



Strengthening urban food systems

Recommendations for coherent policies

Policy Brief - Feeding cities and migration settlements
Programme Food Security and Valuing Water (KB-35-002-001)



WAGENINGEN
UNIVERSITY & RESEARCH

wur.eu

Colophon

Strengthening urban food systems: Recommendations for coherent policies, Pittore, K., Rooij, L.L. de, Soma, K., Berkum, S. van, Castelein, B., Broeze, J. (2022), Wageningen, Wageningen University & Research.

The pdf file is free of charge and can be downloaded at <https://doi.org/10.18174/583378>. Wageningen University & Research does not deliver printed versions of the reports.

Cover photo:
Magalie L'Abbé via Flickr.com

This policy paper summarizes the work focused on: "*Feeding cities and migration settlements*", which was undertaken as part of the Food Security and Valuing Water (KB-35-002-001) programme of Wageningen University & Research. This project was supported by the Dutch Ministry of Agriculture, Nature and Food Quality (project number KB-35-002-001).

© 2022 Wageningen University & Research

- Acquisition, duplication and transmission of this publication are permitted with clear acknowledgement of the source.
- Acquisition, duplication and transmission are not permitted for commercial purposes and/or monetary gain.
- Acquisition, duplication and transmission are not permitted of any parts of this publication for which the copyrights clearly rest with other parties and/or are reserved.

Wageningen University & Research assumes no liability for any losses resulting from the use of the research results or recommendations in this report.

Introduction

This policy paper summarizes the work focused on: "Feeding cities and migration settlements", which was undertaken as part of the Food Security and Valuing Water (KB-35-002-001) programme of Wageningen University & Research. This project was supported by the Dutch Ministry of Agriculture, Nature and Food Quality (project number KB-35-002-001).

The urban population of the world is expected to increase by 2.2 billion people by 2050, with the majority of this growth anticipated to occur in Africa and Asia (UN Habitat 2022). Global challenges, including the recent COVID-19 pandemic, as well as on-going climate change and increasing food insecurity, have exacerbated current urban challenges. Urban areas, where people rely on purchasing food supplied from other areas in the country or abroad, are particularly vulnerable to food supply disruptions. These issues raise the importance of the question of how to make urban food systems more resilient.

Over the last three years, Wageningen Research has been researching how urbanization impacts food and nutrition security in low- and middle-income countries, and how to more purposefully design food systems that deliver healthier and nutritious diets to their (urban) citizens, especially low-income groups. From this research, the following findings are drawn:

Improving food and nutrition security in urbanized areas requires integrative approaches.

Acknowledging, understanding and engaging informal actors is important.

Governance of food systems is crucial in transforming food systems.

The food systems in urban areas, and the surrounding peri-urban and rural areas, are highly intertwined.

Improvement of value chains is essential to ensure adequate supplies of food to urban areas.

Analysis has drawn on a broad variety of cases, including Dhaka, the capital of Bangladesh (a large, Asian 'mega-city'); Nairobi and Kampala (two capital cities in East Africa); and Arua and Fort Portal (two small, rapidly expanding, secondary cities in Uganda, East Africa). Through studies of these urban areas, the team has explored trends in urbanization and food access, piloted new analytical tools, and new uses of those tools, developed and set-up living labs to explore the role of multi-stakeholder platforms in food systems to deliver healthier and more sustainable diets to urban populations, and defined potential market, technology, and social innovations that could contribute to improving food and nutrition security in urban areas.

This has developed evidence and knowledge that contribute towards achieving the United Nation's Global Development Goals, including:

- Sustainable Development Goal 2: zero hunger
- Sustainable Development Goal 11: sustainable cities and communities
- Sustainable Development Goal 12: responsible consumption and production.

