was living in cities and urban areas (WorldBank, 2018). The Kampala metropolitan area is by far the largest urban concentration and characterized by largely unplanned urban expansion. Recently, the government of Uganda designated five Regional Cities and five Strategic Cities (Arup (2016)). These secondary cities should play a role in the functional hierarchy and functioning of an urban network also in relation to Kampala and aim to facilitate and catalyze the overall development of Uganda (Arup, 2016; Roberts and Hohmann 2014). Besides the capital and its metropolitan area and the designated cities, Uganda counts over 200 formal appointed urban centers with a median population size of 24.000.

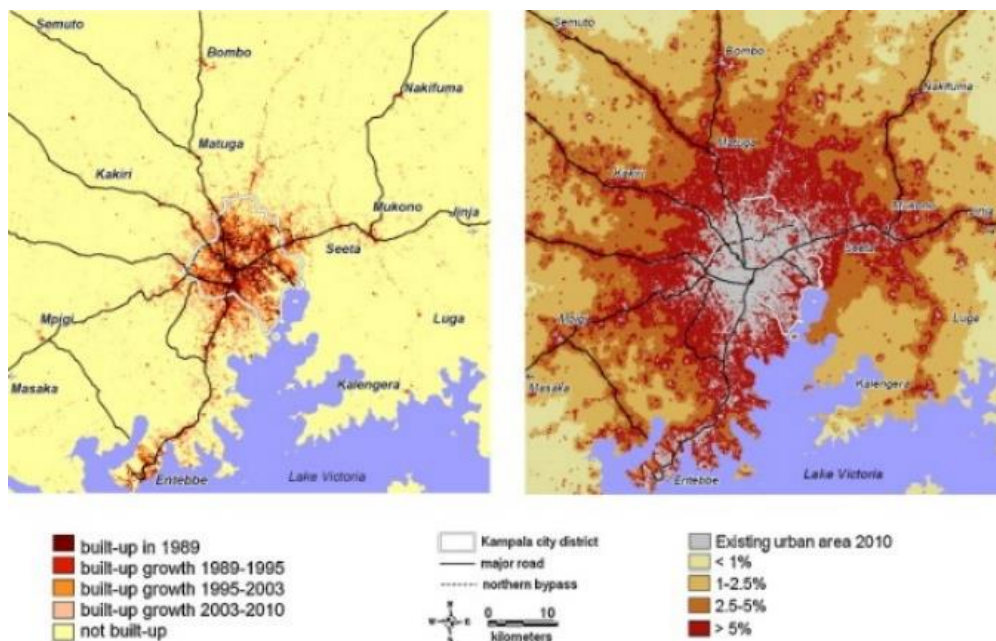


Figure 1: Urban expansion Kampala 1989-2010 (Vermeiren, 2012)

The differences in population densities and population number between the secondary cities (designated and non-designated) and Kampala are strong.

2.2.1 Kampala

The metropolitan area of Kampala covers approximately 8,500 km² and home to almost 6.7 million residents. In policy and strategies most commonly, the term Greater Kampala Metropolitan Area (GKMA) is used, which comprises of Kampala City and the neighboring districts of Mpigi, Wakiso and Mukono, as well as the municipalities of Entebbe, Nansana, Kira, Mukono, and Makindye-Ssabagabo.

The city itself is home to near 2 million people. Population densities are estimated to an average of 8.7 persons per km² in the capital city to an average of 794 persons per km² in the metropolitan area, see Figure 1. The urban infrastructure is heavily challenged. Encroachments of wetlands and floodplains put communities and the urban system at risk and value chains and food flows are far from efficient with the majority of food flowing through informal value chains.

In the Strategic plan 2014/15-2018/19 (KCCA, 2014), KCCA has specified different strategies and interventions regarding food and food security. At first, urban agriculture was promoted in order to boost local (resource efficient) production and improve local food self-sufficiency. It was noted that current agricultural operations are poorly organized resulting into low productivity and low incomes. Secondly, food handling and compliance to a set of standards, including health standards (food safety) clearly where put forward.

Recently, the National Planning Authority (NPA) launched the Greater Kampala Economic Development Strategy 2020-2030 (NPA, 2019). This strategy puts forwards five strategic objectives and program areas:

- Competitive Economic Infrastructure;
- Conserve and protect environmental assets;
- Business support to transform the informal sector, create employment and economic growth;
- An unique center for tourism'
- Effective City and Local government Service delivery.

The subtitle ' United towards job creation, improved liveability and sustainable development in Greater Kampala' sets the scene. When diving into the strategy on food system related issues more deeply, food systems elements are included, but explicitly yet. In general, key elements are food trade and availability (market) and processing, but most of all job creation and sustaining livelihoods. Economic and social development are additional pathways to improve the prosperity of Greater Kampala which provides opportunities to improve food security in terms of food availability, food accessibility and food utilization.

Last but not least, Uganda hosts the largest number of refugees and internal displaced persons in Africa. Of the 44 million people living in Uganda, 1.4 million are refugees (UNHCR, 2020). Most of the refugee communities (1.3 million) are hosted in rural areas in concentrated settlements which also approach urban systems. The urban refugee population is estimated at 78.663 (UNHCR, 2020) of which the vast majority estimated to reside in the metropolitan area of Kampala and the real figures are expected to be much higher as many of them are 'of the grid'.

2.2.2 The role of secondary cities

While Kampala population is by far the largest urban population in Uganda, the Government of Uganda is prioritizing strengthening small and intermediate cities in the country, including by developing infrastructure (roads and railways) to connect these cities, and 4 international airports- to better connect Uganda to other countries, see Figure as well as Figure . This is also a key strategy for increasing food and nutrition security within Uganda and provide links between farmers and local, regional, national and international markets (Arup, 2016).

Infrastructure and comprehensive land-use planning seem key to "good" growth in Kampala and secondary cities, see Government of Uganda and the New Climate Economy Partnership (2016). In the report 'Achieving development ambitions' a scenario study shows the different opportunities and implications of an urban nation-wide strategy. The compact urban growth scenario, clearly connection regional perspective and the notion that "most of Uganda's cities and infrastructure is yet to be built" and "this is an opportunity now to shape it".

