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URBAN AGRICULTURE MAGAZINE

UA 39

Enabling Multiple Benefits of Urban Agriculture

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RUAF

39 Urban Agriculture magazine

In this issue

Cover
Photo by Daniel Münderlein

Editorial

Enabling urban and periurban agriculture for a world in crisis

Henk Renting
René van Veenhuizen
Jess Halliday

With the world in the grip of the climate crisis, while still reeling from the impact of the COVID-19 pandemic, food systems are firmly on the global agenda. Policies and practices at the local, city level are, in some places, leading the way towards more sustainable, resilient and fair food systems. Urban and periurban agriculture (UPA) is enjoying a resurgence as evidence stacks up on its multifunctional social, environmental and economic benefits – in addition to its role as a food source.

At this pivotal moment, it is crucial to support dialogue and exchange of experiences between stakeholders in different cities, including between countries in similar – and very different – geographies, socio-political contexts, and income bands.

This issue of Urban Agriculture Magazine promotes and supports such exchange. It is in two distinct, but complementary, parts. The first part consists of contributions from partners in the European Forum on Urban Agriculture (EFUA), a 4-year project (2020-2024) funded under the European Union's Horizon 2020 Research and Innovation Programme in which RUAF is a participant.

The second section consists of updates and insights from several projects in which RUAF or RUAF partners are involved, that provide lessons and insights on policy experiences with urban and periurban agriculture (UPA) and food systems governance in the Global South.

EFUA unlocks the potential of UPA

EFUA is a Coordination and Support Action. As such, it takes stock of existing knowledge and experiences and aims to strengthen learning and knowledge exchange, and to a limited extent realizes new research. More specifically, EFUA's objectives are to unlock UPA's potential through achieving better networking, better knowledge, better deployment, and better policies in the field.

By establishing the forum, the project is fostering new levels of stakeholder engagement to inform decision making and to mainstream UPA into European, regional and local policies. EFUA is mapping case studies in urban farming across Europe, analyzing the benefits of UPA, and making recommendations to European policy makers and other engaged stakeholder communities on actions that will support mainstream UPA agendas and programmes.

This magazine introduces the aims and work of EFUA to a global audience, and outlines some of the achievements and activities during the first two years of the project. The idea is to encourage greater participation and involvement of stakeholders engaged in UPA, especially those outside Europe and in the Global South, where RUAF has extensive contact networks. In fact, strengthening the EFUA community outside Europe and learning lessons from policy experiences elsewhere is the role of RUAF within EFUA.

The EFUA section is introduced by Daniel Münderlein and Ian Whitehead, providing more details on the partnership, main activities, and achievements so far. Following this, Enrico Gottero and Claudia Cassatella present an overview of evidence of the multiple benefits of UPA, collected for EFUA, which are illustrated through stories that show UPA's contribution to positive transformation through its social, economic, ecological and health benefits. Darleen van Dam, Jan-Eelco Jansma and Enrico Gottero analyse the links between UA with other urban concepts such as urban metabolism, urban rural linkages and urban food systems.

Other papers in the EFUA section focus on strategies and policies to support the development of UPA and to valorize its potential multiple benefits. Nele Lauwers looks into the role of mentoring organisations in developing an UA innovation ecosystem around Brussels. Claudia Cassatella gives an overview of policy tools for urban agriculture, based on a survey amongst cities with UA policies worldwide. Henk Renting and Claudia Segreto review the (lack of) current European Union policies for urban agriculture, and possible directions and opportunities to further develop these.

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The EFUA section also includes some inspiring examples of UA policies and strategies outside Europe. In an interview, Nevin Cohen outlines different strands of UA policies in the city of New York. Finally, Claudio Bordi and Patricia Hernandez show how learning and exchange programmes, in this case between the cities of Rome (Italy) and Baranquilla (Colombia), can propagate the development of UA strategies. These articles are a prelude to the work of RUAF in the next stage of EFUA, which is focused on exchange of experiences and lessons on UPA practices and policies. One important activity will be the organization of an expert meeting where European and non-European cities and policy makers can meet, exchange and interact.

RUAF builds on the past with a new slate of programmes

The second part of the UA magazine prefigures RUAF's role in the coming phase. It provides information on ongoing programmes involving RUAF and RUAF partners – including some new programmes that have started just this year yet build on earlier experiences of the RUAF Global Partnership, such as Urban Futures (focusing on youth and food systems transformation) and AgriFOODLinks (an EU funded Africa focused, city exchange programme).

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The articles in this section also includes a set of articles about the project Healthy food hubs: building sustainable and resilient agri-food systems in Lima and Quito, led by Rikolto. This project provides clear evidence that community initiatives, including urban gardens and markets, are an effective strategy to counter state inaction in the face of food emergencies.

Turning to Africa, the section includes a contribution from the EU-funded Healthy Food Africa project (Hivos in collaboration with Aeres University) that aims to increase the resilience of food systems and to link food production to nutrition performance through multi-stakeholder Food System Labs (FSLs) in 10 cities and six countries in East, West and Southern Africa. Meanwhile, the Youth Food Action Project, coordinated by Hivos Southern Africa, in Partnership with RUAF and UNICEF Zimbabwe, aimed to improve the food environment by increasing the availability and accessibility of healthy foods to school-age children and adolescents in urban areas of Harare and Bulawayo.

An article about the multi-city CGIAR Resilient Cities initiative (IWMI and RUAF) focuses on work with Mazingira to develop some initial indicators for the Nairobi City County Food System Strategy. Lastly information is included on the recently finalised collaboration of RUAF with FAO on Indicators for the Green Cities Initiative, and the new City Region Food Systems Handbook and updated online toolkit.

These articles contain experiences of building citizen agency and participative policy influencing that may inform and inspire EFUA partners – as well as readers advancing food systems transformation all around the globe.

Introduction to the EFUA Project: goals, approach, challenges, foreseen outcomes

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101000681

Ian Whitehead
Daniel Münderlein

The European Forum on Urban Agriculture (EFUA) is a 4-year project funded under the European Union's Horizon 2020 Research and Innovation Programme. The project is running from 2020 - 2024 with the objective of unlocking Urban Agriculture's potential through achieving better networking, better knowledge, better deployment and better policies in the field.

Through establishing an Urban Agriculture (UA) Forum, EFUA aims to develop new levels of stakeholder engagement to help inform decision making and to mainstream Urban Agriculture into European, regional and local policy.

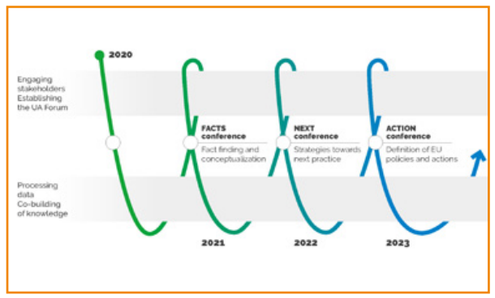

Figure 1: EFUA's Quad Helix Approach

EFUA's workflow is organized around "quad helix" principles, culminating in public conferences and the co-design of an UA vision.

Our online "FACTS" Conference "Live from Rome" started the ball rolling in 2022. This was followed up in Spring 2023 by the successful "NEXT" Conference held in Sofia. The final "ACTION" conference, to be held in Brussels in 2024, will set out a vision for establishing a long term and enduring alliance of Urban Agriculture stakeholders.

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Goals of EFUA

EFUA has set ambitious goals that involve identifying and addressing gaps in UA knowledge, awareness and best practice. Through supporting the EFUA Horizon 2020 Project, the EU has highlighted the significance of Urban Agriculture and the need to invest further in this burgeoning sector. EFUA stands for developing a synergised approach involving civil society, agricultural businesses, researchers and government working together to deliver common goals through participation in the UA Forum, which is intended to deliver:

1) Better networking of stakeholders in Urban Agriculture

Since its inception, EFUA has been building upon the work of the COST[1] Action Urban Agriculture Europe (COST UAE) which was funded by the European Commission (EC) during the period 2012-2016. A key challenge for EFUA has been to consolidate such earlier achievements and to link these with the wider activities of other European research networks to establish a European and a global community of stakeholders in the field of Urban Agriculture (UA). EFUA's aim is to sustain this newly created UA Forum beyond the project's lifespan. This will give UA a strong voice and a permanent European presence. In particular, EFUA has been developing the potential of:

- city networks for Urban Agriculture that build upon and expand existing partnerships and sharing of best practice between the different stakeholder groups and municipalities (in this respect EFUA aspires to be a "network of networks"); and

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- farm business networks, helping to develop the potential of individual farming enterprises and SMEs facing everyday commercial realities and business decisions;

2) Better knowledge in Urban Agriculture

EFUA has been reviewing research and related publications to determine the state of knowledge on UA. Furthermore, the partners consult and cooperate with ongoing research projects and help to influence upcoming new programmes that can help to better coordinate research and delivery in the field.

In this context, the project has also been helping: to identify knowledge gaps that currently hinder UA's development; to define Research & Innovation (R&I) activities to fill these gaps; and to provide stakeholders with up-to-date knowledge. Additionally, EFUA is providing a general framework of UA types, their benefits, challenges and risks. Specific outcomes that EFUA has been aiming at include:

- development of an EFUA Typology of Urban Agriculture;
- identifying the benefits of UA according to different types;
- examining how UA links to urban-oriented concepts;
- developing planning guidelines for urban agriculture;
- developing a series of UA case studies, which are highlighted on the website.

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3) Better deployment of Urban Agriculture

EFUA has been reviewing research, publications and reports with the aim of collating examples of best practice and their forms of governance across Europe. Governance concerns the ways of planning, realising and sustaining UA practices at a city level. It takes into account the interaction with local social, economic, political and environmental contexts. EFUA partners identify barriers that hinder UA's development and define strategies and actions that will overcome these constraints. EFUA is also identifying future challenges, potential game changers and "next practice". Next practice examples and case studies illustrate the full potential of urban agriculture and their multiple societal benefits.

4) Better policies for Urban Agriculture

By increasing understanding among policymakers, EFUA will help to define the UA agenda for the next two decades and will proactively advise on policy development from EU to city level. EFUA will investigate both the policies that impact upon UA and those that might benefit from inclusion of UA as an additional theme. In doing so, EFUA aims to synergise key EU agendas and priorities to enable better support and funding for UA. This will be a multiscale approach – from European level to individual city level – whilst also recognising the increasingly globalised nature of UA, including in Less Developed Countries (LDCs). The UA Forum will help to define a comprehensive vision for Urban Agriculture, ensuring that policies and actions are tailored to the requirements of UA stakeholders.

Approach of EFUA

EFUA brings together a network of researchers, practitioners and interested citizens from all over Europe with the aim of increasing knowledge and awareness of the discipline of Urban Agriculture and its potential to deliver multifunctional benefits that contribute to multiple Sustainable Development Goals (SDGs). The EFUA partners work together closely to share latest knowledge through networking, publications, and the development of best practice guidelines.

EFUA is creating the UA Platform, a web-based interface aimed at increasing stakeholder participation and dialogue. The platform is promoting a long-term sustainable vision for UA that is embedding the discipline firmly into mainstream EU policy outcomes. Furthermore, the members of EFUA hope to reach out and to engage new groups of stakeholders from around the world, including from LDCs in Africa, Asia and Latin America, thereby creating a truly global voice for UA.

Challenges that EFUA can help address

In recent years it has become apparent that our planet's systems are under strain – the cracks are now becoming obvious for all to see. Pressing global challenges, including world population growth, urbanisation, climate change, growing social inequalities and the loss of global biodiversity, have all made it necessary to reconsider how we are feeding our cities. This requires the need to seek smarter, more sustainable, and more inclusive solutions as to how we reimagine our expanding cities and how urban centres interact with existing patterns of agriculture, food production and globalised markets. The emerging discipline of urban agriculture (UA) can help provide some answers to the challenges facing us, through delivering multiple social, economic and environmental benefits.

Although UA has recently become an important global topic – especially since COVID-19 has raised an awareness for the fragility of our global food system – it has yet to be fully integrated into the heart of European policy and practice. The European COST Action "Urban Agriculture Europe" research collaboration was the starting point of this process. This Action brought together some 200 leading experts from across Europe to investigate themes relating to UA. Whilst the initiative made initial headway, there are still huge gaps in UA knowledge, awareness and best practice. Many localised initiatives have been established. However, these have not been part of a coordinated and networked vision for UA.

The need to foster and develop connections is therefore paramount, including reaching out to leading experts in UA in Asia, Africa, and Latin America. There is therefore an urgent and pressing need to widen the circle of participation and representation in UA to practitioners, researchers and engaged citizens across Europe. This is the key challenge and the primary purpose of EFUA.