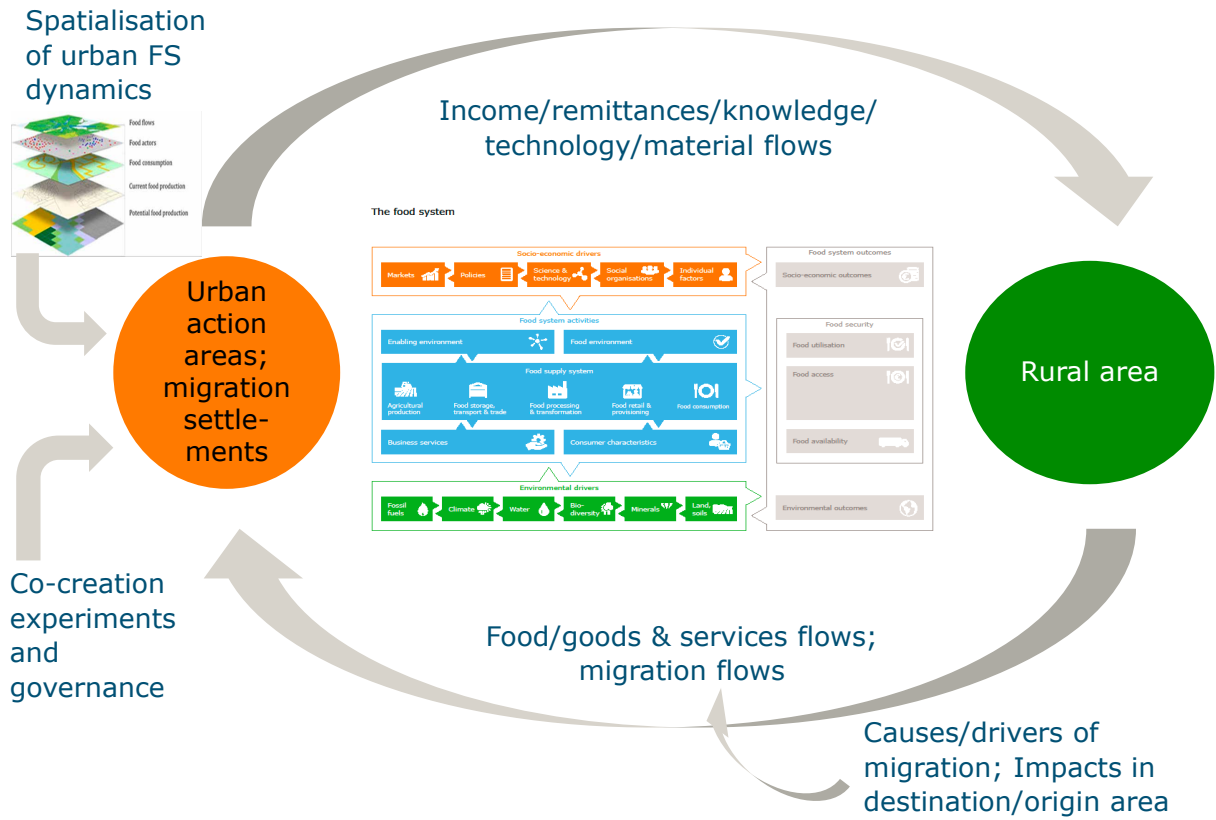


Figure 1 A food system perspective that captures economic, social and spatial connections between urban and rural areas (WUR, 2020)