Figure 2: Depiction of the compact urban growth scenario. Source: Government of Uganda and the New Climate Economy Partnership (2016,

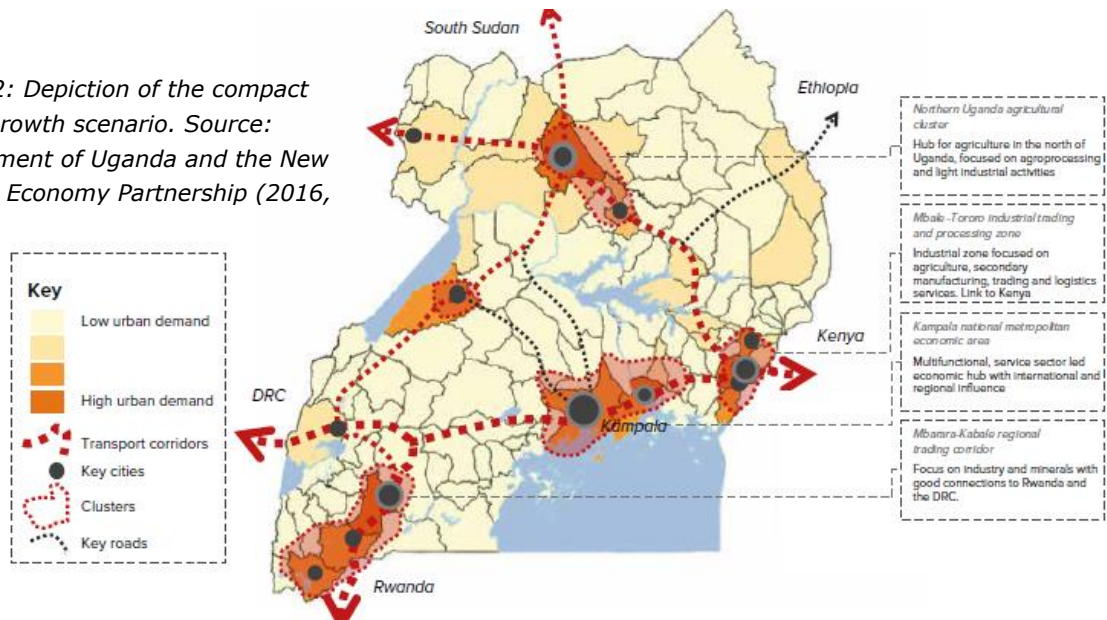
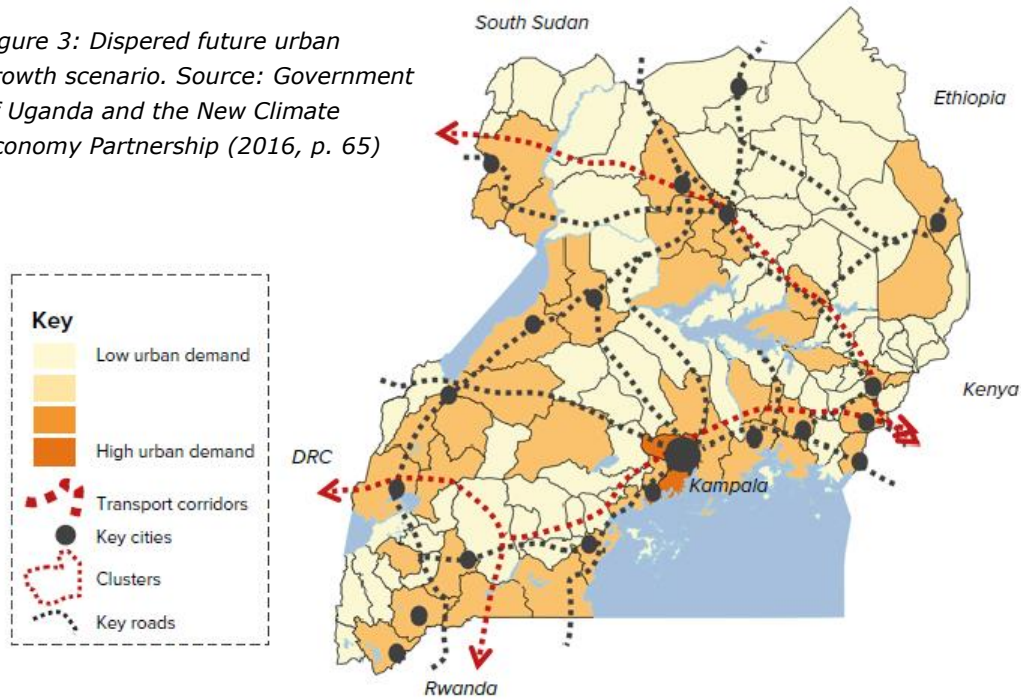


Figure 3: Dispersed future urban growth scenario. Source: Government of Uganda and the New Climate Economy Partnership (2016, p. 65)



In this case based learning study the secondary city Arua, in the North Western part of the country, is focal point. Arua is a small but growing city, which is of interest for a number of reasons:

- Arua was established as one of 5 key regional cities in Uganda's vision 2040 plan, meaning that the city provides a range of key services for West Nile
- Arua is strategically located, near the border of DRC (15 km) and South Sudan (75 Km), making the city a key trade hub for the region. This trade is also important for the Ugandan economy, which has been negatively impacted by the ongoing political unrest in South Sudan.
- The location of the Arua near the borders of both DRC and South Sudan also means that the district hosts a sizable refugee population due to political instability in the surrounding countries. This refugee population creates both advantages and challenges for local development. On the one hand it facilitates linkages and trade with neighboring countries, on the other hand it creates additional strain on local services which are unable to meet the demands of the local population.

Arua was, until recently, quite cut-off from the rest of Uganda as a result of the long term conflict with the Lord's Resistance Army. This means that Arua still suffers from poor service provision (the city was only connected to electricity in 2018 and much of the population still does not have access). At the same time, the strategic location of the city means that there is interest in developing in the city as a regional hub and to facilitate trade with neighboring countries, including building an international airport and train connections to neighboring countries (Arup 2016).

In 2018, Arua supported by UN Habitat and the Ministry of Land, Housing and Urban Development identified six key priority areas related to improving sustainable development in Arua. Two of these related to supporting development of the food system. These are developing Arua as a trade and transport hub and supporting the economic potential of Arua and West Nile region, especially in terms of agricultural production and processing (MLHUD/UN Habitat, 2018).

Uganda has a highly decentralized government, which was established with the 1993 Decentralization statute, which was followed up with the Local Government's Act of 1997 which made local governments responsible for ensuring that government policies were implemented. However, while decentralization was implemented to try to improve service delivery, many Ugandans do not feel that services have been improved in the last 20 years since decentralization

was introduced. Decentralization was also part of broader reforms driven by the neoliberal agenda that increased the role of markets and the private sector (Maractho 2017).

2.3 The overall challenges of (urban) food systems

Based on the several available national and regional policies and current actions no comprehensive challenges are set aside. Besides national and regional policies, we looked at several donor strategies and support strategies.

The following key challenges or key focus areas come forward in the (urban) food system:

- job creation;
- development of good agricultural practice and surplus (increase production and sustainable development; improved education and standards);
- development of value chains (and infrastructure);
- transformation from informal to formal;
- private sector involvement and commercialization;
- food safety and compliance;
- improved livability, livelihood conditions and natural resource management.