***Ian Whitehead** is a Researcher in cross-cutting approaches to urban forestry, nature-based solutions, green Infrastructure and citizen participation.*

***Daniel Münderlein** is EFUA Coordinator and interested in the further development of urban landscapes.*

More information

- European Forum on Urban Agriculture https://www.efua.eu
- COST-Action Urban Agriculture Europe http://www.urban-agriculture-europe.org

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Multiple benefits of Urban Agriculture

Enrico Gottero

Following a systematic literature review, interviews and questionnaires, Politecnico di Torino and partners in the EFUA project have identified the key benefits of urban agriculture (UA) and confirmed the potential of UA to address many pressing issues on the urban agendas around the world. In some cities, however, awareness of this potential is low. There is an urgent need to increase knowledge and deployment of UA and to support decision-makers in removing the barriers to foster UA and realise the multifunctional benefits.

Urban agriculture for overcoming urban issues

Certainly UA is not the remedy for all of a city's troubles, but if done well it can make a remarkable contribution towards tackling a number of urban and peri-urban issues, such as: low quality of public spaces; lack of green spaces; climate change impacts; social inequalities; knowledge gaps on food, environment and agriculture topics; food insecurity; and low well-being and liveability of the urban environment. UA is strongly connected with other concepts, such as urban metabolism, urban food systems and urban-rural linkages (see article by van Dam et al., p. 18).

In recent years, UA has become a complex activity that can involve both professional and non-professional gardeners and farmers. UA is practiced in intra-urban and peri-urban areas, in city fringes, and within city-region areas, urban farms, community gardens/parks, social farms, zero acreage farms (ZAF), as well as DIY gardens and parks (see Jansma et al., 2021). UA practitioners grow vegetables in a variety of locations – in soil, on rooftops, inside buildings, on balconies – and using several production methods, including organic, conventional, open soil, hydroponic, etc. UA can be an individual initiative, or a collective endeavour to produce both food and non-food products, as well as other services (education, leisure, health care, etc.). It can be conducted for profit or non-profit purposes, for the growers' own consumption or to sell, on private or on public land. Different stakeholders might be involved in the creation and management of UA projects: farmers, hobby gardeners, citizens, city officials, NGOs, associations, private and public sectors, local authorities. A range of factors – including environment and land morphology, socio-economic context, public policies and other site-specific conditions – can shape how, where, why, and by whom UA is practiced.

Different forms of UA may provide different benefits, yet despite numerous studies on its multifunctional benefits the importance of agriculture in the city seems to be fully perceived only by scholars, end-users and those who practise it. Policy-makers at all levels seem to be considerably less aware of the potential (and possible risks) of UA. At the European level, this gap is reflected in the low consideration of UA in sectoral policies. To help bridge this gap, the EFUA H2020 project aims to highlight the benefits of UA by providing information, improving knowledge and dissemination, involving networks of actors and stakeholders, and strengthening and integrating UA into urban sectoral policies at different levels.

The 5 dimensions and key benefits of UA

To capture the multifunctional value of UA, Politecnico di Torino and partners in the EFUA project have recognised five dimensions of UA benefits: i) socio-cultural; ii) environmental and climate; iii) food; iv) health and well-being; and v) economic.

This classification is mainly based on literature review and consultation with the partners involved in EFUA, taking into account urban issues that can potentially be addressed through UA and urban policy goals that UA can help to achieve. Possible risks (such as gentrification, the introduction of alien and invasive species, etc.), as well as overlaps and connections between different categories and typologies of benefits were also considered. This in-depth analysis allowed us to collect more than 30 benefits, many of which concern the social and environmental spheres (see Cassatella and Gottero, 2022). Some of these benefits are inter-related and sometimes they can also produce trade-offs or unwanted effects. From these 30 benefits, a small number of key benefits were identified in each category – that is, benefits that are more recognisable and widespread than others (Table 1).

This study also showed that the benefits of UA can contribute to tackling specific urban issues found on many city agendas.

Under the socio-cultural category, UA can contribute to making the city inclusive, improving social cohesion and developing the sense-of-place, as well as involving various stakeholders. Professional and non-professional UA

BENEFITS CATEGORY	KEY BENEFITS
Socio-culteral	Improvement of social cohesion and developing feelings of belonging and a sense-of-place Development of education, knowledge, innovation and awareness on food, agriculture and environment Improvement of leisure, recreation activities and tourist attractions
Environment and climate	Reduction of the urban heat island effect Increased quality and quantity of urban green spaces and green infrastructures Preservation of urban biodiversity
Food	Improvement of food security Improvement of food quality
Health and well-being	Improvement of physical and mental health
Economic	Improved local economies Creation of job opportunities

Table 1: Key benefits of UA (Source: Cassatella and Gottero, 2022)

initiatives can also support knowledge, innovation and awareness on food, agriculture and environment, especially through educational activities that many of these profit and not-profit initiatives promote. The improvement of leisure, recreation and tourist attractions are other positive impacts of UA, especially thanks to a broad range of diversified services and products that urban farms can offer (educational services, direct sale on-farm, agritourism, etc.).

UA produces numerous environmental and climate benefits that can mitigate climate risks and green the city: the reduction of the urban heat island effect, particularly in densely urbanised areas, the maintenance and development of intra-urban and peri-urban green spaces and infrastructures, as well as the protection of species and habitats. These initiatives can also promote soil conservation, contrasting land consumption and soil sealing. Short supply chains (which characterise several UA practices and local urban and peri-urban farms) can help not only to reduce the carbon footprint of food but also to improve food quality and dietary diversity.

Many UA initiatives can also improve food security, increasing food supply and providing access to fresher and healthier food. Practicing UA improves health, well-being and quality of life of communities and citizens, who enjoy greener, more liveable urban environments. UA forms such as social farms, community gardens and DIY gardens are particularly suitable for strengthening mental and physical health of gardeners and practitioners.

Finally, professional UA can reinforce local economies and generate new job opportunities, leveraging the proximity to, and commercial advantages of, urban markets and closer consumer-producer relationships.

Figure 1 summarizes which urban policy targets the key benefits of UA can help to achieve.

All UA types produce benefits

The research confirmed that all types of UA provide benefits – as shown in the following articles in this issue. Generally speaking, our study found that:

- urban food gardening initiatives are more connected with the socio-cultural and health and well-being benefits categories;
- professional farms, on the other hand, seem to produce more environmental and climate and food-related benefits;
- social farms and DIY, community and allotment gardens seem to offer more socio-cultural, health and well-being, and environmental benefits;
- urban farms and ZAF (such as indoor and high-tech farms, vertical farms, rooftop farms, etc.) appear more likely to produce environmental and climate and food-related benefits, as well as economic benefits.

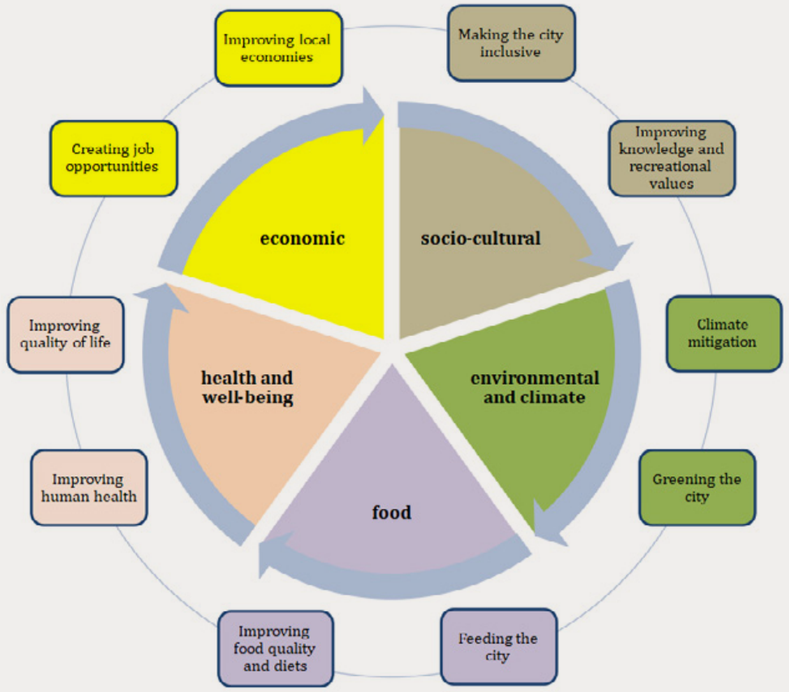

Figure 1: The five dimensions of UA benefits and main UA-related policy areas

Knowing and exploiting the benefits of UA, removing barriers

Strengthening knowledge concerning the many benefits of UA was one of the goals of this study. Full awareness allows us to understand the potential of UA, and to build targeted urban policies and tools to understand, support and monitor UA – rather than hinder it. However, some research areas have yet to be fully investigated, such as the cultural benefits and the positive impacts of UA on human health (mental and physical). There is also a notable lack of quantitative studies and analysis of measured benefits of UA. There are also few studies on the possible unwanted effects of UA.

In conclusion, this research confirmed that UA has high potential to address many pressing issues on the agendas of cities and metropolitan areas around the world. In recent years, some cities have developed instruments and tested different approaches (see article by Cassatella, p. 27); in other cities, however, awareness of UA's potential is low and work remains to remove barriers to UA and mitigate possible risks. Urban policies should be properly oriented and equipped to (re)accommodate agriculture in the city, leveraging multiple benefits of UA initiatives and considering UA not as an obstacle to development but as a possible tool.

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Ninewells Community Garden: mainstreaming health and wellbeing into Urban Agriculture and greenspace networks

Ian Whitehead

In recent years there has been an increasing awareness of the potential of urban farming to provide diverse benefits for health and wellbeing. Participation in urban food gardening and social farming can contribute to better health in a number of ways, such as through providing access to better food, and the promotion of active, outdoor lifestyles. Mental health benefits arise from increased opportunities for social interaction, reduced stress levels and through greater contact with the natural environment.

Scotland has been working to promote the health benefits of urban agriculture through coordinated action on the ground, linked to policy level reforms and government-led policy initiatives including *'Our Natural Health Service'* which aims to make more use of the outdoors to increase physical and mental wellbeing and to tackle health inequalities. One example of a successful project is the Ninewells Community Garden, a health-orientated initiative located in the grounds of Ninewells Hospital (a large teaching hospital located in the Scottish city of Dundee).

The initiative started in 2009 through the efforts of a group of interested volunteers working alongside National Health Service (NHS) staff to plan and create a community garden. Its mission is to promote physical activity and good health through community gardening in a sympathetic environment, whereby horticulture supports wellbeing, therapy and rehabilitation. Success has largely been the result of an ambitious vision and the dedicated commitment of volunteers.

At the time of the project's inception, there was a growing evidence base showing that green environments could also be healthy environments. Ninewells was fortunate to have extensive grounds, which provided an undeveloped health opportunity right on the doorstep of the hospital. This opportunity has been realised, with technical help and funding support from Scottish Forestry (previously Forestry Commission Scotland), through an approach whereby the outdoor garden and greenspaces complement the indoor treatment facilities of the hospital. The benefits for illness prevention, treatment, recovery and rehabilitation have been considerable, in keeping with a growing body of empirical studies demonstrating the general health benefits of exposure to greens spaces, using several indicators.

One of the first key challenges for the Ninewells Community Garden was to establish how staff, patients, visitors and the local community made use of the Ninewells Hospital grounds. That information helped the project team to understand the changes that were needed to encourage greater access to the grounds for active recreation, socialising, rehabilitation, relaxation and health improvement activities. Following the scoping phase, implementation work started in 2011 with creation of paths, raised beds, a small orchard and a wildlife area. The project soon expanded to include a sensory garden, a physic garden and a "Leaf Room", an indoor amenity space. Nowadays, the garden is open for everyone to enjoy, including patients, staff and the local community.

The project is managed as a registered charity by a Board of Trustees which consists of local people. The skills, knowledge, leadership and governance that they provide means that the Community Garden continues to flourish. The Board members contribute many volunteer hours and are key to the success of the subgroups, where all the operational work is done. Ninewells Community Garden works with a wide range of volunteers and groups throughout the year to deliver therapeutic gardening activities for all ages and abilities and to provide a supportive environment where people, as well as plants, can flourish and grow.

© Ninewells Community Garden Group

In line with increasing production of organic fruit and vegetables and an apiary producing honey, the garden provides monthly opportunities for participants to cook and eat together whilst delivering a series of healthy eating and cooking workshops for garden participants. To increase their ability to provide a range of meal options, the community garden has developed an outdoor kitchen and a dining area in the garden which is supplied with freshly harvested produce from the vegetable plots. The project has also provided additional training for volunteers in areas such as food hygiene, nutrition, mosaic workshops and biodiversity aspects. To help alleviate some of the pressures on hospital staff during the COVID-19 pandemic, the group has also set up a supported 'Drop In' facility within the garden.

The added value that volunteers bring to the Community Garden is substantial. For example, volunteers deliver lifelong learning through activities, demonstrations and encouraging participation in good horticultural practice and healthy living. The garden creates a sense of community through providing shared space and social interactions. Many of the participants want to help to create a place that is also productive; they are aware of global issues and want to link local food growing to a sustainable environment. Some of the volunteers have also acknowledged the link between being overweight and poor health and the NCG supports them with lifestyle habits.