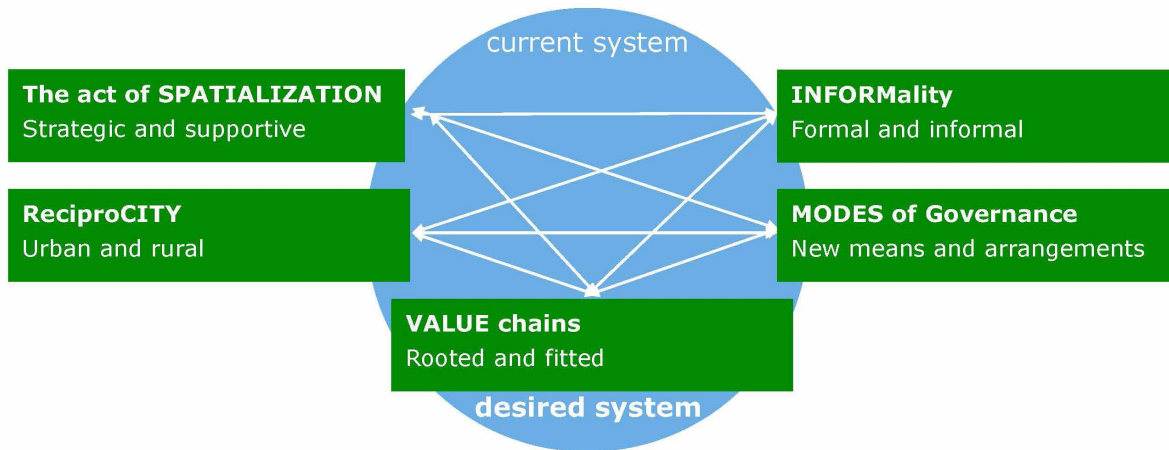


Figure 2 Five findings, one strategy

Key findings

1 Improving food and nutrition security in urbanized areas requires integrative approaches:

- Strategic spatial analysis that addresses geographic positioning is a practical way to facilitate understanding of the spatial connections within urban food systems.
- A food supply chain perspective that incorporates the direct- and indirect effects of interventions on food system outcomes, helps to elucidate links between the food chain and the wider food system.

2 The food systems in urban areas and the surrounding peri-urban and rural areas are highly intertwined through food and other commodity flows from rural to urban, and income, knowledge, and other material flows from urban to rural (see Figure 1). Understanding how these flows develop in a given space, and the driving factors behind (possible disruptions within) those flows, is essential to enable proposed interventions and innovations that strengthen urban-rural linkages towards increasing food security for all. This understanding can be deepened by starting with a spatial analysis of the city and the regional food system connected to it.

3 Informal businesses are important actors in rural-urban food supply chains in Africa and Asia, and yet, their role in food system transformation is hardly acknowledged. Understanding how to work more effectively with informal actors requires a strong understanding of them, their diversity, and their context within food system.

4 Governance of food systems is essential for transformation. Working on governance of food systems at the urban level can be an effective entry point to work directly with key stakeholders. Multi-stakeholder platforms and processes that allow actors to come together and develop shared research questions, co-develop answers, and negotiate trade-offs between potential solutions, are one way of supporting governance of urban food systems. There are emerging examples of how such platforms can support joint solutions for specific issues (e.g. on food waste), as well as consider implications of adopting specific policies (e.g. on increased local production). There has been significant conceptual work carried out on developing principles for effective governance of urban food systems, as well as what may (and may not) be possible through working with multi-stakeholder processes. However, more research is needed to empirically test this work in the context of transforming urban food systems in a variety of urban contexts, from rapidly growing, 'mega cities' in Asia to small, but regionally important, cities in Africa.

5 Improving value chains, including reducing food waste and better valorisation of waste streams, is essential to ensure adequate supplies of food to urban areas. However, value chain interventions do not necessarily lead directly to the intended outcomes unless macro-level thinking is effectively translated into meso- and micro-level interventions. Interventions must be appropriate and acceptable for the local context in which they are implemented, but intervention selection, design and implementation should be undertaken cognizant of the broader food system context. Long-term strategies with mutually supportive combinations of micro-, meso-, and macro-level interventions involving all relevant actors are required to realize sustained impact. The following sections presents more detail of the key findings from the "Feeding Cities and Migration Settlements" project, which was conducted over the last three years. This section is not intended to be an exhaustive list, but rather to highlight the most interesting findings, and those areas that we think warrant additional research.

A spatial approach to urban food systems

Environmental dimensions of (urban) food systems were operationalized using a spatial approach. This created the opportunity to use a concrete entry point for carrying out a food systems analysis and for developing strategies and interventions. Valuable insights were gained through reflection on current practices, emerging approaches, and experimentation with spatialization of the food system in different contexts, as well as stakeholder- and expert consultations. This work has created valuable insights into the current uptake and assessment of the environmental factors that impact food systems, strategic linkages with other societal issues and, most of all, has enabled the identification of opportunities for improvement.

Key findings

- Spatialization in food system approaches is still limited and is not used on a structural level, which weakens links with other transitions, including climate adaptation.
- Environmental dimensions are, likewise, often not considered when conducting a food systems analysis, creating a barrier to understanding potential feedback loops and trade-offs. The failure of current food systems analysis in not accounting for changing conditions could undermine current actions.