Although key words come forward in the strategies and actions, practice and policies were hardly linked. For example, the proper development of post-production activities could or should also be a primary incentive for good agriculture and practice. And compliance to standards in production was crucial for both food safety and commercialization, and as such for better development perspective and value. From the (urban) food system perspective it was clear that working with these linkages will add future value to strategizing food futures for Uganda. And last but not least, it is also about meeting at different scales. This is why in this case-based learning exercise, we will not focus on one specific project, but will put four projects in which Wageningen University & Research as been involved in the overall perspective of the (urban) food system framework (Van Berkum et al. 2018), see Figure .

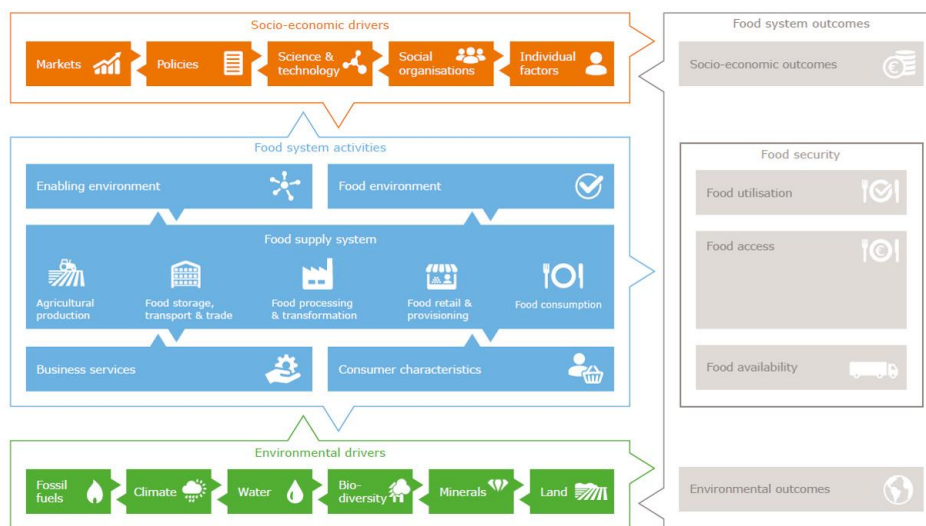


Figure 4: Food system framework (Van Berkum et al. 2018)

2.4 Four case studies across the country, across scales and across the food system

In the next chapter we will deepen four different cases in which Wageningen University & Research is involved. These cases illustrate different projects at different scales, places and with different entry points in the food system approach. Together they provide specific insights not only case specific, but also towards potential linking pins and knowledge gaps.

This case-based learning activity will focus on four projects, which have been conducted in Kampala or Arua, see Figure 5:

- LEAP agri Nouricity -case Kampala
- NIGI West Nile, Uganda
- Improving food systems in less-favoured areas in East Africa
- OKP Training4GreenJobs

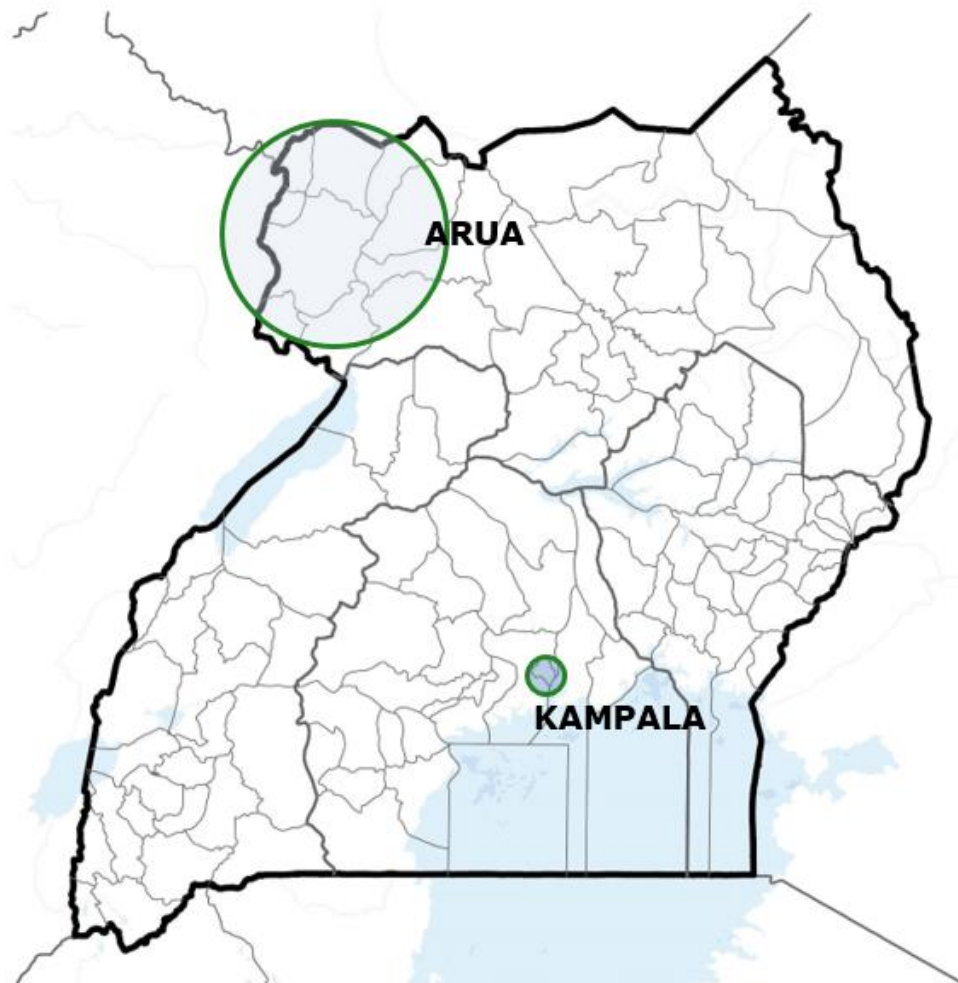


Figure 5: Map of project locations

This selection is purely based on current involvement of WUR researchers without the intention of being complete. It is meant as a starting point and we would be keen to enrich the case-based learning exercise in the future with third party cases, but most of all it is meant to feed the discussion and provide an overview. Each project and case has a specific focus or issue and in this case based study it is especially analysed on how this links. Last but not least, it is already interesting to note that of the four projects, only one is dedicated to and in metropolitan area itself. The projects will be presented in the next Chapter.