At a strategic level, Ninewells Community Garden is working with NHS Tayside colleagues to implement the Scottish Government policy *'Our Natural Health Service'*. In addition, as a member of The Dundee Green Health Partnership and an early adopter of the Green Health Prescription pathway, Ninewells Community Garden has established a clear and simple referral route for prescribers to nature-based interventions. Through the project's links with external partner organisations, including Nature Scot, Keep Scotland Beautiful and Scottish Forestry, the work has been widely disseminated and celebrated across Scotland.

Following a 3-year grant award from Community Led Lottery funding in 2021, the Ninewells Community Garden team is now focusing on the future, consolidating work to connect people with nature, and engaging with more children, young people and families. The team is also building strong partnerships, particularly with the closest neighbouring gardens in Charleston & Menzieshill.

***Ian Whitehead** is a Researcher in cross-cutting approaches to urban forestry, nature-based solutions, green infrastructure and citizen participation.*

More information

- Our Natural Health Service https://www.nature.scot/professional-advice/contributing-healthier-scotland/our-natural-health-service
- Our Natural Health Service Demonstration Project https://www.nature.scot/professional-advice/contributing-healthier-scotland/our-natural-health-service/nhs-greenspace
- Ninewells Community Garden: A therapeutic garden for the whole community https://ninewellsgarden.org.uk/

ONZE urban greenhouse: cultivating connections, harvesting success

Darleen van Dam

This article explores the benefits of urban agriculture, focusing on ONZE, an urban greenhouse that rents gardens to allotment gardeners. ONZE serves as an example of how urban agriculture can generate positive social and economic outcomes for both the owner and the gardeners of the urban greenhouse. By examining ONZE's unique features and achievements, we can gain valuable insights into the benefits of allotment gardens under glass, based on practical experiences.

© Darleen van Dam

Located in the city of Almere near Amsterdam (the Netherlands), ONZE provides the opportunity for gardeners to lease a plot in a greenhouse. Plots are available at a nominal fee that ranges from €30 to €90 per month, depending on the plot's size (typically around 35 m^2). The greenhouse serves as a hub for urban agriculture enthusiasts and promotes organic farming amongst the gardeners, enhancing the benefits of urban agriculture in terms of sustainability and health.

Ron van Zwet is the owner of ONZE, which he started about ten years ago. Following some challenging start-up years, he built a vibrant business with a staggering 1400 allotment gardens. Today, Ron is a knowledgeable entrepreneur who not only oversees the greenhouse but also serves as the face of the company. Ron takes the time to walk around the allotment gardens, engaging with gardeners and sharing his expertise on biological control and other gardening practices. He instils confidence in gardeners by explaining how beneficial insects play a crucial role in maintaining a healthy ecosystem, effectively controlling pests without the need for harmful pesticides. "We know it will be alright," he says, emphasizing the self-healing, organic approach employed at ONZE.

Ron distinguishes two types of urban agriculture: commercial urban agriculture, which prioritizes profitability; and subsidized agriculture, which relies on maintenance and can lead to dwindling interest over time. Clearly favouring the commercial approach, Ron's entrepreneurial motivation at ONZE was to establish a profitable venture centred around horticultural allotment gardens — and he has succeeded. One factor contributing to Ron's success is the benefit of cultivating crops under glass, which provides a more stable climate. The high interest from gardeners is driven by the opportunity to grow throughout the year and cultivate tropical plants, like

© Ron van Zwet

sopropo, boulanger eggplants, and peppers, that thrive in the greenhouse environment.

Alongside the economic benefits, ONZE produces the numerous social benefits typical of community agriculture. Social connections flourish within this community, with new friendships often blossoming among like-minded individuals. Workshops and informative sessions facilitate peer-to-peer learning, fostering a culture of knowledge sharing and collaboration. Gardeners can learn valuable insights about plant cultivation simply by engaging in conversations with their neighbouring gardeners. Furthermore, the financial benefits of the allotment gardens are evident, as growing vegetables for themselves proves to be more cost-effective than buying food from the supermarket.

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What sets ONZE apart is its vibrant and inclusive social environment that embraces multiculturalism. For Surinamese individuals accustomed to having their own gardens, the presence of ONZE brings a sense of joy and familiarity. These gardeners appreciate the opportunity to cultivate their own vegetables (e.g. long beans, specific hot peppers, bitter gourd etc.) year-round, following traditional farming practices they are accustomed to. Additionally, Ron grows vegetables from Suriname and sells them in the farmers' shop, meeting the demands of the Surinamese community in Almere. ONZE's emphasis on organically grown Surinamese vegetables makes it the only shop in the Netherlands that offers such produce, attracting customers from all over the region. The ability to provide these unique crops has not only created a niche market but also generated an additional revenue stream for the owner of ONZE.

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All in all, ONZE exemplifies the potential of urban agriculture. Ron's initial motivation was to create a business in his greenhouse that maximized profits and benefited consumers. However, he was pleasantly surprised by the social benefits his concept unlocked. Witnessing the pleasure and contentment that gardening activities bring to people's lives has made him immensely proud. The positive energy in the greenhouse is contagious, which is certainly due to the social benefits, including new friendships, peer-to-peer learning, and the provision of healthy and diverse vegetables. The success of ONZE has even led to its expansion to the nearby city of Utrecht further solidifying its positive impact.

***Darleen van Dam** is a Researcher at Wageningen Research who explores transition processes towards resilient and responsible food systems.*

More information

- ONZE volkstuinen https://onzevolkstuinen.nl/

Multiple benefits of the urban garden Van Tuin Tot Bord

Lenneke Vaandrager
Marthe Derkzen
Mellany van Bommel
Emma Spoor

Van Tuin Tot Bord (From Garden to Plate; VTTB) in Nijmegen, the Netherlands is an initiative organized by and for local residents in their own neighbourhoods.

Nijmegen is a medium-sized city (177,000 inhabitants) in the southeast of the province of Gelderland. Since its foundation in 2015, when two community kitchens and two community gardens were opened, VTTB has developed into a distinctive urban garden concept focused on inclusiveness and healthy eating. The VTTB concept has been replicated in three restaurants and three community gardens in four neighbourhoods across Nijmegen, and continues to grow.

VTTB aims to contribute to social, green and healthy neighbourhoods. Local citizens can volunteer to work together in a pleasant environment, doing activities they enjoy and that suit their skills. For example, they can help in the vegetable garden, the kitchen, or join the neighbourhood restaurant team.

At VTTB, professionals create the conditions so that citizens can do the activities as independently as possible. Five professionals are employed: four part-time location managers (two of whom also support the garden groups) and a project leader. The project leader takes care of the overall coordination, planning and monitoring.
Two recent studies have investigated the benefits of VTTB, led by Emma Spoor (2022) and Mellany Van Bommel (2022).

For the Spoor study, 18 participants, coaches and volunteers were interviewed about what VTTB means for the participants. The results show that participants enjoy the activities of VTTB. They like the combination of activities and the social atmosphere. Participants also report that VTTB offers them an opportunity to meet new people and that they feel part of a team. They experience societal involvement, they feel more belonging in their community, and VTTB opens doors to get involved in other activities. Being outside and physically active while working in the garden was often mentioned as a healthy lifestyle benefit. All participants said that they had acquired new knowledge or have improved their skills in growing and harvesting vegetables, removing weeds, and cooking new (vegetarian) dishes.

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The coaches of VTTB said that they see improved self-confidence amongst participants, and that VTTB provides a structure for the week.

For the Bommel study, a questionnaire was administered amongst 130 VTTB participants. The results showed that:

- nearly 50% of the respondents come to VTTB weekly;
- more than 70% have been involved for one year or more;
- more than 90% feel at home at VTTB, and 50% feel they are part of VTTB;
- more than 60% express that they have a lot of contact with the other guests;
- more than 90% are happy to join the meals at VTTB;
- all respondents are very happy with the meals and think they are varied and healthy;
- fish and meat is not missed by 90% of the participants;
- all respondents like it a lot that the vegetables are from the garden and that meals are cooked with seasonal vegetables;
- more than 76% of participants say they learn to eat new types of food at VTTB.

Overall, both studies show that the combination of activities at the different locations of VTTB and the social character of VTTB has many mental, social, health and societal benefits for participants.

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Applying new lenses to urban agriculture: Urban Metabolism, Urban-Rural Linkages, and Urban Food Systems

Darleen van Dam
Enrico Gottero
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Lucie Sovová
Lenneke Vaandrager

Numerous concepts are described in the scientific literature that can be associated with Urban Agriculture (UA). However, it is important to offer a novel perspective that enables decision-makers to formulate specific actions and policies to support the development of agriculture in cities and metropolitan areas. In this article, we explore Urban Metabolism (UM), Urban-Rural Linkages (URL), and Urban Food Systems (UFS) as lenses through which we can observe the contributions of UA to urban and peri-urban development.

The relevance of these three concepts is evident as they address crucial areas in UA-related studies and are connected to some key issues such as food security, resource utilization, and the challenge of bridging socio-economic activities within and across diverse regions. The three concepts and their relationships have been discussed in detail in the context of the EFUA project (see Gottero et al., 2022). In this article we show how these concepts extend our understanding of UA and its impacts, highlighting specific aspects that go beyond the benefits discussed earlier in this magazine and enabling contribution to today's policy debates on urban sustainability.

Unveiling resource efficiency

Urban Metabolism (UM) is a perspective that focuses on efficient resource utilization and waste management in cities. It is particularly relevant to UA, where both material and energy inputs and outputs are considered (see Box 1). UA contributes to UM by reducing the energy required to transport food, thereby reducing the reliance on fossil fuels. Additionally, UA plays a vital role in recycling organic waste through composting. As such, UA initiatives promote resource conservation, environmental sustainability, and resilience in urban areas. By integrating UM principles into UA, cities can foster a healthier and more sustainable relationship between urban systems and agriculture, ultimately benefiting both the environment and the community.

Strengthening socio-economic connections

The concept of Urban-Rural Linkages (URL; see Box 2) emphasizes connections between urban and rural areas. Initiatives that promote URL create opportunities for urban residents to actively engage in agricultural activities, thereby fostering a sense of community, promoting food sovereignty, and creating new business for urban farmers. By strengthening URL, UA can help to generate income and employment opportunities. UA also facilitates the flow of goods, services, and knowledge between urban and rural practices, and promotes social cohesion, economic growth, and sustainable development in both urban and rural environments.

Box 1: Urban Metabolism

Urban Metabolism (UM) includes energy and material flows of urban environments. It promotes a circular economy, such as recycling and closing nutrient cycles, and can therefore be seen as connected to resource efficiency and climate adaptation. Types of UA that are classed as 'zero acreage farming', like high-tech farming and indoor farming, impact UM, as does composting.

MicroFlavours, an urban farm in Brussels, provides an example of how UA can contribute to UM. MicroFlavours specializes in the production of microgreens and vegetable shoots and is located in the cellars of a former brewery. To establish a sustainable and self-sufficient food chain, MicroFlavours uses hydroponic systems in a controlled environment, thereby utilizing fewer resources and being energy-efficient.

Nurturing sustainable food security

The Urban Food System (UFS) lens (see Box 3) focuses on the connection between various aspects of the food system within city regions. A local reconnection between food production, distribution, and consumption reduces the reliance on long-distance food transportation, promotes access to healthy food options, and mitigates environmental impacts of the food system. Therefore, the UFS concept sheds light on the contribution of UA to sustainable agricultural production and its benefits regarding the consumption of locally sourced and nutritious food. Moreover, the UFS approach fosters education and raises awareness about sustainable food practices, thus promoting healthier and more sustainable lifestyles among urban dwellers.

Box 2: Urban-Rural Linkages

The concept of Urban-Rural Linkages (URL) concentrates on connecting socio-economic activities between urban and peri-urban areas. Forms of UA that exploit proximity to consumers, like urban farms, offer diverse agri-food products and several public services. These initiatives focus on bridging rural and urban spheres, with local food production and aligned services as the carrier. By maintaining landscape features and providing job opportunities, urban farms can also address urban issues such as cultural heritage and local economy.

Oogstappel, an organic and community-supported farm in the Antwerp region of Belgium, serves as an example of how UA promotes URL. Oogstappel facilitates URL through the sale of vegetables and fruit directly at a market in the city. Additionally, Oogstappel offers a box scheme with a diverse selection of seasonal products. The annual subscription model, known as a harvest share, provides income guarantee for the farmers while ensuring a steady supply of fresh produce for urban residents. This direct connection between the farm and the city bridges the divide between food production and consumption, as well as between the rural and the urban.