Research- and policy implications

- Environmental and spatial dimensions of food system analysis should be structurally embedded to enable development of a common understanding and allow for the co-development of tailored, place-based strategies and interventions. This will lead to new insights into the impact of local spatial aspects on transition possibilities of the food system.
- Spatial analysis must be an interactive process, due to both the complexity of both food systems and the environmental drivers that influence these systems.
- Spatial analysis must not only focus on the current systems, but also take into account the current trends and a changing world.



How urban growth affects agricultural dynamics around cities

Urbanization offers opportunities to improve rural life in the vicinity of cities, in part, by providing farmers with access to larger markets and the rural population to alternative employment opportunities in the city. However, it also leads to increased rural-urban competition for land, labour and water. The latter leads to structural changes in agriculture near cities and has socio-economic and environmental consequences for the countryside.

Key findings

- Literature shows that urban expansion leads to more intensive land use around cities and a shift of production towards high-value products. However, the spatial continuity of land use patterns around cities is more nuanced and complex because, in addition to purely economic laws, farmers' decisions to abandon or intensify farming around cities also depend upon land ownership/tenure rights, personal and family motives, and rural-urban connectivity (in terms of distance and accessibility). The polycentric pattern of urbanization (with associated opportunities for alternative employment) and how agricultural production factors (e.g. land and water) interrelate also influence changes in land use patterns.
- Competition for land around growing cities can lead to increasing socio-economic vulnerability in affected areas for those who use, but do not own, the land. There are also examples of negative ecological consequences of urban expansion (e.g. the extinction of wetlands). However, there are only a few studies that comprehensively analyse the effects of growing cities on the outcomes of rural food systems (e.g. food security, social-, economic- and environmental effects).

Research- and policy implications

- Knowledge of the social- and environmental impacts of urban sprawl on agricultural development opportunities around cities supports sustainable planning and management of urban- and rural food systems. Such knowledge is still insufficient. Additional research is needed that examines, with a sufficiently broad analytical framework, how urban growth affects agricultural dynamics and rural life around cities. This research should test, for example, in comparative field studies, the explanatory factors mentioned in the literature, including land ownership/tenure rights, personal- and family motives, and rural-urban connectivity.



Working more effectively in an informal settlement

The number and size of informal settlements are expected to increase drastically in the future, especially in Sub-Saharan Africa, where migration from rural to urban areas is increasing. Data sources that explain livelihood strategies in informal settlements are scarce, and often highly disputed. In this project, Kibera, one of the largest informal settlements in Africa, was used as a case study to understand how best to develop new value chains for nutritious foods. The project specifically worked on developing and studying a new fish value chain.

Surveys were used to collect data about fish consumption in the slum, to understand how a new rural-urban fish food system set up between Nyeri County and the Kibera slum functioned, links between social capital and food security, and to understand differences in livelihood factors across the villages in Kibera.

Key findings

- The analyses found that social factors, such as levels of trust between community members and community leads, had significant impact on food security in the various villages of Kibera. With other factors, including ownership of land in rural areas, income and tribal background, also influential in determining food security.

Research- and policy implications

- Research and implementation 'go hand-in-hand', with enhanced understanding of the complexities within rural-urban food systems to ensure solutions that are affordable and accessible to low-income groups. Solutions to improve food security cannot be 'one-size fits all' or developed without taking contextual factors into account. Formative research can ensure contextually relevant solutions are developed, increasing their likelihood of uptake and sustainability.



Enhancing the governance of urban food systems towards improving resilience and supporting transformation

Food systems are constantly transforming. However, transformation does not follow a pre-planned idea about what citizens want for their food system but is driven by a range of external factors.

There is a growing body of literature on effective governance of urban food systems, especially considering how they can be more purposefully governed. Moving from theory to practice, these factors were operationalized in the Dhaka Food Systems project, in which governance structures established by the Government were closely integrated. And in Uganda, partnership with an NGO led multi-stakeholder platform facilitated a better understanding of how such structures could support the development of a more responsive food system.