3 The case studies in perspective

3.1 NOURICITY (LEAP-agri)

Area: KAMPALA
Project scale: Neighborhood (Kanyanya)

Relevance: This project dives into a food system perspective and analysis at a neighborhood level, with the starting point understanding malnutrition and its drivers. How does this relate to the broader food system perspective of Kampala and addresses urban-rural linkages?

This NOURICITY project aims to investigate the structure and dynamics of urban food systems in Africa (including rural-urban food value chains), to reveal the co-existence of different facets of malnutrition and their drivers, for a transect of poor to moderately wealthy countries, settlements and neighborhoods, and to develop partnerships for coherent, nutrition-sensitive policies. One of the cases is Kampala (Kanyanya pilot), see Linderhof et al. (2020).

The research is investigating:

- Urban food sources, characteristics and rural-urban linkages as systemic drivers of food choices and nutrition;
- Peoples access to nutrition-related knowledge (formal and informal, indigenous and Western), income, food tastes, habits and culture, as individual drivers of food choices;
- How systemic and individual drivers determine peoples food consumption and nutrition status;
- Food flow mapping: where is the food produced that is supplied to Kanyanya;
- Partnership establishment between stakeholders.

An important objective of the project is also to initiate and implement partnership agreements between different local, national and international stakeholders to improve the urban food system.

NOURICITY	
Region/urban area	Kampala, Kanyanya (Kawempe division)
Period	2019-current
Focus area	Food flow mapping and common understanding drivers and barriers
Main implementers	Wageningen Economic Research, Bioversity International and BoP Innovation Centre
	Supported from Netherlands Ministry of Agriculture, Nature and Food Quality, CGIAR

Table 1 Project outlines Nouricity

The main sustainability (or SDG) or food system challenge(s) that the NOURICITY projects aim to address were derived from stakeholder consultation (Linderhof et al. 2019) and are presented in the table below (Table 2).

Type of challenge	Challenge	
Food security	Availability of healthy food	-transportation too long without cooling (fresh products) -limited food processing -limited cooling storage capacity -high seasonality -traditional cooking methods affect nutritional values
	Affordability: price of food	-high prices and low incomes (see economic aspects)
	Food safety	-presence of pesticide residues in food -unsafe processing of food by street vendors
Economic	High food prices High unemployment rate especially amongst youth	
Environmental	Lack of safe water for cooking/preparation Energy availability (charcoal)	
Social	Education, sensitizing and training Criminal areas in the neighbourhood due to high unemployment etc.	

Table 2 The food system challenges addressed in Nouricity

The dominant challenge by the majority of the actors involved in the case is food safety, affordability and availability of nutritious food.

The basic idea is to start interventions to improve the consumption of healthy and safe food at local level. Interventions should be structural, and social acceptance is crucial, which is why involvement of local people and partners is used. With partnerships between stakeholders, interventions should be continued after the realisation of the project. The parish Kanyanya could serve as an example for other parishes in Kampala or in other cities in Uganda or abroad.

3.2 Nutrition and Income Generation Interventions (NIGI) for Refugees and Host Communities in West Nile Region, Uganda

Area: ARUA DISTRICT (West Nile Region)
Project scale: settlement and host community
Relevance: This project primary focuses on nutrition and food security combining a production perspective with self-sustainability and market development. Refugee settlements also show urban-like systems and organization. Which lessons-learned or activities could also be helpful in an urban context? And how does this project takes the wider food system perspective into account?

The Nutrition and Income Generation (NIGI) project seeks to provide innovative, sustainable and scalable solutions to improve the nutrition and food security for people in and around the refugee settlements in the West Nile Region. In particular to address the urgent need for available and locally produced nutritious food, particularly vegetables and fruits as well as access to quality inputs including seed.

The project support refugees in Omugo settlement (about 1 hour drive from Arua city) with small scale home gardens to supplement family diets; with host farmers in surrounding community to grow vegetables commercially; and with small seed businesses spread across West Nile region, who are producing quality seed improve local yields

NIGI

Region/urban area	West Nile Region (Arua district)
Period	November 2018 to December 2020
Focus area	Nutrition, self-sufficient agriculture and market development
Main implementers	Wageningen University and Research (WCDI, WUR Plant Research and Wageningen University and Research Uganda) ; East West Seeds Knowledge Transfer

Table 3 Project outlines NIGI

The main sustainability (or SDG) or food system challenge(s) that the NOURICITY projects aim to address are set in the table below (Table 4).

Type of challenge	Challenge
Economic	Job creation – the population of West Nile, like in the rest of Uganda, is very young and growing quickly (FAO 2019). There is a significant shortage of jobs, as well as necessary skills to perform jobs. The project seeks to provide expanded income generation activities for the local community, by providing necessary skills to become commercial vegetable farmers, providing farmers with new or more diversified income sources.
	Refugee integration to local economy- Uganda has one of the most welcoming refugee responses in the world (Government of Uganda and World Bank 2017). Newly arrived refugees are provided with a small piece of land, and are allowed to freely travel around the country. However, the overall challenge of jobs also affects refugees and there are limited opportunities for refugees to find formal employment (most jobs available to them are working for NGOs or the UN within the settlement) . While refugees are provided with cash or food for the first few years in Uganda, after 5 years they are expected to have found work or become self-sufficient in agriculture. The NIGI project provides skills to support refugees to increase their incomes through (commercial) vegetable production.
	Supporting the overall enabling environment for a thriving agricultural sector. Farmers lack access to high quality inputs, including seed. Development of improved agronomic practices should lead to an improved enabling environment for agriculture production.
Environmental	Preserving soil fertility – much of the land provided to refugees in West Nile region is of poor quality (very rocky, not very fertile). However, In the first few years of the project, vegetable farming has been more successful than expected because the land is “virgin” land and not previously used for vegetable production. In order to ensure longer term productivity, soil fertility must be carefully managed. WUR Plant Research is carrying out a number of soil fertility studies in both the settlement and host communities to understand what nutrients are present in the soil, what nutrients are being depleted by the project, and what needs to be added back into the soil to ensure long term soil fertility.
	Use of agronomic techniques to minimize water loss -access to water critical challenge, especially in the settlement area. In the learning site associated with the project, where we trial new seeds and practices, we focus on simple irrigation techniques and mulching methods to reduce water loss.
Social	High levels of undernutrition rates of undernutrition among young children in West Nile region are among the highest in Uganda; 34 percent of children 6-59

	months were stunted, and 56 percent were anemic in the most recent nutrition survey carried out (Uganda Bureau of Statistics (UBOS) and ICF 2018). In Arua the global acute malnutrition rate for children 6 to 59 months (a measure of recent levels of food security) was 10.3%, above the World Health Organization cut-off for a public health emergency; with other settlement areas in West Nile region also have high rates of acute malnutrition compared to settlement areas in other parts of the country. The project provides nutrition education, combined with knowledge on how to produce vegetables to support improved dietary diversity and nutrient intake.
	Peaceful co-existence and development between refugee and host communities. The project seeks to support strengthened ties between the host community and surrounding refugees in terms of collaboration for land (to farm), skills exchange and trading. This is part of the GoU strategy, and recent work by the FAO and UNHCR has found that projects can help in building and improving collaborations to enable integration and a peaceful co-existence

Table 4 The food system challenges addressed in NIGI

The dominant challenge by the majority of the actors involved in the case is creating sustainable livelihoods for newly arrived refugees, and supporting the development of agriculture in the region more broadly. Newly arrived refugees must find a way to support themselves. The additional population in the region provides some opportunities for the local population (new markets, etc) but also challenges regarding strain on agricultural systems.