UA Concepts and their Relation to Benefits

Figure 1 summarizes the relationships between UM, URL and UFS on the one hand, and the diverse benefits of UA on the other hand (see Gottero et al., 2022). Through these relationships, we can detect a range of practical strategies that can help achieve sustainability goals in cities. While there is inherent overlap between the three concepts and their associated benefits, the benefits can serve as starting points when decision-makers seek to tackle specific issues in urban and peri-urban environments. For instance, the improvement of UM can be initiated by focussing on environment and climate benefits (e.g., by monitoring indicators regarding carbon emissions of urban food systems).

Box 3: Urban Food Systems

The UFS concept is mainly connected to UA through food production. Urban farms link to elements of UFS such as food self-provisioning, food quality, alternative food networks, short supply food chains, as well as local and traditional agri-food products. UA initiatives' provision of locally grown food initiatives can also help to support greater self-sufficiency and overcome social issues such as food poverty.

By way of example, the DAM consortium operates multiple farms located in the peri-urban area of Milan, within the boundaries of the Milan Agricultural South Park (Parco Agricolo Sud di Milano). These urban farms collectively oversee 1,500 hectares of farmland, characterized by a mix of public and private ownership and cultivation of diverse local agri-food products, including rice, vegetables, horticultural crops, milk, meat, eggs, honey, and more. The agri-food products from these farms are sold directly on-site or through retail channels, and some are also supplied to school canteens as part of public procurement.

The DAM consortium exemplifies UFS because it has integrated various aspects of the food system, from production to distribution, within the peri-urban area of Milan. Urban farms within the DAM consortium enable the production of fresh and nutritious food in close proximity to urban populations.

Understanding UA-related concepts to leverage its potential and develop efficient policies

By including UA in urban agendas, policymakers can harness its benefits to address various urban challenges.

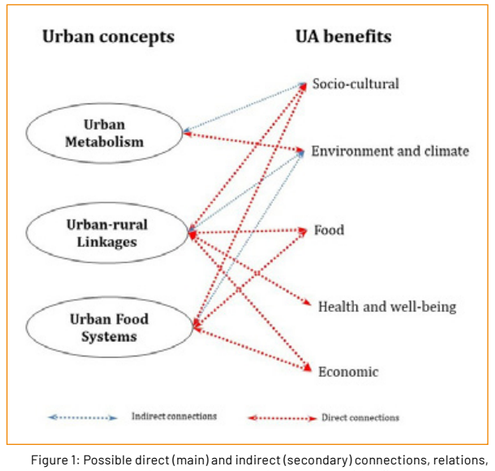

Figure 1: Possible direct (main) and indirect (secondary) connections, relations, and interconnections between urban concepts and UA benefits. (Source: Reworked from Gottero et al. 2022)

However, the benefits of UA are often not directly apparent. Explaining to policymakers the interplay between UA and the concepts of UM, URL, and UFS is essential. These concepts provide a holistic framework for understanding how specific issues can be addressed through UA. Policymakers who support activities related to sustainable land, circular economy, climate adaption, jobs and skills in the local economy, sustainable housing or air quality can particularly benefit from considering UA through all three concepts.

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As we move towards a more sustainable and resilient future, UA emerges as a transformative force that not only addresses the food-related challenges but also brings about positive social, economic, and environmental benefits in both urban and rural contexts. Policymakers have the opportunity to leverage the potential of UA by integrating it into urban agendas and utilizing its benefits across various sectors. Embracing UA and the interconnected concepts it supports is another key to achieving holistic urban-rural development and building thriving, sustainable cities for generations to come.

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Vivid ecosystem supports urban farming in Brussels

Nele Lauwers

The Brussels Capital Region has played a vital role in supporting a vivid urban agriculture sector in the heart of Europe. Starting from a clear strategy, various actors and organisations are collaborating to support new and existing urban farmers. This ecosystem of facilitators and the links between them is a great example that could inspire many other urban regions.

It starts with a clear vision

The Brussels Capital Region comprises 19 municipalities, including the City of Brussels. The region supports the urban agriculture sector within the framework of the Good Food Strategy, which aims at a real transition to a sustainable food system. Between 2016 and 2020, the number of professional growers doubled from 20 (with a surface area of 5 hectares) to 43, of which 27 full soil vegetable growers, one fruit grower, two sheep farmers, one hop farmer, six zero acreage farms (two mushroom, two microgreens, two vegetables/herbs) and two herbal tea plant growers.

Given the many beneficial effects that urban agriculture can generate (quality food, employment, reduction of the carbon footprint, awareness raising, etc.), several organizations have been mandated to provide personalized guidance to practitioners, so that they are better equipped and can develop their activity.

Central platform for questions

Established in 2018, the Brussels Facilitator for Urban Agriculture is a portal that provides information and mentoring services for the development of urban agriculture[1]. The website is invaluable for gathering information through thematic info sheets and frequently asked questions (FAQ). It is an important starting point for everyone who wants to get started with food production in a city environment.

Since availability of land is challenge number one, the services of the facilitator portal have shifted to support owners and project developers, as well as public authorities and communities. A knowledgeable network of multidisciplinary experts and organizations is available to inspire, inform and guide these actors. The goal is to implement food production in both existing and planned neighbourhoods and buildings, which may then provide space for professional agricultural production and/or citizen vegetable gardens.

Local Economy Office for urban farming

Professional farmers and entrepreneurs can connect with the Local Economy Office's *Village Partenaire*[2], where they can obtain free advice and training on business models, market studies, financial plans, and communications support. The Local Economy Office collaborates with the Facilitator to provide expertise on urban planning, legal issues and production techniques. In the case of soil-based farms, the *Village Partenaire* also advises new farmers to start their business at the *Graines de Paysans* farm testing area located in the Brussels periphery (see below).

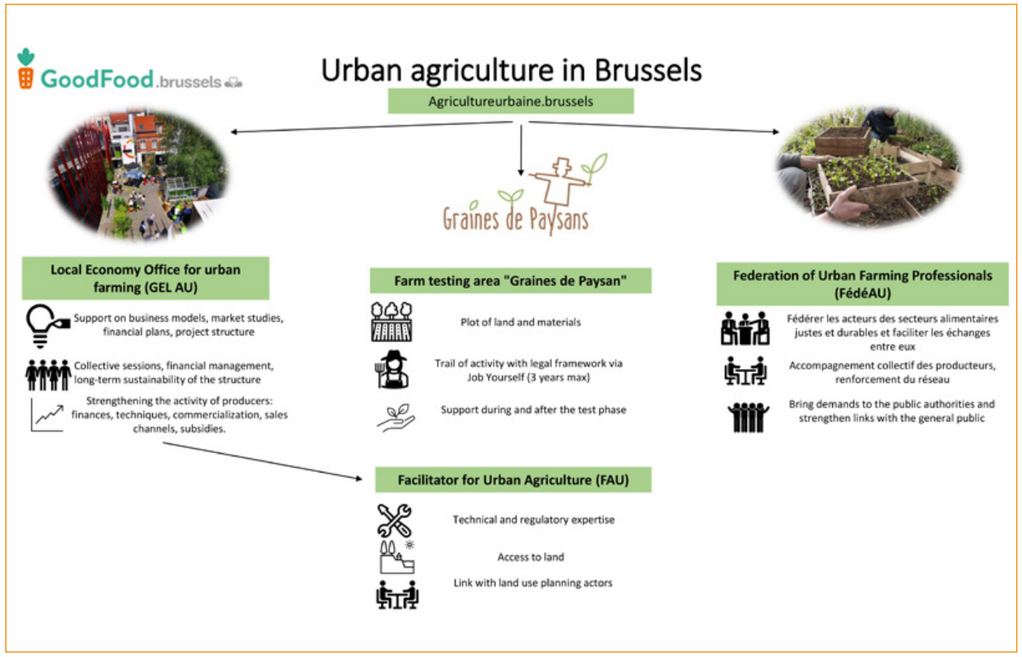
Federation of Urban Farming Professionals

The Federation of Urban Farming Professionals (FédéAU)[3] was created at the end of 2020. Its purpose is to build a network between the pioneers of fair and sustainable food production systems and to facilitate exchanges between them, to develop collective services, to lobby the public authorities on their behalf and to strengthen bonds with the general public in the Brussels Capital Region and its periphery. FédéAU is an important broker of knowledge sharing between professional urban farmers and a sounding board for the Region's policy makers.

Farm testing area

The farm testing area *Graines de Paysans* enables new farmers to test their professional activity in a secure environment. During the test period, new farmers have access to a plot of land of between five and 30 acres, as well as the infrastructure and tools they will need to farm and sell their produce. The farmers are all completely independent and use different production methods (but all are certified organic), and different ways of selling (e.g. directly to consumers, to restaurants, or to shops, etc). Theoretically new farmers can spend up to three years at Graines de Paysans, but they often stay as long as five years because they cannot find land elsewhere.

This testing area was launched in 2016 with European funds granted under the BoerenBruxselPaysans project[5]. The mission of this project is to facilitate and increase local food production in the Brussels Capital Region, as



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well as processing according to ecological production methods, for the benefit of Brussels' consumers. It aims to promote access to quality food via short supply chains, to raise awareness of sustainable food in all its aspects, and to involve consumers in local food dynamics.

Finding land is the most difficult

Scarcity of land is a challenge in an urban environment. Governments have a role to play through their urban plans, but also landowners could be motivated to rent their land to farmers. In Brussels the organization *Terre en vue* is a movement of motivated citizens that takes this idea a step further by bringing together enough money to purchase agricultural land and then renting it to farmers for agro-ecological projects. The movement also advises other landowners (e.g. governments) on how to make this land available for food production.

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European policies on Urban Agriculture: state-of-the-art, limitations and opportunities

Henk Renting
Claudia Segreto

An EFUA review of EU policy areas and instruments concludes that urban agriculture is not currently on the radar as a European policy issue. This article makes the case for the various types of urban agriculture to be actively addressed in a slate of EU policies and strategies, for the multifunctional benefits to be harnessed for true food systems transformation.

There has been considerable and growing interest in urban agriculture (UA) and its multiple benefits over the last decade. Various projects and networks have emerged within and between cities. Examples of such (inter) national multi-city networks are the Milan Urban Food Policy Pact, the Eurocities Working Group Food, and national networks in the Netherlands, Spain, and Italy. Amongst these networks and projects, UA increasingly appears as a promising approach to green the city whilst also contributing to food production and the development of a city's identity[1]. UA and urban gardening initiatives also have potential to contribute to a better quality of life and social cohesion.

At the European level, however, UA seems not (yet) to be on the radar as a national and transnational European policy issue. At the EFUA[2] FACTS! Conference of March 2022, it was highlighted how UA (even when clearly present in narratives and visual presentations) is not mentioned explicitly in relevant new EU policies or strategies, such as the Farm-to-Fork (F2F) Strategy. Additionally, UA is not (yet) an explicit category in the EU Common Agricultural Policy (CAP). Agricultural policies tend to focus on rural areas, thereby neglecting the capacity of UA to contribute to food production and other important goals and challenges of European agriculture.

Mapping of EU policies

To date, hardly any studies have investigated how UA is addressed in policies at the European Union (EU) level. Moreover, there is a lack of knowledge on how current policies could potentially support UA and, in return, contribute to different EU policy goals and challenges. To address this gap, the EFUA project mapped selected EU policy areas and policy instruments that are relevant to UA, and identified those that could be used to support UA practice[3].

First, the EFUA team considered the most important policy areas when discussing UA within EU. For this, the EU's own definition of policy areas was used, i.e. specific thematic areas where the EU can act because the member countries have authorised it to do so, via the EU treaties[4]. On the basis of expert interviews, five EU policy areas were identified as priorities: Public health, Agriculture, Environment, Territorial Cohesion, and Research and Innovation.

For these policy areas, the team drew on expert knowledge and document analysis to research the following further questions:

- Within the area, are there already policy instruments that address UA?
- What are the main and specific objectives of the policy instrument?
- Who are the key stakeholders involved?
- What are the funding tools?
- How is UA addressed within the identified instrument?

This exercise demonstrated that UA is still very much neglected at the EU policy level. Within the five key policy

Figure 1: Selected EU policy areas

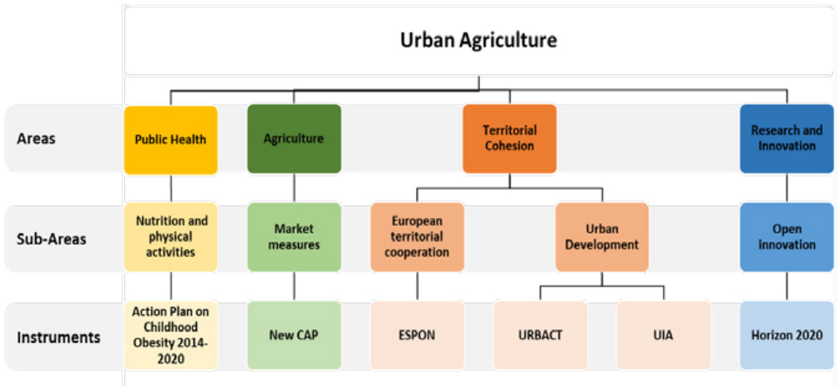

Figure 2: Existing policy instruments for Urban Agriculture in relevant EU policy areas

areas, UA is never explicitly mentioned in any policy instrument's objectives. Rather, when UA is addressed, it is indirectly through UA-related activities implemented through specific funded projects.