Key findings

- There is a real gap in terms of identification of what is necessary for governance of food systems (especially in urban areas). Nutritional governance is well-researched and there is a significant body of literature on this. However, the literature available on this does not always translate into governance of food systems because of the much broader range of actors involved in governance of food systems.
- The potential of multi-stakeholder platforms (MSPs) in agricultural research, innovation, food and nutrition policy development, or governance of food systems have been studied extensively, and a positive potential has been established. The question of how MSPs promote food system transformation and why some of them are more successful than others must be better understood, especially as contextual variations will require local level adaptation to MSPs arrangements.
- Multi-stakeholder platforms provide a forum to bring together actors from multiple sectors, including government, academic, civil society, and the private sector towards formulating a joint vision of how food systems could develop in a given city, or to develop joint solutions to a specific food system challenge that an urban area might face. Such platforms allow the voice of stakeholders who might otherwise be excluded, to be included in discussions. This was observed in Uganda. They also facilitate the development of innovative solutions to critical challenges facing a specific city, as seen in Bangladesh.

Research- and policy implications

- Understanding factors that allow MSPs to be more effective, and in what contexts, can support efforts to transform food systems and create ones that are more resilient to unforeseen shocks, for example the impact of COVID-19. However, questions about what types of MSPs, and how these can support the research-policy interface within food systems, remain unanswered.
- While the need for food systems transformation is widely acknowledged, there is significantly less consensus about what a transformed food system should look like, and many divergent views on how to create one. Actively bringing together multiple stakeholders provides a venue for developing vision. However, there are also a number of inherent challenges.
- One critical challenge when working with MSPs, is the issue of power and inclusion, especially in ensuring that marginalized voices are present and active. Key issues, such as who convenes an MSP can have significant impact on participation, as well as effectiveness. For example, informal actors may be unwilling or unable to engage in a platform led by a government actor. However, a platform convened by civil society may struggle to claim legitimacy. These are key issues that require additional (action) research to better understand what types of MSPs are most effective, for who, under what constraints, and how this can support developing more effective and inclusive governance structures.

New research can focus on when MSPs can support food systems governance, what the best structure is, who to involve, and what works and why, for specific food systems outcomes. This work will translate conceptual thinking and pilot work with MSPs in cities around the globe into a more structured approach to transform food systems.

The role of food value chains and post-harvest distribution in urban food systems

In low- and middle-income countries, small-holder farmers supply rapidly growing cities through relatively inefficient post-harvest supply chains. These value chains are often characterized by having many small-scale actors, poor infrastructure, and poor connectivity. While this system is surprisingly effective in supplying food to the cities, it is not efficient, in the sense that losses are high, food quality at the end of the chain is often low, and logistics and coordination costs are high – leaving little margin for farmers and other actors to invest in better practices.

Key findings

- Value chains interventions do not automatically have a positive impact on food system outcomes, due to mismatches between private (value chain actor) and public (food system) interests.
- Urban food waste and (organic) waste presents a growing challenge that many low- and middle-income countries cities are ill-prepared for, with lack of organized collection systems, and most waste going to landfill, with detrimental environmental effects. Adaptation of existing frameworks can provide guidance on how the issue of food waste and waste management can be addressed in LMIC cities.
- Urban populations in LMICs are often dependent on imported staple foods. With the right supply chains and processing capacity, locally grown climate-resilient crops can be used to produce healthy and accessible food products for urban consumers, contributing positively to urban food- and nutrition security.

Research- and policy implications

- Resource constraints across the value chain should be a key factor in intervention selection, design, and implementation. As should the fit between the intervention and the post-harvest system, the technology level and market characteristics, and importantly consumers' demands and purchasing power.
- Significant challenges are also found when macro-level food systems thinking needs to be translated to micro- and meso-level interventions at the value chain level. There are, however, opportunities for policy- as well as value chain action to align incentives and leverage value chain action for food system change.