3.3 Improving food systems in less-favoured areas in East Africa

Area:	ARUA DISTRICT
Project scale:	regional
Relevance:	The related KB project is trying to understand food systems and production systems with the aim of also developing strategies. How does this project make the potential link with urban perspectives nationwide or cross boundary?

This project focuses on the understanding of the food systems and production systems in less-favored areas in East Africa. One of the case studies is the West Nile-region in Uganda. Existing tools and models are linked and integrated for a better understanding and analysis. Based on the characterization location specific strategies are being developed, in consultation with local stakeholders to understand their needs and hopes for development of the food system

Improving food systems in less-favoured areas	
Region/urban area	Arua district (Arua town and surrounding host and settlement communities)
Period	2019-2022
Focus area	Good agricultural practice and production
Main implementers	WUR (WCDI, Plant Research, Food and Biobased Research, WEcR)

Table 5 Project outlines Improving food systems in less-favoured areas in East Africa

The main sustainability (or SDG) or food system challenge(s) that the NOURICITY projects aim to address are set in the next table (Table 6).

Type of challenge	Challenge
Economic	Food loss in the value chain
Environmental	Changes in land use Ensuring Soil Fertility Reduced forest cover
Social	Impact of instability on the behaviour of various actors in the system. As part of the KB work we are interested in exploring more about how the instability caused by various shocks to the system (migration in particular) influences the capability, motivation and behaviour of various actors- and how this influences other aspects of the food system. What is the impact on the fact that refugees do not own land and may leave on their willingness to engage in practices such as soil fertility or sustainable forest usage?

Table 6 The food system challenges addressed in Improving food systems in less-favoured areas

Arua was selected as a case study for the KB rural areas because we are interested to understand how a range of shocks including refugee influx, disease outbreaks (Ebola, and more recently COVID) impact the food system in a strategically important rural area.

3.4 OKP Train4Greenjobs

Area:	ARUA DISTRICT
Project scale:	regional
Relevance:	The Train4Greenjobs addresses the importance of value chain development, employment and education. On what way does this relate to the food system approach and the other projects?

The Train4greenjobs project stimulates collaboration between TVET education and Ugandan private enterprises in two mountainous areas with high horticultural potential: the West Nile and Western Regions. Train4greenjobs focuses on the vegetable and (seed) potato value chains in wetlands and highland areas. The goal is to develop a truly practical, labor-market oriented Diploma in horticulture. Supporting local training institutes are supported by funding coming for refugee response. Local training institutes need to come up with an innovative curriculum to attract longer-term funding and students willing to pay for courses (as they are better linked to labor market needs).

OKP Train4Greenjobs	
Region/urban area	Arua/ West Nile
Period	1 June 2019- 31 Dec 2020
Focus area	Education and agricultural practice; value chain development
Main implementers	The project is based on a partnership between MMU, Muni University, AAC and IABC (all in Uganda), and Wageningen University & Research, Zone College, Ecopolis Europa and Holland Greentech Uganda (all Dutch).

Table 7 Project outlines OKP Train 4 Greenjobs

The main sustainability (or SDG) or food system challenge(s) that the NOURICITY projects aim to address are set in the next table (Table 8).

Type of challenge	Challenge
Economic	<p>High levels of unemployment and disconnect between education and labour needs. Uganda currently has a lack of practical agricultural training that allows students to experience actual commercial farming and to gain insight into how to run a farm business. Much of the training that is provided is technical rather than practical meaning that students fail to gain necessary skills to find well paying, stable employment.</p> <p>Access to finance. Many recent agricultural graduates, especially women and those with a migration background, struggle to access finance to be able to set-up their own farms or companies.</p>
Environmental	<p>Environmentally friendly practices are introduced in the new curriculum Practices which prevent destruction of the environment and support sustainable farming techniques are included in the curriculum.</p>
Social	<p>Youth employment the new education curriculum seeks to address key challenge in the region/ Uganda- access to good jobs for youth .</p> <p>Support for female farmers to set up commercial farms by supporting access to land and finance)</p>

Table 8 The food system challenges addressed in OKP Train4Greenjobs

The dominant challenge by the majority of the actors involved in the case is the lack of properly skilled farmers to grow and professionalise the sector in a sustainable manner and youth participation is low. There is a mismatch between the agricultural skills needed/demanded (mainly by youth), the agricultural skills needed/demanded (by farmers), and the supply of training in those skills by existing service providers.

4 Conclusions

The different projects have been set out in the previous paragraphs. Clearly a distinction can be made between the Kampala City Region Food system and the Arua Food System. Our current involvement in the Kampala City Region Food System is at a starting point, while the involvement in the Arua region is broader and already at another level of involvement and uptake. The focus of the different projects is at different points within the food system framework. A highly participatory approach is at the very basis of most current projects. In the following paragraphs we have concluded the main findings divided in the Kampala food system and the Arua food system.

4.1 Kampala food system

The NOURICITY project is focussing on a consumer behaviour with respect to food consumption in one of the parishes in Kampala: Kanyanya. With the research of the effectiveness of an intervention to change consumer behaviour towards choosing more healthy and safe food, the case of Kanyanya is a pilot, which might serve – if successful - as an example for other parishes in Kampala, other cities in Uganda and perhaps other cities across Africa.

The core of NOURICITY is the group of citizens or food consumers in Kanyanya and their diets. In addition, the food flows to consumers are mapped backwards, thus from consumers to retailers to producers of food items. The starting point is the diets of people in Kanyanya rather than the value chain of a particular food product. Special attention will be given to food products that can improve the nutrition value of the diets like fish, fruit, vegetables for instance.