Moreover, existing policy instruments related to UA, and to urban food systems more generally, are highly isolated and fragmented. There is no clear, overarching integrated vision of UA that gives direction to policy instruments across different areas. Clearly there is a big gap between the daily UA experiences of producers and citizens for whom UA is a local and urban-driven reality on the one hand, and higher levels, such as the EU, that do not yet adequately recognise it, on the other.

Specific policy areas: opportunities and limitations

A further look at some examples of policy instruments gives a more fine-grained picture of the current policy landscape and its limitations in promoting UA's potential (see Figure 2), and is a basis for suggestions of possible new or improved policy instruments (see Figure 3).

For the policy area **Public Health**, the Action Plan on Childhood Obesity includes a number of intervention areas to which UA could be relevant under "contributing to halting the rise in overweight and obesity in children and young people (0-18 years) by 2020". For example, interventions to "promote a healthier environment, especially at school and pre-school" might include establishing school-based food gardens. The intervention area to "inform and empower families to increase the intake of healthy foods (fruits and vegetables, milk, water) among parents and children in local communities" is also relevant; the EU encourages implementing direct-to-consumer marketing outlets such as farmers' markets and community-supported agriculture, and promotes home food production through rooftop/balcony gardens, school raised bed gardens and planting fruit trees in parks,

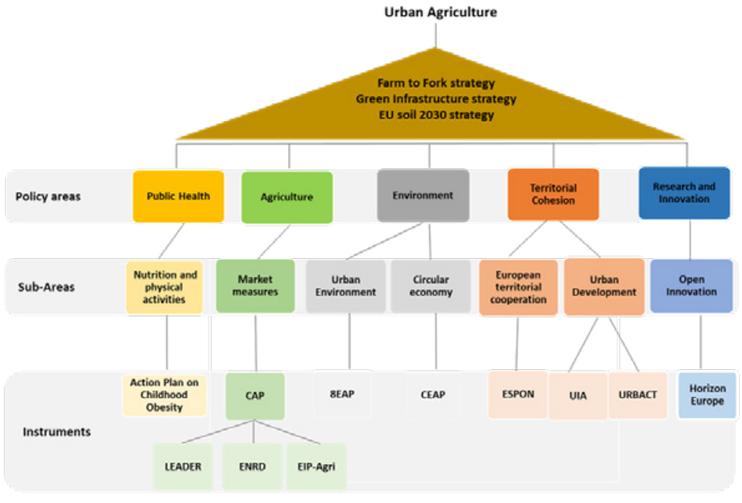

Figure 3: Policy map with identified and proposed instruments that relate to UA

schools grounds, urban streetscapes, and waste-ground areas to encourage free picking and fresh fruit consumption.

For the **Agriculture** policy area, EFUA research identified UA-related activities in the fruit, vegetable and milk scheme, financed under the CAP. This produce might be provided by urban farms and other local producers, and the scheme also supports school gardens. These measures address CAP objective 9 (Responding to societal demands on food & health).

In other CAP objectives to which UA clearly could contribute, it is not acknowledged. For example, objective 1 aims to "enhance long-term food security and agricultural diversity, as well as to ensure the economic sustainability of agricultural production". To this end EU farmers can receive income support as 'direct payment' in support of this objective but UA producers are, in most cases, excluded. This is often due to not meeting minimum farm size (0.3 to 5 hectares depending on the EU country), and not performing a clearly defined agricultural activity on land registered as agricultural area, a difficult condition to meet in urban areas. Moreover, even if they were to receive direct payments, UA farmers would receive very little because the payments are calculated on the basis of area eligible land. Soilless production on non-agricultural land (rooftops, vertical farming, small-scale inner-city farms etc.) would be excluded from support.

The 'second pillar' of the CAP, covering territorial support programmes, potentially has more opportunities for UA. Although UA can clearly have important environmental and social benefits, farming in the second CAP pillar is still strongly considered a rural domain. However, these benefits should not be confined to rural settings only, and environmental and social benefits derived from UA practices should be guaranteed to everyone, including urban citizens and producers. Rural Development Programmes (RDPs) could also better integrate relevant UA activities. RDPs depend on national regulation and national territorial delimitations, which can exclude urban areas for parts of RDP measures. If agriculture in urban areas were eligible for RDPs, UA could make use of some good existing measures, for example for supporting regional value chains and cooperative market arrangements. Therefore, UA should be directly reflected in future strategic planning regulations and not excluded by the specific limitation of land as "rural". Agriculture should be considered as such regardless of location, and equal benefits promoted in both rural and urban areas.

In relation to the CAP, three other policy instruments can be used to further develop UA and benefit policy agendas: the local development programme LEADER[5], the European Network for Rural Development (ENRD), and European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-Agri) programmes (see Figure 3). The community-based approach of LEADER bottom-up development and funding would be well-suited for UA programmes, which often have a strong community component, especially when these could be implemented across urban-rural divides and strengthen regional linkages.

The ENRD serves as an exchange hub for information on how Rural Development policy, programmes, projects and other initiatives work in practice, and how they can be improved. While ENRD does not provide direct funding, there are good opportunities to address relevant topics for UA in information exchange and RDP improvement activities, including supporting a more balanced role of UA in RDPs.

Lastly, the EIP-Agri programme could play a stronger role in developing UA. EIP-Agri was created to bridge the gap between the innovative solutions created by researchers and the uptake of new technologies by the agricultural sector, such as by creating partnerships (Operational Groups) that bring together multiple actors such as farmers, researchers, advisors, businesses, environmental groups, consumer interest groups or other NGOs to advance innovation. EIP-Agri Operational Groups must contribute to the overall objective of promoting agricultural innovation that is more resource efficient, productive, low emission, climate-friendly, and resilient, and that operates in harmony with the natural resources on which farming is based. Different types of UA initiatives can clearly address these objectives. There have already been some EIP-Agri groups relevant for strengthening UA including on topics such as Circular Horticulture, New entrants into farming, and Innovative short food supply chain management.

For the **Environment** policy area, no policy instruments that explicitly address UA activities were identified. At the same time, it is clear that UA has important potential environmental benefits, and there are opportunities to address UA in policy programmes such as the 8th Environmental Action Programme (8EAP), the new Circular Economy Action Plan (CEAP), the climate and energy actions as part of the Green Deal and the EU Soil Strategy for 2030.

Additionally, the EU Strategy on Green Infrastructure (GI) might be relevant for UA. It aims at developing, preserving and enhancing healthy green infrastructure to help stop the loss of biodiversity and enable the delivery of ecosystem services to people and nature. Although it evolved from nature conservation, the GI Strategy is now more connected to the human scale and the human needs. UA provides similar benefits and can therefore be regarded as an important element of GI. There may also be promise in using GI strategies as a vehicle for better policies in UA, as GI connects UA in the larger discussions about Green Cities and Ecosystem Services.

The policy area **Territorial Cohesion** currently has several policy programmes supporting UA. These especially aim at funding exchange and learning programmes between territorial and urban development programmes in cities and regions across Europe. An example is the URBACT programme, aimed at promoting sustainable urban development that integrates economic, social and environmental dimensions and at improving the capacity of cities to manage urban policy for this. Through URBACT, several exchange projects relevant for UA policy development have been funded, such as RU:RBAN and Agri-Urban.

RU:RBAN aimed at transferring Rome's management models of Urban regeneration and social inclusion through urban gardens to a cohort of other European cities. Specifically, the cities exchange knowledge on: 1) urban gardens capacity building 2) governance, and 3) education about gardens management (Gardeniser)5. Agri-Urban aimed to "create a European network of small and medium-sized cities, with a potential for creating jobs in their rural or peri-urban areas, through an integrated approach, combining the social and environmental dimensions of agriculture in an innovative way"[6].

Other relevant support programmes for the Territorial Cohesion policy area are Urban Innovative Actions (UIA) and ESPON 2000. The UIA programme finances projects that test new and innovative solutions to address urban challenges in European Cities. Many initiatives financed by UIA have used UA-related activities to address their goals. The ESPON 2020 programme finances policy-relevant research with the overall objective of reinforcing the effectiveness of EU Cohesion. Many projects within ESPON have addressed UA, including the GRETA project aimed at promoting GI for territorial development[7].

For the policy area **Research & Innovation**, different projects funded under the Horizon 2020 research & innovation programme have covered UA-related activities, and supported the development of learning and exchange networks between city governments, universities and research institutes. This includes projects like: FoodTrails, FoodSHIFT2030, FoodE and the FUSILLI project, as well as the EFUA project. Various of these projects include UA cases, although there is no explicit exchange on this topic. Rather, projects focus on wider urban food systems and urban food policy approaches, and within which the role of UA is not always obvious.

Towards integrated support for urban food systems, incl. urban agriculture?

The review makes it clear that EU policies for UA are still very fragmented and incomplete. While relevant actions do exist in some policy areas, they remain isolated. There is no overall, integrated policy for UA.
On the positive side, EU policies are shifting towards more integrated, less sectoral approaches to food system policies with the development of integrating, thematic policy strategies, such as the F2F Strategy, the GI Strategy and the EU Soil Strategy. The F2F Strategy is a particularly important development, and in the context of which a new European Food System Framework (or even Law) is foreseen. That said, it is still very unclear how far UA will be explicitly included in F2F and the Food System Framework – even though it is clear that UA is very relevant for its goals (as well as the goals of the Green Deal).
Until now, the EU Food System approaches favour elements such as food environments, food procurement schemes and food waste – that is, areas on the consumer side of the food system. While these food system elements are certainly relevant, for a really transformative approach to food systems it is vital that the various different types of UA be addressed, and the huge potential benefits be acknowledged.

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Policy tools for Urban Agriculture. An overview of experienced solutions

Claudia Cassatella

Urban and peri-urban agriculture (UA) has been recently addressed (or, at least, mentioned) by many policies, at the international and the local level. The policy domains span from food policies, to rural policies, to policies on green infrastructures, climate change adaptation, urban regeneration, and more.

Nevertheless, according to an analysis of 44 case studies worldwide by the EFUA Project (Cassatella et al., 2022), only a minority of existing UA practices take their first steps as a result of intentional public policy; those that do originate mainly from food policies or green Infrastructure policies. There is room for initiatives in other policy domains, such as urban regeneration.

When a city or a city region wants to establish or implement UA initiatives, they may apply a wide range of different instruments – from strategic plans to statutory plans and regulations, to incentives and assessment tools (see Cassatella et al., 2022; Table 1). These include, for instance, food strategies, zoning ordinances and protective designations, regulations on UA activities and spaces, fiscal measures, public-private partnerships and pacts.

Instruments	Testing Cities
Inventories	
Existing UA areas	Portland (USA); Rome (ITA); Turin (ITA); Vancouver (CAN);
Vacant or underutilised land/roofs	Baltimore (USA), Detroit (USA), New York (USA), Rotterdam (NLD); Singapore (SGP)
Plans	
Comprehensive strategies or plans	Baltimore (USA); New York (USA); Portland (USA); Marseilles (FRA)
Specific strategies, plans or programs	Oslo (NOR); Rosario (ARG); Toronto (CAN); Yarra (AUS)
Master Plans	Almere (NLD), Dar es Salaam (TZA), Kigali (RWA), Singapore (SGP)
Regulations	
Ordinances	Detroit (USA); Sacramento (USA); Tokyo (JPN)
Territorial agreements	Barcelona (ESP), Milan (ITA), Paris (FRA), Lille (FRA)
Regulations on UA management	Krakow (POL), Turin (ITA), Rome (ITA), Vilnius (LTU)
Temporary use	Detroit (USA); New York (USA); Kigali (RWA); Vilnius (LTU); Zurich (CHF)
Incentives	
Financial incentives	Sacramento (USA); Seattle (USA)
Technical assistance	Oslo (NOR); Sao Paulo (BRA); Seattle (USA)
Education and training	Quito (ECU); Rosario (ARG); Rotterdam (NLD); Seattle (USA); Sydney (AUS); Taipei (TWN); Toronto (CAN); Yarra (AUS)
Assessment	
Evaluation frameworks	Toronto (CAN)

Table 1: Policy tools to foster urban and peri-urban agriculture, with particular attention to spatial planning (Except from Politecnico di Torino, 2022)

UA includes numerous different types of practices, at various scales, but all types have implications for spatial planning. The big question is whether UA, as a land use, is urban or rural? This distinction has implications on land market value and accessibility, taxation, building rights and transformation rules, governance regimes and so on. The existence of peri-urban areas make this issue even more complex. Consequently, when it comes to urban planning activities, designating a zone for UA is not an easy task. Nevertheless some cities, in the US mostly, have identified specific UA zones by zoning ordinances. In Japan, the "Productive Green Zones" have a special fiscal regime. In other cases, UA is accepted as a temporary use only, while an urban development is planned, as a place-keeping activity. However, in the emerging landscape of shrinking cities, the insertion of UA is also proposed as a long-term strategy, requiring changes in land use designations.