The way forward

The findings highlighted above were the result of an iterative and explorative process, with the researchers frequently evaluating and adjusting their focus, hypotheses, and approaches. With this being a food systems-oriented project, considerable reflection was involved in the systems thinking approach, and the appropriate role of research in policy towards and within this system. In closing, we offer some observations and considerations on these roles:

- A food system approach requires, by definition, a specific way of working and defining policies, research, projects, and actions. Fundamentally, this requires recognizing and balancing the interconnectedness of challenges – from global to regional to local – while still remaining action-oriented. Therefore, we urge for policy and research to widen their view to a more systemic lens.
- A food system approach is not only about food. Important environmental, social- and economic challenges and developments are strongly interlinked with food system drivers and outcomes. And to address food-related issues requires understanding of these other systemic factors.
- A food system approach, with its high-level all-encompassing scope, explicitly needs to be made practical and actionable. While it can inform action and identify the relevant stakeholders to involve, a next step should be taken in defining problem owners, concrete actions, and identifying who is responsible for what. This helps in realizing that a food system approach (high-level) is not a food system project (practical), and that it is not feasible for a single actor to do everything.
- The previous point extends to the issue of steering. If single actors cannot solve food system issues in isolation, some extent of coordination is necessary. However, we also recognize that food system dynamics are, in practice, already being decided by actors, depending upon their position in the food system, power relations and capabilities. To improve food system outcomes requires addressing the question of who should be in the driver's seat (including reflections by governments, NGOs, and the private sector on their own positions), but also the question of who already is.

Further reading

Strengthening urban food systems: recommendations for coherent policies, Pittore, K., Rooij, L.L. de, Soma, K., Berkum, S. van, Castelein, B., Broeze, J. (2022), Wageningen, Wageningen University & Research

Towards resilient and healthy urban food systems: five findings forward in strategizing urban food futures -Dialogue report, Pittore, K., Rooij, L.L. de, Berkum, S. van, Castelein, B., Broeze, J. (2022), Wageningen, Wageningen University & Research

Urbanisation, migration and food system transformations: Concepts and methodologies for a better understanding of the dynamics of urban food systems and migration settlements, Berkum, Siemen van, Broeze, Jan, Herens, Marion, Rooij, Bertram de, Soma, Katrine, Roosendaal, Lotte (2020), Wageningen, Wageningen Economic Research (WECR 2020-046)

City region food system governance: guiding principles and lessons learned from case studies around the world, Roosendaal, L., Herens, M., Roo, N. de, Stuiver, M., Pittore, K., Soma, K., Hetterscheid, B. (2020), Wageningen, Wageningen Centre for Development Innovation (WCDI-20-118)

The food systems approach applied in city regions: lessons learned from four case studies in low- and middle-income countries, Roo, Nina de, Hetterscheid, Bas, Pittore, Katherine, Soma, Katrine, Rooij, Bertram de, Linderhof, Vincent (2021), Wageningen, Wageningen Centre for Development Innovation (WCDI-21-189)

Urban food systems in a spatial environmental perspective, Rooij, L.L. de, Verweij, P., Agricola, H.J. (2020), Wageningen, Wageningen Environmental Research (WENR 3002)

Understanding the mechanisms to strengthen food systems through value chain-driven action, Vernooij, D.M., Oostewechel, R.J.A., Verschoor, J.A., Axmann, H.B., Pereira da Silva, F.I.D.G., Castelein, R.B. (2022), Wageningen, Wageningen Food & Biobased Research (WFBR 2334)

Adoption of food loss and waste-reducing interventions in Low- and Middle-Income Countries, Soethoudt, J.M., Pedrotti, M., Bos-Brouwer, H.E.J., Castelein, R.B., (2021) Wageningen, Wageningen Food & Biobased Research (WFBR 2196)

Structured Scans of Multistakeholder Platforms, Guijt, J., Maestre, M., Thorpe, J., Wigboldus, S., Ashley, C. (2017), Wageningen, Wageningen Centre for Development Innovation

Feeding the Cities and Migration: Stakeholder Engagement workshop, Roosendaal, L., Hazenbosch, J.C.J., Herens, M.C., Rooij, L.L. de, Soma, K. (2019)

Ensuring accessibility of insect- based feed to small-scale fish farmers in Kenya and Uganda, Soma, K. (2022), In: A journey into the world's food systems in search of losses, waste and ways to solve them, Stroosnijder, S., Hetterscheid, B., Castelein, B., Wageningen, Wageningen University & Research, p.58-62

Case study Kenya

A New Rural-Urban Fish Food System was Established in Kenya—Learning from Best Practices, Soma, K., Obwanga, B., Kanyuguto, C. (2021), *Sustainability* 13 (2021)13. - ISSN 2071-1050