Drivers

- Socio-economic drivers: Kanyanya is a parish with many low-income households. They rely on food supply from outside Kampala. High unemployment rate especially under youth.
- Health: food safety is a threat to health of people. Preparation of food i(overcooking so that micro-nutrients in food are vanished).
- Environmental issues: polluted water sources, charcoal use. Waste collection and behaviour
- Awareness of what healthy (nutrient-rich) and safe food is low.
- Infrastructure in Kampala is insufficient. Congestion makes transportation of food especially perishable food to parishes within Kampala very cumbersome, because cooling storage and transport are uncommon.

Outcomes

Food security is low. Diets are not diverse. COVID19 will have worsened the situation as it relies on food supply from outside the city. Food aid from the government might be available.

Actors and stakeholders (Linderhof et al. 2019)

- Citizens of Kanyanya
- Private sector, such as Nutreal Ltd, and local retailers (no supermarkets)
- Farmers (urban agriculture)
- Local government such as KCCA
- Local and international NGOs
- Dutch embassy
- National government such as MAAIF, MoH (Ministry of Health)

Supermarkets and local food processing companies like a fish factory have not been involved.

4.2 Arua food system

In Arua the majority of our projects focus on the agricultural production side.

- Constant shocks to the food system- from natural factors (drought, increasing temperatures), human/ social (conflict leading to increased migration from neighbouring countries) and disease (Ebola, malaria, COVID19).
- The population is increasing rapidly, both as a result of high birth rate as well as migration from neighbouring countries. Given that half of the population is currently under the age of 15, this population growth is projected to increase in the coming years.
- Small amounts of land owned by people and a lack of improved farming practices and quality inputs leading to lower production.
- Lack of food processing capacity for value addition or food preservation technologies.
- Few jobs, especially for refugees leads to low incomes and challenges in accessing finance to purchase productive assets or diverse, nutritious diets.
- WFP distributes large quantities for food, which may distort the local market (although they carry out ongoing monitoring).

In Arua, the focus of the city and surrounding region is on production and storage and transportation. As the city is a trade hub (with ambitions of becoming a transportation hub as well), trade with South Sudan and DRC (and thus the economic and political situations in both those areas) as significantly impacts the regional food system.

There is limited food processing happening in the area.

Outcomes

- Arua unable to sustainably feed the growing population with only locally produced foods given predicted levels of population increase.
- Low levels of dietary diversity and diets dominated by starchy staple crops.
- High levels of acute malnutrition in young children and anaemia (also driven by disease) (seen in Demographic and Health Survey)
- High unemployment

There are several potential food system transitions at stake, which would need to be developed in consultation with local stakeholders. Decisions would need to be made which would weigh the value of various ways that the food system could develop. For example, local stakeholders could prioritize the development of foods for the export market, or for local food self-sufficiency, or for increased processing and value addition. Currently multiple projects are engaging a range of local stakeholders to support a process of presenting evidence and discussing how they would like to see the food system in Arua develop in the future.

In Arua (and likely other secondary cities in Uganda) there is limited food processing, limiting value addition as well as job creation.

- If the planned infrastructure develops (international airport, rail links to neighbouring countries) would mean that a focus on high value export crops would make sense.
- If the city and surrounding area are able to increase access to reliable electricity, more could be done in terms of investments in food processing.
- If instability increases in neighbouring countries, the food system may want to focus more on provision for the local population (if fewer trading opportunities are present).

Actors and stakeholders

Main actors (below are just examples!)	Role/aim/mandate	How are they involved?	Level of influence on the transition
Farmers		Many grow tobacco as they are supported by companies with all inputs. Cassava and millet grown as food crops, sesame and groundnuts for oil. Increasing interest in vegetable production	Many farmers in the area focus on tobacco as a cash crop, tobacco production is highly verbally integrated. Inter
Private sector – input provision			
Private sector-processing	Limited processing – also due to a range of challenge in the area such as limited access to reliable electricity		
Transport and logistics			Development of (planned) international airport and rail links will cement Arua’s position as a key transport hub
Infrastructure (electricity, water, telecommunications)			Essential for development of Arua’s food system.
Government (Local)	Provision of agricultural extension services, research into new crop varieties, weather information		Can support farmers (or others) with learning new skills-ongoing training and support.
Government (Office of the Prime Minister)	Oversees/ coordinates refugee response including deciding on land allocation.		
Development organisations/NGO’s	Significant amounts of basic service provision (health care, extension services, education). Carry out role of government in refugee areas and provide additional support in neighbouring host community as per the GoU policy	Very influential in Arua	Influence will depend on ongoing influx of refugees – if this slows funding will reduce/ stop. However Arua is currently very much a key regional hub for NGOs and other development organizations
UN organizations (especially WFP, UNHCR)	UNHCR coordinates the refugee response WFP provides food for refugees, carries out market assessments, determines minimum		Changes in amount of funding available for the refugee response as well as modalities (cash vs food) have the ability to

	income need for food sufficiency		significantly impact the food system
Local Training Institutes/ Universities in Agriculture	Training future generations of farmers and others working in the food system	Involved and interested in revising curriculum, most funding currently comes from NGOs/ UN agencies, need to develop offerings that differentiate what they can provide	Could be a key entry point for training next generation of those working in agricultural processing and farming.

Table 9 Actors and stakeholders in Arua food systems

5 The food systems and transitions

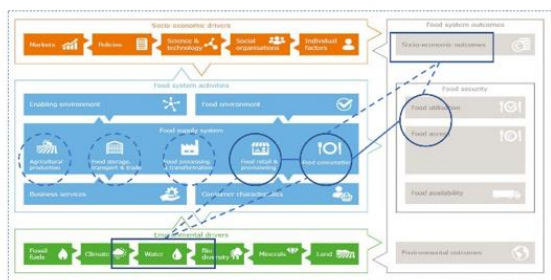
The overall aim of this case based learning is to get a better understanding of our current actions in Uganda and see how these actions are inspired by and contribute to a wider food system approach. In the previous chapter the four projects were separately described, and the preliminary conclusion was drawn a clear distinct can be made between the Kampala activities and the Arua activities. In this chapter we will bring this further in a food system perspective and transition perspective, but also set out the similarities and differences in focus and approach. Last but not least we will define the major lessons-learned and gaps to address.

Are the projects linked? Is there are potential link and in what way or with which focus? And what can these projects learn from each other, also in addressing linkages with the broader food system perspective or addressing specific topics?

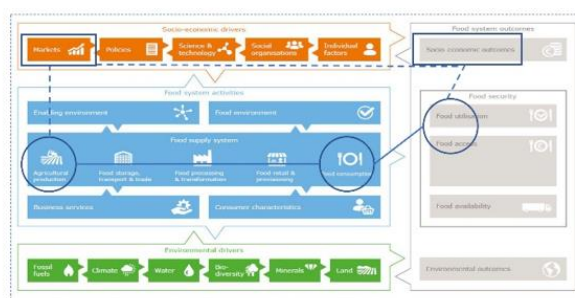
5.1 The food system perspective

The four projects were mapped in the food system approach scheme of Van Berkum (Van Berkum et al. 2018), see 6. The main focus and entry point strongly differs across projects. Main focus is either on production (agriculture) or consumption (diet diversity). Somehow relations with different aspects within the broader food system are highlighted or incorporated, but clearly this is more coincidence than set from a comprehensive, holistic approach at the basis.