On public land, UA initiatives are carried on under several governance arrangements. These included individual or collective loans for use, or agreements with associations for the co-management of public goods (Forte et al. 2022). The provision of social services (inclusion of people with disadvantages, or educational activities) might be foreseen. Specific regulations for the management of urban gardens may include environmental requirements (e.g. no pesticides, water management, e.g.) or on the aesthetic value of UA plots, fences and other materials used in urban gardens (to avoid negative visual impact).

On private land, a clear distinction must be traced between gardening and professional farming, which have different needs and deserve differentiated policies. City masterplans can introduce morphologies and typologies

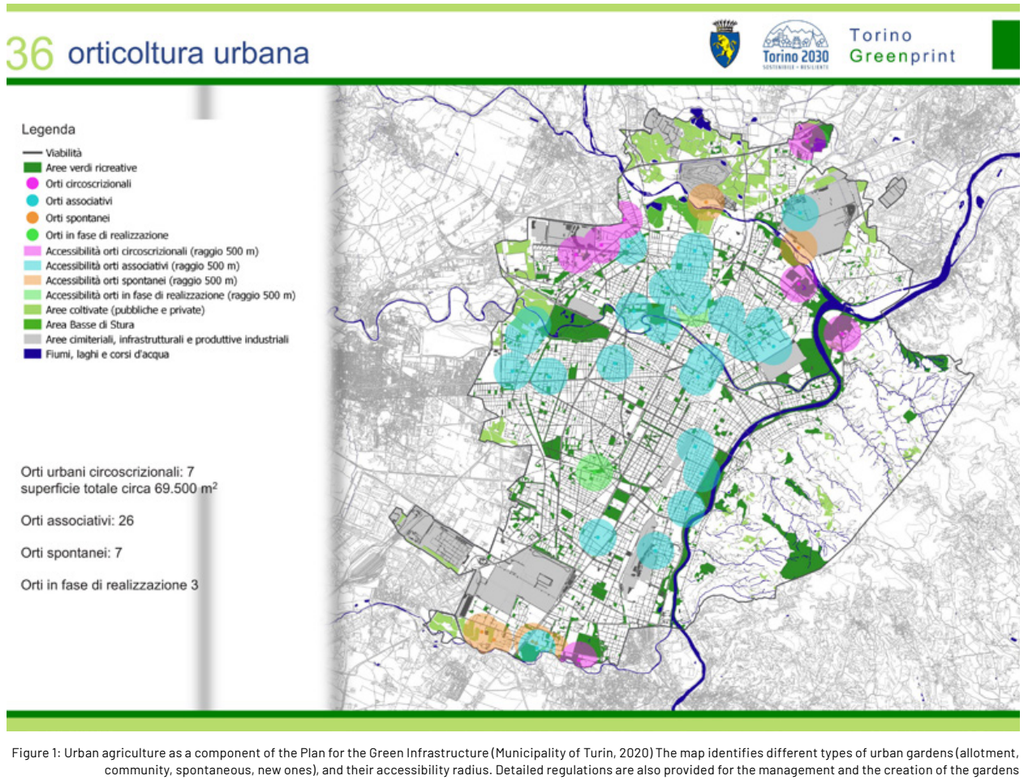

Figure 1: Urban agriculture as a component of the Plan for the Green Infrastructure (Municipality of Turin, 2020) The map identifies different types of urban gardens (allotment, community, spontaneous, new ones), and their accessibility radius. Detailed regulations are also provided for the management and the creation of the gardens

that favour farming on individual plots (see the City of Almere). Professional farming, an economic activity that is market-oriented (and not necessarily the local market) is not easily manageable by spatial plans. Nevertheless, spatial planning can provide protective measures aimed at protecting fertile soil for food production and acknowledging its related multiple ecosystem services.

Some peri-urban farmlands have been designated as protected areas with the mission of managing both nature and agriculture, in contrast to urban sprawl and taking advantage of urban-rural linkages (through, for example, alternative food networks or agritourism). Italian "agri-parks" each have a park authority and a spatial plan (see, for instance, South Milan Agri Park), while the French "Agri-SCoT" *(Schéma de cohérence territorial)* are based on agreements with professional farmers' associations (see, for instance Terres en Ville). Land banks can be instrumental to such designations.

In urban areas, the rise of Zero-acreage farming and agri-green roofs poses interesting new questions on the regulation of food production and distribution within urban spaces; to date, these questions have not been addressed at all. Special regulations have been defined by front-runner cities such as New York and Singapore. Indeed, Singapore is a unique case study where hi-tech UA is fostered by a detailed plan and by public investments.

Through surveys and interviews, the EFUA Project has collected a list of factors that create barriers to the implementation or continuity of UA practices. Among these, land property and land accessibility play a crucial role, as well as land conflicts.

In conclusion, the toolbox for planning with and for UA includes inventories of available land, strategic and statutory plans, regulations, incentives (fiscal, or technical), and assessment tools. To support city authorities in the integration of UA into public policies, the EFUA Project proposes guidelines and recommendations (see Politecnico di Torino, 2022; Table 2). A clear identification of the desired benefits of UA should guide policy design (see article by Gottero, p. 9), guiding the choice of the UA Type and its possible location. Professional and non-professional farming deserve differentiated policies. A participatory approach, from the outset, can help – such as, for instance, creating a committee of stakeholders. Giving legal recognition to UA (as well as removing legal restrictions) is crucial, as well as keeping or making space and improving its accessibility to gardeners and farmers. At the city level, specific plans can be adopted, UA can be integrated into zoning, possible locations for UA can be identified (paying attention to infrastructures), different types can be regulated, and combined with other urban functions to maximise benefits and manage conflicts.

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Developing a participatory process and establishing a UA committee	Ensuring availability and access to public land for UA	Identifying existing and potential land for UA
Creating a specific plan for UA	Defining regulations for UA	Developing financial or incentive tools
Developing facilities and infrastructures for UA	Supporting UA initiatives and urban farmers	Evaluating and monitoring public policies for UA

Table 2: Main policy recommendation to plan with and for urban and peri-urban agriculture. (Except from Politecnico di Torino, 2023)

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Mapping urban agriculture policies: lessons from New York City

Interview by Sara Smaal

In this interview, Nevin Cohen sheds light on how thinking about urban agriculture policies in an integrated fashion can help cities structure policies so they are cohesive and mutually supportive.

This magazine once again demonstrates how urban agriculture covers quite a diverse range of practices and challenges. How can cities develop policies to tackle this complex topic?

When we think about urban agriculture policies, it is important to consider how they relate to different domains that are important to city governments: from economic development to education to sustainable land use. Urban agriculture policies can support multi-dimensional benefits that the city cares about. These are what my colleagues and I describe as nexus policies that address issues like food production, energy conservation, water conservation and human development, all intertwined (see Figure 1)[1].

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Can you give some concrete examples of urban agriculture policies that have been developed in New York City within these different domains?

Cities, at their core, have a responsibility to manage land through zoning, planning and code regulations. This is a really traditional form of policymaking in New York. Our zoning has always allowed urban agriculture in all types of zones: residential, commercial, and manufacturing. And that has been a huge advantage to the development and growth of urban agriculture in New York City. In addition, our zoning allows food to be sold from farms and gardens in any district, even in a residential district where other commercial activity is prohibited.

Our building code has also been revised to encourage rooftop urban agriculture. New or substantially renovated buildings have to be covered either by solar panels or a green roof system. While developers can opt for a passive green roof, this building code has encouraged them to think about creating buildings with active food producing rooftops.

Another core issue in large cities is economic development. New York has directed different agencies that are responsible for providing spaces for entrepreneurs and providing financial support for new businesses, to help strengthen urban agriculture startups. When he was the Brooklyn Borough President, our current mayor, Eric Adams, put out a report explaining why urban agriculture could be an important engine of economic development in New York City. The mayor has a vision that New York City will be a center of innovation for urban agriculture technologies. The city has provided resources like incubator space and other financial support for agri-tech startups.

It sounds like the city is doing a great deal for urban agriculture entrepreneurs. What policies are in place to ensure that citizens can also benefit from these developments?

The city has used federal dollars to help low-income New Yorkers who need assistance paying for food to spend it on produce grown on periurban and urban farms. The city runs different programs, including, for example, the Health Bucks program, which gives people who participate in the federal Supplemental Nutrition Assistance Program (SNAP) $2 for every $2 spent at farmers markets, up to $10 per day. New York City farmers markets mostly sell produce grown in the peri urban area or the rural areas of New York, but they also sell food produced in New York City farms and gardens. So residents who use Health Bucks get additional value for their expenditures at farmers markets and support local producers.

Urban agriculture is also important to education. New York City has a very large school system. We have about a thousand school buildings and a million students in public schools. And many of those schools now have gardens connected to them. In addition, there are nonprofit organizations like Green Bronx Machine that provide ways to teach science technology and environmental concepts to young children through urban agriculture. Or Teens for Food Justice, a nonprofit that uses urban agriculture in high schools to teach young people about the social justice dimensions of the food system – not only how to grow food but also how to advocate for fair policies in the food system. A workforce training program run by Green City Force uses federal dollars to enable young people in public housing developments to gain employment skills by working at large farms that have been built in the center of six large scale developments.

Earlier, you mentioned how so-called nexus policies can produce benefits that also reach beyond food. Can you give an example?

New York City has supported a variety of nexus policies. For example, the city's green infrastructure program, which is designed to help abate stormwater surges and to reduce the impact of stormwater on the city's sewage treatment plants, provides funding for private building owners or landowners to invest in urban farms. New York State also helped fund a study in the Lower East Side of Manhattan, a low-lying neighborhood that tends to flood in major storms, to think about redesigning the urban farms and gardens in that area to serve as a barrier to stormwater surges[2].

Moreover, the city government distributes compost, rain barrels and cisterns to urban farms and gardens, also as a form of green infrastructure. An innovative project to mention here is PUREsoil NYC: by mixing the subterranean soil that is excavated for large scale building projects – that normally doesn't have any nutrient value for crops – with organic matter, the city has created a very valuable growing medium, that is made available for free to gardens and farms throughout New York City. The city also has an office in the city's Parks Department (called GreenThumb) that manages all of the hundreds of community gardens in the city, but also provides technical assistance, compost and other kinds of help.

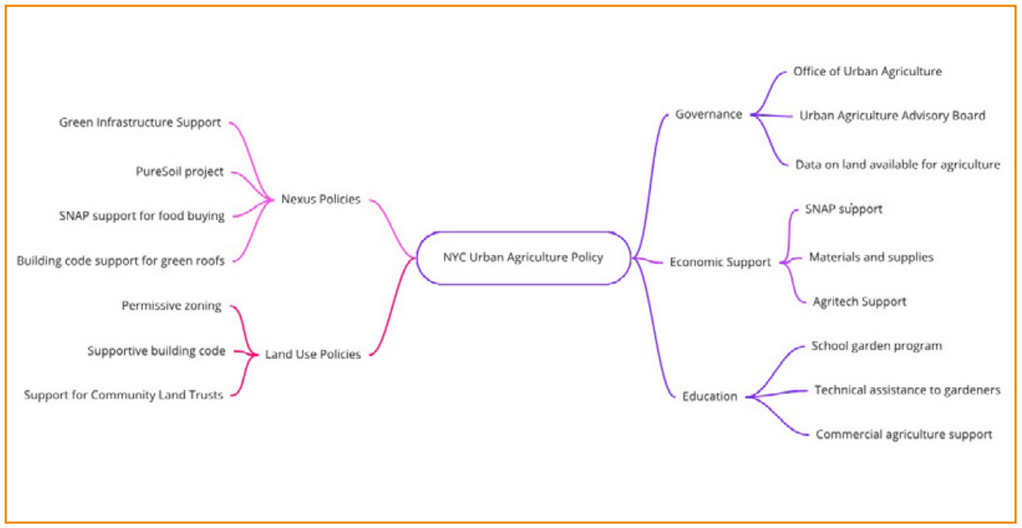

Figure 1: Map of policies in New York City related to urban agriculture © Nevin Cohen

Because urban agriculture transcends policy domains, governments often struggle to establish sufficient governance capacity and political support to embed the topic sustainably within their administrations. How is New York approaching this, and what would be your advice to other cities?

In 2022, the city created a separate Office of Urban Agriculture within the Mayor's Office of Climate and Environmental Justice, illustrating that the focus is broader than food production. It was established to promote urban agriculture throughout New York City, but also to help integrate thinking about urban agriculture and supporting urban agriculture across the different agencies that the mayor has control over. The city has begun to form an urban agriculture advisory board with people from the urban agriculture industry, nonprofits, academics, and others.