A deep dive in the food system of Kibera and its environment: a spatial environmental analysis for a better understanding of environmental and socio-economic drivers, Rooij, L.L. de, Hu, X., Os, J. van, Wit, E. de (2022) Wageningen, Wageningen Environmental Research

Food system transitions in Nairobi slums - Stakeholder representation in Food Futures, Soma, K. (2020), Wageningen, Wageningen University & Research

Spatial analysis Kibera: Progress report, Rooij, L.L. de, Os, J. van, Janssen, V.C.J., Soma, K. (2020), Wageningen, Wageningen Environmental Research

Scoping mission Uganda: Circular refugee settlements, feeding cities and migration & changing routes, Rooij, L.L. de, Stuiver, M., Hu, X., (2020), Wageningen, Wageningen Environmental Research

Social capital and food security in Kibera, Koster, Tinka, Termeer, Emma, Motovska, Nina, Kunz, Marvin, Ingasia Ayuya, Oscar, Soma, Katrine, (2021), Den Haag: Wageningen Economic Research (WEER report 2021-042)

Socio-Economic Drivers of Fish Species Consumption Preferences in Kenya's Urban Informal Food System, Ayuya, Oscar Ingasia, Soma, Katrine, Obwanga, Benson (2021), *Sustainability* 13 (2021)9. - ISSN 2071-1050

Sustainable Development Ensued by Social Capital Impacts on Food Insecurity: The Case of Kibera, Nairobi, Termeer, E.W., Soma, K., Motovska, N., Ayuya, O., Kunz, M., Koster, T. (2022), *Sustainability* 14 (2022)9. - ISSN 2071-1050

Food system value chain adaptability - can new opportunities increase food security & food safety in Kenya?, Soma, K., Obwanga, B. (2020), Wageningen University & Research, *Sustainability* 14 (2022)9. - ISSN 2071-1050

Case study Uganda

The ambivalent links between internal migration and food security in Uganda, Mekonnen, D., Soma, K., Ruben, R. (2022), *Migration and Development* 11 (2022), p. 917 - 936.

Case-based learnings [Urban] food systems Uganda, Rooij, L.L. de, Pittore, K., Linderhof, V. (2020), Wageningen, Wageningen Environmental Research

Food system mapping in Kanyanya (Kampala): Deliverable of NOURICITY project Workshop report, Linderhof, V., Dijkxhoorn, Y., Fongar, A., Onyango, J., Nalweyiso, M., (2019), NOURICITY

Food Futures Strategy Uganda -insights from webinars 2020, Rooij, L.L. de, Pittore, K., Linderhof, V., Voskamp, I. (2020), Wageningen, Wageningen Environmental Research

Case study Dhaka

The contribution of City Working Groups to Dhaka's Food System Governance: first experiences and insights
Case-based experiences from the Dhaka Metropolitan Area: Case-based experiences from the Dhaka Metropolitan Area, Roosendaal, L., Herens, M., Herman-Mostert, R., Abedin, J. (2022), Wageningen, Wageningen Centre for Development Innovation

Nutrition strategy for the Dhaka Food Systems Project, Bakker, S., Roosendaal, L., Herens, M., Mishra, A., (2022), Wageningen, Wageningen Centre for Development Innovation (WCDI-22-200)

Strategizing Bangladesh Food Futures - Stakeholder consultation workshops, Terwisscha van Scheltinga, C.T.H.M., Roosendaal, L.C., (2020), Wageningen, Wageningen University & Research



Wageningen University & Research
P.O. Box 47
6700 AB Wageningen
The Netherlands
T +31 (0) 317 48 07 00
www.wur.eu

The mission of Wageningen University & Research is "To explore the potential of nature to improve the quality of life". Under the banner Wageningen University & Research, Wageningen University and the specialised research institutes of the Wageningen Research Foundation have joined forces in contributing to finding solutions to important questions in the domain of healthy food and living environment. With its roughly 30 branches, 7,200 employees (6,400 fte) and 13,200 students and over 150,000 participants to WUR's Life Long Learning, Wageningen University & Research is one of the leading organisations in its domain. The unique Wageningen approach lies in its integrated approach to issues and the collaboration between different disciplines.