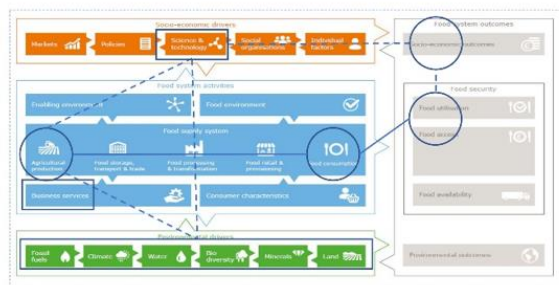
NOURICITY - Kampala



NIGI – refugee population



OKP Train4GreenJobs – refugee population



Improving food systems in less-favoured areas

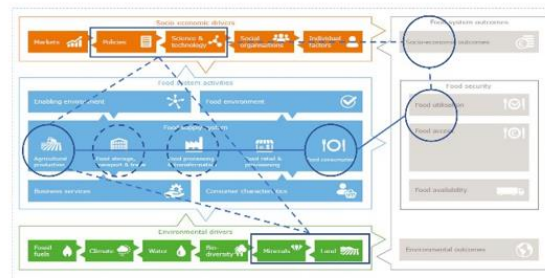


Figure 6: Mapping the projects on the food system

Furthermore, the food system approach does not define spatial boundaries or scale per se but it would add important insight for understanding the geographical and spatial aspects (multi-scale) that needs to be addressed in the elements of the food system (Van Berkum et al., 2020; De Rooij et al, 2020). In this light we also value the City Region Food System perspective (CFRS), see Figure 8.

One of the important steps in the CRFS is defining the CRFS, also with a geographical focus and with the notion of a multiscale approach, see Figure 7. Taken this into account, and also looking back at the process of this case based learning exercise, it is evident that the search for the proper scale and finding the common grounds is the hardest part in defining the City Region Food System. The starting point in our case-based learning exercise was to look at a national scale, with the assumption it would get more clear if any relationships would become evident. Clearly, currently we may conclude that Arua and Kampala are totally different food system regions, however influenced by the same national policies and related constraints.



Figure 7: A toolkit to assess and plan sustainable city region food systems (Source: FAO, RUAF Foundation and WLU, 2018)

All projects started from a specific focus. The NOURICITY project focuses on diets and food flows (retail) which already opens a broader perspective in a common search (but relatively small scale). The NIGI project and the OKP Train4GreenJobs projects focus on the agricultural activities and food security of refugees in the Arua area. The project "Improving food systems in less favoured areas" has a more regional focus rather than a specific group of people. Most of the time, the specific focus is determined by the assigner or call in an early stage. In Uganda –like most other countries –there is overall food system policy or alignment platform yet. Therefore, the implications of or conditions for activities in the projects from a broader food system perspective are not seldom included. However, it is clear these conditions and implications are of utmost importance. The food system approach should and could facilitate this, when put in the proper position in project implementation, policy and governance.

5.2 The stakeholder perspective

Stakeholder involvement is in three of the four projects an essential part, namely NIGI, Train4GreenJobs and NOURICITY. The main reasons are the successfulness of the implementation of the project (NIGI and Train4GreenJobs) and the identification of widely accepted interventions for healthy diets (NOURICITY). The type of stakeholders involved or consulted differs highly across projects, because the projects are targeted at different groups in society such as refugees (NIGI and Train4GreenJobs), urban consumers (NOURICITY) and the population of Arua (. However, together they provide a great insight in the different stakeholder perspectives. Mapping stakeholder groups and exchanging partial results of the projects already provided the opportunity contacts. From a food system perspective this would be an opportunities, once it would be brought together or linked somehow.

Project	Approach
NIGI	Engagement with many stakeholders due to the nature of the project – in settlement areas you must work with OPM, UNHCR, and all other actors working in settlement (mainly NGO). In the host community we work with local government and local agricultural research centers. Approach is broad-like many NGO projects, working with almost everyone.
Training 4Green Jobs	Engagement focuses on the training institutes that will pilot the new curriculum as well as private sector organizations that can provide internships to newly trained students. Longer term engagement will need to also be with those in the government in charge of developing and approving curriculum
KB –Improving Food Systems in Less Favored East African Areas	Currently working to establish an multi-stakeholder platform in the region, as a way of developing a more systematic approach to stakeholder engagement – and support ongoing collaboration. Since the idea is to initially carry out a food systems analysis, than design a process to decide on future scenarios to be modeled, and hopefully (some) elements may even be adopted. This means stakeholder must commit to ongoing engagement and collaboration.
LEAP agri NOURICITY (Kampala)	Stakeholder engagement is focused on citizens, local city government and local entrepreneurs, who are respectively identifying challenges, and potential solutions to those challenges. Moreover, project team members of the Arua based projects also participated in one of the NOURICITY workshops.

Table 10 Projects and approaches

The biggest challenge in stakeholder engagement is the involvement of private sector and to go beyond localities: do we see the bigger picture? Besides, as concluded in NOURICITY the different views between local actors and governmental bodies vary widely. Most of the case studies and actions taken place in Uganda are bottom-up interventions but highly influenced by top-down policies and decisions. Direct relations/feedback loops between the stakeholders of the three projects seem poor.

Project	Challenges
NIGI	Many actors working on similar projects, little budget so hard to get the private sector interested/ involved long term, government does not view settlement to be its mandate to support, refugees often unable to access services (education/ finance) in country, must collaborate with UNHCR and OPM- work where they say etc
Training 4Green Jobs	Hardly any mid-sized farms who can accommodate trainees, most a very small scale; longer term need for government to really change educational approach to focus more on practical skills
KB –Improving Food Systems in Less Favored East African Areas	Likely will be challenging to come up – and try to influence- scenarios. We understand that many decisions, like choice of priority crops, are politically motivated. Also, much depends on overall stability in the region- with increased conflict in South Sudan or DRC, opportunities for trade and export reduce.
LEAP agri Nouricity (Kampala)	Disconnection between the types of interventions that the local city council is currently promoting (urban agriculture or sack gardening) and those local entrepreneurs, and citizens are interested in when stimulating healthy diets. Citizens lack space and financial resources to apply sack gardening, and the water pollution makes irrigation of sack gardening crops tricky.