Governance is critical to urban agriculture. New York City has done several things to enhance the governance of urban farms and gardens. One is to require city agencies to proactively inventory city owned property for parcels that are appropriate for growing food. That list is made publicly available so that community organizations and other nonprofits or entrepreneurs can find out where those parcels are available and to potentially turn them into farms and gardens.

My recommendation to other cities would be to map out all of the different urban agriculture policies, also policies that relate to urban agriculture but are not typically thought of as explicitly urban agriculture policies. Take, for example, the policies we have discussed in this article: land use policies that can either present a barrier to or support urban agriculture, education policies that might lend themselves to encouraging school urban agriculture projects, economic policies that can be directed at preferentially supporting urban agriculture businesses, or nexus policies that grapple with multiple issues simultaneously. This will help the city to think about urban agriculture as a commercial and non-commercial activity of land use, a space for learning and empowerment, and a physical infrastructure that can produce multiple gains that different agencies can benefit from.

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The Urban Agriculture experience: from a European to a global learning process

Claudio Bordi
Patricia Hernandez

The COVID-19 pandemic has brought the issue of food resilience to the forefront in cities worldwide, along with the need to question the desired degree of food self-sufficiency through urban agriculture. Experiences learned during several EU-funded projects in years have been transferred to new contexts, including Barranquilla, Colombia, resulting in mutually beneficial two-way exchanges between Europe and Latin America through the GenerACTOR project.

Since the start of the pandemic, there has been a significant increase in citizens' demand for urban gardens, as attested by EFUA partners. Urban gardening has experienced widespread growth not only in Europe but also globally.

Investments in urban agriculture (UA) initiatives have been on the rise worldwide, yet the societal benefits remain poorly understood. Consequently, projects that aim to build understanding are highly significant, such as H2020 EFUA[1], H2020 FUSILLI[2], URBACT RU:RBAN Transfer Network[3], and the EU's International Urban Cooperation (IUC; expanded in 2020 to include regions and renamed IURC) paring city-to city cooperation Rome-Barranquilla[4].

Based on the RU:RBAN experience, coordinated by *Risorse per Roma* (a consultancy owned by the City of Rome) between 2018 and 2022, the ten European cities involved have learned that UA can serve as a link between socioeconomic and therapeutic systems (Coruña and Algeciras, Spain; Carlow, Ireland; Loures, Portugal; Caen, France; Alexandroupolis and Thessaloniki, Greece; Krakow, Poland; Split, Croation; Vilnius, Lithuania). It can support education and societal engagement and promote the concept of local agricultural production known as 'zero kilometre' (km0), which includes nutrient recycling and biodiversity conservation. The success of RU:RBAN has extended beyond Europe, gaining global recognition and becoming a phenomenon in its own right.

In November 2019, a delegation of mayors from the Junin district in Central Peru *(Mancomunidad Municipal por la integración de Sierra y Selva)* visited Rome to meet with experts and gardeners involved in the RU:RBAN project. Their objective was to launch a sustainable development process in their territory through cooperation with the EU[5].

Similarly, a Chinese delegation from the cities of Zhengzhou and Haikou visited Rome for the IURC Programme and participated in a RU:RBAN meeting in September 2018[6]. This meeting led to the City of Rome's invitation to attend the Yangzhou Horticultural Exhibition in 2021, further involving the RU:RBAN Network[7].

Leveraging experiences in Barranquilla, Colombia

These experiences have provided new perspectives for addressing the growing issues of poverty and food insecurity resulting from job losses and diminishing incomes due to the pandemic. The European Unit of *Risorse per Roma* is committed to working at the global level through European projects to repurpose underutilized land and nutrient resources to enhance food security. One example of this commitment is the implementation of a pilot urban garden, following the model of Rome's urban gardens, in the disadvantaged peri-urban area of Villas San Pablo in Barranquilla, Colombia, with IURC funding. The synergies between IURC and URBACT RU:RBAN have facilitated the experimentation of capacity building, training, and governance elements of urban resilience to the pandemic crisis.

RU:RBAN and IURC have played a pivotal role in raising awareness of the governance model in Rome[8] **based on the strong involvement of city's associations**, emphasizing the importance of citizen participation and social inclusion, particularly in post-pandemic public land and urban heritage management. Rome has also benefited from similar case studies shared by partners, highlighting the significance of human capital in improving the management of common goods and maximizing the multi-functionality of urban gardens. Challenges such as integrating urban garden activities with other functions,

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water treatment, communication campaigns, and the need for a very active facilitator who can support the local administration (the new professional figure known as a 'Gardeniser'[9]) have been addressed through these projects.

In this new global context, local policies are closely tied to the sharing, green and circular economy, and international cooperation. The **complementarity of funds** – to implement the aforementioned **EU-funded projects to be intended as drivers for innovation focused on co-creation and design co-actions involving local communities** – and synergies between *Risorse per Roma* and *Anci Lazio* (the Association of local municipalities in the Lazio Region) have been crucial. The ongoing international cooperation project, GenerACTOR[10], funded by the DG for the International Partnership of the EC (INTPA), exemplifies this complementarity and synergy. The project is a joint effort between *Anci Lazio*, *Risorse per Roma*, Replay Network (a social promotion agency), the *Alcaldia* (town hall) of Barranquilla and Siembra Mas (green spaces service company), aiming to improve food security and biodiversity by establishing community urban gardens. GenerACTOR will create over 27,400 square meters of green

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areas dedicated to urban agriculture in Barranquilla. It will promote circular economy initiatives such as composting, recycling, bee pollination, and renewable energy, benefiting approximately 30,000 inhabitants. GenerACTOR provides an opportunity to learn from international cooperation and experiment with an approach that combines environmental, social and economic sustainability in urban regeneration processes.

By adapting Rome's model to Barranquilla and involving local communities through participatory processes learned from RU:RBAN, a new management model of community urban gardens based on innovation is being co-designed in Colombia. The citizens involved will become "associated entrepreneurs" who sell their products within a local supply chain, connecting community urban gardens with public canteens and local markets.

During the IURC experience, Rome demonstrated to Barranquilla how community gardens can promote social integration, local economic development, and contribute to green and circular economies. Now, through the GenerACTOR project, Barranquilla is showcasing to Italian partners how community gardens can be productive, empowering vulnerable citizens and driving local development and innovation. This exchange of knowledge and experiences is of great interest to cities in the Lazio region, including Rome. *Anci Lazio* and *Risorse per Roma* are continuously learning from Barranquilla, exploring new approaches to citizen participation and opportunities for the economic sustainability of urban gardens that can be applied in Europe.

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EFUA as Community of Practice and Learning Community

Daniel Münderlein
Ian Whitehead

While the social benefits of urban agriculture are evident, such is the diversity of types that to date there has been no single advocacy body to promote take-up within communities, to collate knowledge, and to make the case for policy support. The European Forum on Urban Agriculture (EFUA) is uniquely positioned to fill this gap.

Food production in urban and peri-urban areas has a strong community connection. Not only is food a central component of human identity, but it can bring together people from different social groups or cultural backgrounds.

> *"Sharing a meal with people will create a shared experience that makes them understand that you have a similar experience of the senses.*
>
> *"The food connection brings people worldwide together with an almost irrefutable idea of a good time, as very few people don't enjoy the pleasures of good food."*[1].

The idea and sense of community is inextricably linked to Urban Agriculture. In parallel to value and supply chains, a finely branched food social network also develops, especially in urban areas.

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Community gardens, community-supported agriculture, LebensMittelPunkte (food connection points or urban food hubs which bring together people through acquiring, processing and distributing food)[2], and food hubs not only produce food, but also distribute and market food, and prepare meals in a community. Projects such as "Kitchen on the Run", "Ninewells Community Garden" or "Onze Urban greenhouse" (see articles by van Dam, p. 14 and by Whitehead, p. 12) are integration incubators and embrace multiculturalism. In scientific studies, the social dimension and the formation of social capital are identified as central benefits of urban agriculture. Urban agriculture is therefore about much more than just producing and supplying cities with food (see article by Gottero, p. 9). Concepts such as Urban Metabolism, Urban-Rural Linkages, or Urban Food Systems enable a systemic look at urban food production including transportation, distribution, marketing, processing, and consumption of food. From these perspectives, the spatial proximity of production to the consumer, including short value-added and transport chains, is recognized and emphasized as a special quality. The linking of these urban concepts with the associated benefits of urban agriculture reveals socio-cultural, health, economic and environmental cross-references (see article by van Dam et al., p. 18).

Despite these numerous benefits[3], targeting the social dimension of urban agriculture is difficult for several reasons. Current typologies of urban agriculture are very fine-grained, distinguishing between urban farms, community parks, DIY gardens, zero acreage farms, social farms, and community gardens[4]. Each of these types exhibits different characteristics and social benefits. This heterogeneous and diverse picture of urban agriculture is difficult to translate into agricultural support programs. Classical agricultural policies often target only the horticultural or agricultural dimension and are not able to address the multiple benefits comprehensively (see article by Renting and Segreto, p. 23). Based on the example of New York City, the concept of Nexus Policies can be shown

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as a possible vision (see interview with Cohen, p. 30). Different policy fields are touched by urban agriculture and act as an overarching umbrella for the sustainable food supply of the city. The urban agriculture advisory board, established at the municipal level, also advocates for policy support; urban food councils can take on similar roles but are often not based within or anchored in formal municipal structures. At the city level, we can observe a thriving movement of individuals and umbrella organizations that aim to put urban agriculture on the political agenda. The results range from political frameworks to food action plans[5].

Up to now, there has been no unified community that advocates urban agriculture in all its forms. Just as the picture of types is heterogeneous, there are different groups with their own particular interests. For instance, supporters of the Urban Gardening movement usually focus on securing and self-organizing cultivation of small areas and practicing subsistence farming. Zero Acreage Farms and Urban Farms, on the other hand, are usually run by professional farmers and require a high level of financial investment. This is accompanied by financial interests and the development of innovative business models for urban agriculture.

At this point, the European Forum on Urban Agriculture aims to sense the interests of different actors in urban agriculture and represent them in their entirety. EFUA thus expands the scope of existing mentoring organizations (see article by Lauwers, p. 21), which introduces the topic of urban agriculture to new groups of people. EFUA sees itself as a learning community that gains new knowledge on urban agriculture through conferences and model projects, bundles this knowledge and brings it to the attention of decision-makers at the EU level. In this way, a unified forum with an ambitious community will be established and its demands and requirements incorporated into political agendas.

May the European Forum on Urban Agriculture grow with and on us!

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***Ian Whitehead** is a Researcher in cross-cutting approaches to urban forestry, nature-based solutions, green Infrastructure and citizen participation.*

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Enhancing the voice of youth to improve urban food systems and policies

Gigi Wing-Davies
Runyararo Esther Chibota

Experiences of the Youth Food Action Programme in Harare and Bulawayo, Zimbabwe

In 2021 Hivos implemented the 12-month Youth Food Action project in Harare and Bulawayo, Zimbabwe, funded by UNICEF Zimbabwe, to help understand young people's experiences within their food environments and to inform actions. This article shares the experiences and lessons learned from this ambitious initiative.

Non-Communicable Diseases (NCDs) are set to overtake communicable, maternal, neonatal, and nutritional (CMNN) diseases combined as the leading cause of mortality in sub-Saharan Africa by 2030. Diet-induced health issues, including chronic malnutrition, anaemia, heart disease and diabetes, are rapidly rising, along with obesity, including among young people between the ages of 10 to 19 years. Poverty affects many households' capacity to purchase an acceptable quantity and quality of food – approximately 42% of urban households in Zimbabwe are moderately or severely food insecure[1]. In addition, cheap, processed foods, popularized by fast-food culture, are replacing more nutritious food options. Meanwhile, the global food system is responsible for over 30% of total global GHG emissions, which is driving the climate emergency.

In addition to these challenges, young people in Zimbabwe are overwhelmingly disinterested in the food and agriculture sector, and see few livelihood opportunities in it.

In response, in 2021 Hivos partnered with UNICEF Zimbabwe to carry out a 12-month pilot project called Youth Food Action in Zimbabwe's two largest cities, Harare (population 1.5 million) and Bulawayo (population 700,000). The RUAF Secretariat, then hosted by Hivos, provided technical support. The aim of the project was to improve the food environment by increasing the availability and accessibility of healthy foods to school-age children and adolescents in urban areas of Harare and Bulawayo.

Objectives of the Youth Food Action project

1. Increase the understanding by policymakers and citizens, particularly young people, of Harare and Bulawayo's Adolescent Food Environments & Food Systems (drivers of the food environment).
2. Pilot multi-actor Food Change Labs in Harare and Bulawayo to influence the food environment and food system governance in each city.
3. Develop youth-led prototypes/initiatives and a city food manifesto to improve the urban food environment for improved nutrition of adolescents.