Table 11 Projects and challenges

The expectation is that this is not only limited on this local scale, but also on the regional or national perspective. From a food system perspective, a deep dive into that is crucial. Why? Policy dimensions are still fragmented. On the one hand, there is agriculture/social economic development and on the other hand there is food security and health. It is needed when there is also reliance on human capacity and capability. It might also be an opportunity to create a business and employment. Refugees from abroad and low-income migrants to cities require a different policy because they do not

own land for agriculture, and there is a need to include a emphasis on food security and health as well. These challenges strategic stakeholders in the field of regional and national development and policies and the implementing bodies and actors. Obviously, this mismatch cannot be solved directly in concrete and on-going projects, but the differences in interests and approaches should be addressed properly in strategies on how to link different scales and perspectives should be granted in the future in a viable and practical way.

5.3 The transition perspective

Finally, with a focus on the food system perspective and the transition perspective, there are a number of questions to address:

- Which gaps should be overcome to fit current projects properly in a food system approach and which perspectives from a food system approach should be included in each project?
- And which kind of transition is currently standard or being developed? How do these projects link to each other or address specific directions?
- Can we already speak about clear transformative pathways, at what scale, or is current practice still more incremental?

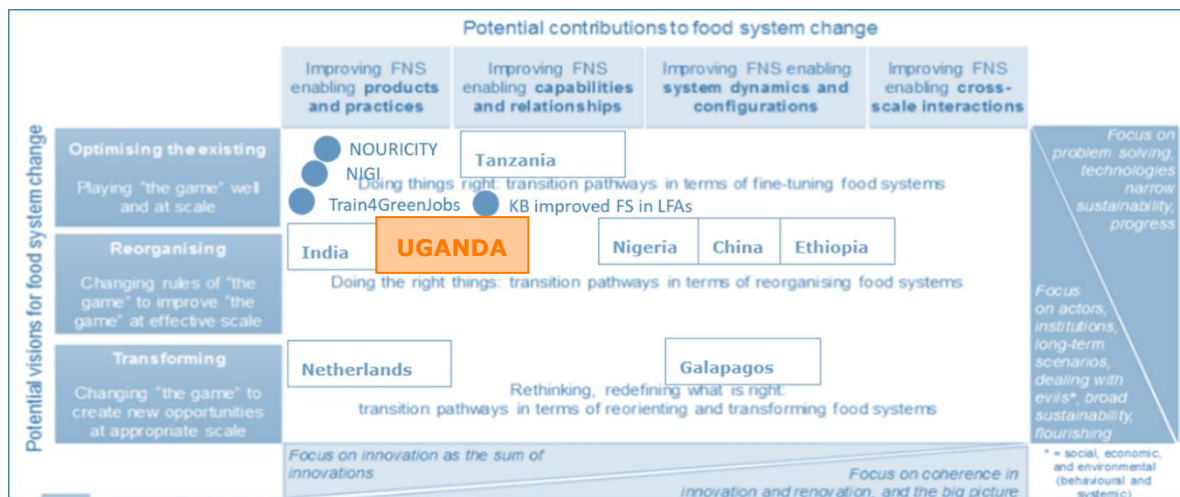


Figure 1: Visions of contributions to food system change (Wigboldus et al. 2019)

Current practice in a transition perspective is rather incremental and is on the shift between optimizing and reorganizing and between improving FNS enabling products and practices to improving capabilities and relationships. This is placed in Figure 8 above, which depicts the potential visions for change in the food system and the potential contribution to change the food system. The projects NIGI, NOURICITY and Train4GreenJonbs are focussing on small groups in society and attempt to achieve change in their food systems. The project Improved food security in Least-Favoured Areas (LFA) has already a wider scope as is focusses on Arua as a region and not on particular groups in Arua per se.

As shown in Figure 1 9, the case studies placed in this scheme slightly differ, but to no far extend. Set in the proper way the case studies do have the potential to contribute to the basis for a transformative approach, but this is still way ahead. In the other direction systems thinking is also currently limitedly developed, nevertheless there are openings and there is interest from different relevant parties. The food system approach could surely be of help, if addressed properly with clear action perspectives for different stakeholders and at different scales/levels. This is something which should be developed together with relevant -different kind of- stakeholders.

Connection and context are the main missing links. The projects all have a specific geographical or topic wise focus. Currently, there is no proper insight in the connection or non-connection between the regions (Arua and Kampala) and all the area and secondary cities in between. There are

presumptions, but not more than that. The implications of activities in a broader context are not yet part of preparation or evaluation.

The importance of stakeholder involvement to gain better insights in the informal economy and structures should also lead better insights and strategies about the formal and informal perspective. Practice confirms there is a distinction between the formal structures, policies and insights and the informal. The informal is often still off the radar or poorly understood, although it is the actual real basis.

The real challenge is often beyond the direct food system itself, but is strongly impacting the food system. As mentioned before, the way society has organized itself -formal and informal-, but also basic conditions as land tenure, natural resource management and private sector involvement are crucial. Nonetheless, they are not always addressed properly in projects about food... placing it in a food system perspective should encourage and enable this.

When looking at the policy frameworks in which actions take place there is a large difference on how 'food' finds its way. There is no direct policy perspective and an economic perspective is detached from the agriculture perspective, and the urban perspective is still detached from the rural perspective. The primary question is raised, is there a need for a programmatic approach with the starting point of a systemic food system approach or should the food system approach find its way in the different sectoral policies? A key question that should be topic of further discussions with the different stakeholders at the different levels and from the different sectors/themes.

The different case studies together highlight that especially the alignment and awareness should be raised that they all matter in the broader food system perspective and the urban-rural linkages alike. Connects themes, connect scales and connect people... and perhaps connects formal and informal, but within its own action perspective. Scale, space and connections do matter.

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7 Glossary

Acronym	Description
CIAT	International Center for Tropical Agriculture
CSA	Climate-Smart Agriculture
DRC	Democratic Republic of Congo
EPRC	Ugandan Economic Policy Research Centre
FAO	Food and Agriculture Organization
FEWS	Famine Early Warning Systems Network
GGGI	Global Green Growth Institute
GKMA	Greater Kampala Metropolitan Area
KCCA	Kampala City Council Authority
LFA	Least-Favoured Areas
MAAIF	Ministry of Agriculture, Animal industry and Fisheries
MPED	Ministry of Finance, Planning and Economic Development
MLHUD	Ministry of Land, Housing and Urban Development
MoH	Ministry of Health
NCE	New Climate Economy
NPA	Uganda National Planning Authority
UBOS	Uganda Bureau of Statistics
UNHCR	United Nations High Commissioner for Refugees
CFRS	City Region Food System perspective
NIGI	Nutrition and Income Generation Interventions

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Wageningen Environmental Research

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