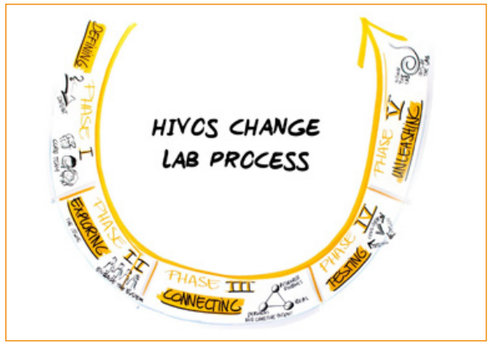
Despite the challenging time frame to achieve these outcomes, we were able to achieve good results, largely thanks to the positive collaboration between Hivos, UNICEF, RUAF, Kufunda Village, Municipal Development Partnership (MDP), government and city authorities, and food change lab participants.

Food Change Labs

Traditional workshops can often be a process of downloading information from 'experts' onto attendees. We sought a more meaningful social change process by using Theory U-inspired change labs. The Food Change Labs met quarterly for two days each time, with interactions in-between on a WhatsApp group and email, over a nine-month period. The Food Labs provided a safe space for youth to have a voice and engage directly with the city council and other influential strong actors, and became a vibrant platform for networking and ideas. A change lab should ideally run for a few years (or until a problem is solved) – with participants collaborating behind a shared

A change lab is a participatory innovation process. It is a multi-actor platform that gives citizens the opportunity to co-create a vision, prioritize issues, influence decision-making, and co-create solutions to improve their city's food environment/system.

vision, but in less than a year we were able to make some good progress and learning on process and content.



Participants

It was important to keep in mind the goals of the project, whilst mapping out city food actors by sector to ensure representation from each, e.g. government, academia, food system experts, food entrepreneurs, creatives, students, parents, and food enthusiasts. We also made sure we had representation from vulnerable groups – low income and those with disabilities. We published a project brief and an application form on various platforms and through our networks, and then competitively selected about 45 young people, CSOs, local government representatives, entrepreneurs and other key actors to form a food change lab in each city. All selected participants had to be residents of the city and, as such, part of that city's food system. Competitive selection ensured that only those who were genuinely interested and committed were brought into the food change labs. Approximately 15% dropped out over time, which is not bad considering the time demands of the food change lab process over nine months.

Our key learnings from the process were:

- Ensuring equity and inclusion takes additional resources of money and time, for example, translating all materials into audio versions, and providing resources for disabled people to attend meetings with a carer/assistant. While we were not able to ensure equity to the extent we wanted in this short project, we advise others to ensure they have enough time and budget for this.
- Collaboration with local governments is critical. We had great support and participation from the City Councils of Harare and Bulawayo, the Ministry of Youth, the Food and Nutrition Council, and the Ministry of Health. A Ministry of Youth representative also played an active role in facilitating the research, which was helpful as there are additional safety and compliance issues when accessing/interviewing students.
- Competitive selection is useful in ensuring commitment and active participation.

The programme

With co-design and facilitation from Zimbabwean organisation Kufunda Village, we took participants on a learning and sensing journey to better connect with and understand their food environment, to inspire a shared vision, to prioritize issues, and to come up with prototypes (small projects to solve priority issues). The intention of the process was to help people look with fresh eyes at how their food system is operating, visit places of inspiration (sustainable, climate resilient, healthy food production and trade) and start to coalesce themes and areas that they wanted to explore further.

Some external expert presentations were included to help bridge knowledge gaps. For instance, few people are aware of the concepts of food environment and food system. We also ensured regular presentations of research findings (the research was running alongside the labs) for input and validation of the lab participants. The exchange was, however, two-way, to ensure the research captured the important lived experience of city residents. One way of doing this was for participants to keep daily food diaries in which they recorded what they ate to enable assessment of their consumption patterns. This was quite eye-opening for them! Some of the lab participants were also selected to engage in the research component to gather more info on the lived experience and current food system environment of youth in high and low-income areas.

Some of the lessons of the programme were:

- Co-creation of a shared vision is very important. We did this after people had had a chance to visit inspiring sites, reflect on their city's food system, and connect deeply with the topic.
- Keeping the lab meetings interactive and engaging – with a mixture of ice breakers, field trips, group and personal work – helps to motivate participants. We had very positive feedback, with one young participant commenting that 'it was more fun than some other boring workshops we have been to'.
- Emphasize the value of the lived experience of participants. Keeping food diaries was an interesting exercise.
- A change lab requires a considerable time commitment from participants. We met once a quarter for two days each, to accommodate those who were working, going to school, and running businesses – but fitting the whole programme into these two days was a challenge.

Reflections on the learning Journeys from a Harare youth participant

"When we went to Foundations For Farming we had deep insights into the natural way of farming and its benefits. I learned about Open Pollinated Varieties...how a small piece of land could yield high outputs without using fertilizers or a chemical, and without any farm operations like weeding or ploughing. I realized that we do not need large pieces of land but we can just get a small piece of land and use it efficiently."

- Hosting a change lab somewhere with trees and nature would be a good idea; a windowless, air-conditioned, grey-walled hotel conference room may not stimulate creativity and connection.
- Face-to-face meetings are important. We had to shift some of our meetings from in person to virtual due to the tail end of the COVID-19 lockdowns. Due to the extremely high data costs in Zimbabwe, and the need to provide data for most participants, we had to significantly shorten our programme on those days. Overall, we felt those days were less impactful – and indeed, evidence suggests that 'virtual communication curbs creative idea generation'[2].

Research: Youth Lived Experiences

Based on a methodology developed by RUAF, the Municipal Development Partnership (MDP) coordinated research comprising:

1) An assessment of the youth food environment and food system of Bulawayo and Harare. This drew on the RUAF-FAO City Region Food Systems approach and had three components.

   i. a demographic, socioeconomic, jurisdictional, and geographical context of the city;
   ii. overview of the city region's food system;
   iii. examination of the governance and policy framework of the food system.

2) Documentation of the lived experiences of youth in the food labs.

   Data was collected from secondary sources as well as from interviews with key informants and focus group discussions. Extensive food asset mapping of food markets, shopping centres, supermarkets, restaurants, fast food outlets, and food outlets was done using geographical information systems (GIS). The output was maps depicting different food assets in each city. We worked with youth in one high-income low-density area, and one low-income high-density area in each city: Four Winds and Entumbane in Bulawayo, and Shawasha Hills and Budiriro in Harare. Having lab participants resident in those neighbourhoods was helpful in carrying out research. Data collection tools were:

   i. a questionnaire for youths, and another for parents and guardians;
   ii. a transect walk, and focus group discussions with youths in the sample areas;
   iii. food asset mapping using GIS – youths also participated in this, providing photos of food assets in their neighbourhoods;
   iv. data was also collected from other youths in institutions such as schools, colleges, and universities (not confined to the 4 neighbourhoods).

Some major lessons of the data collection were:

- Before engaging youth in the research, it is important to do a capacity-building session on a food systems approach to familiarize them with methodology and tools to be used. In fact, we found that all lab participants benefited from introductions to the food system, as these concepts are not widely understood even by city authorities.
- We recommend participation of young people in groups from the same neighbourhood so that it is easier, cheaper and safer for them to meet up and collaborate in between lab meetings.
- Carrying out research in the same neighbourhoods in which our lab participants were resident was helpful as they could actively contribute.
- It is advisable to allow extra time for permissions to access schools/youth under 18 years of age. We were fortunate to receive assistance from the Ministry of Youth to access certain institutions.

Interviewee in Bulawayo

'I am aware that there are some types of foods that are culturally accepted as nutritious. But these are not really for us, modern youths. In my culture orphans were fed goat milk because it is said to be very rich in nutrients. But I don't think we can still be fed on goat milk because it sounds so backward'

Interviewee in Harare

For me, one major turn-off from traditional or so-called nutritious food is the way it is packaged and presented or advertised. It generally does not compete effectively against fast foods and other so-called junk foods. One look at a chicken and chips advert and you are sold out. Proponents of good food must invest in better presentation and advertising'.

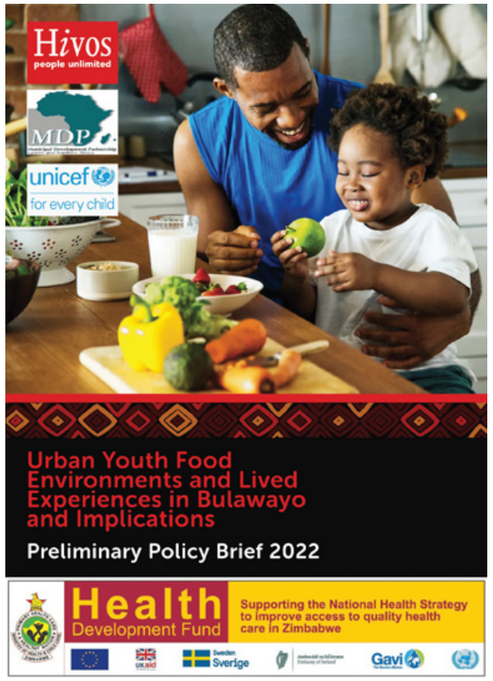
Outcomes and achievements

The following were the major achievements of the 12-month project:

1. Piloted Food Change Labs in Harare and Bulawayo. We established dynamic youth-focused multi-actor groups inspired by Theory U as an effective way to facilitate social change[3].

2. Carried out research entitled 'An Analysis of the Urban Food Environment and Lived Experiences of Urban Youth in Harare and Bulawayo'. The research assessed the factors influencing youth food choices in Harare and Bulawayo, through a characterization of the urban food environment and an analysis of the lived experience of youths in the two cities.

3. Produced policy recommendations for each city guided by wide consultation and participation, including of young people, and having assessed gaps in food policy and governance[4].



4. Coordinated multi-actor policy meetings in each city, at which the policy briefs were presented. They were attended by the City Council, Mayors, Ministry representatives, CSOs in the food space, FAO, and youth from schools and colleges.

5. Conducted food advocacy: A youth-focused food radio series with participants and the Food and Nutrition Council had 14,000 listeners on average.

6. Supported youth focused food initiatives that improve young people's nutrition. Two initiatives from Bulawayo and three from Harare received small grants of up to USD 4,000 each. Participants were taken through a process of developing and testing their ideas. Winning ideas were selected by a judging panel comprising a representative from Hivos, UNICEF Zimbabwe, the City Councils of Harare and Bulawayo, and the Ministry of Youth. Winners included:

   - Vitagrow urban farms, which is empowering young people with skills and infrastructure to produce and consume healthy sustainably produce using hydroponics.
   - Mystery Munch Nutri-bar - three female student entrepreneurs producing an organic, no bake, preservative free, whole food snack bar, along with a healthy eating campaign targeting eastern and central Bulawayo.

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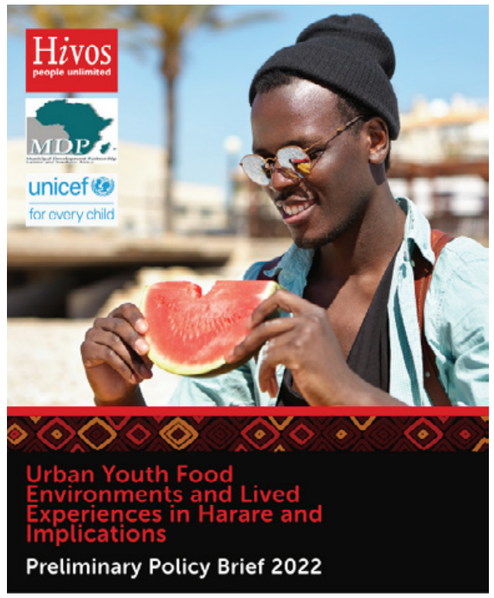

Key Findings from Bulawayo and Harare Food System Research

- The legislation governing food is mostly outdated and does not reflect realities on the ground, such as the critical role of the informal sector.
- Under the 2002 Nyanga Declaration on Urban Agriculture, all urban local authorities agreed to take necessary policy and actions to facilitate and manage urban food production. But only Bulawayo has an approved Urban Agriculture Policy in place and takes some steps to support urban food production.
- Approximately 90% of low-income respondents in Harare and Bulawayo purchase much or some of their food from informal traders.
- Informal traders are the biggest suppliers of traditional and healthy foods, yet legislation and practices favour the large scale formal sector.
- Youths (90%) have very little say in what they consume. It is usually mothers who decide.
- Only 35% of food consumed in Bulawayo is produced locally; in Harare it is just 30%.
- Healthy and traditional food is considered undesirable or unaffordable by many youths. Unappealing packaging and marketing is one reason cited.
- 70% of youth said they would buy junk food if they could afford it.
- City planners can benefit from gaining a deeper understanding of the key roles they can play in strengthening food systems.

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Urban Futures: youth action for inclusive, climate-resilient urban food systems

Urban Futures is a groundbreaking global initiative at the intersection of urban food systems, youth well-being and inclusion, and climate action. It is a five-year programme, executed by Hivos and Hivos-affiliate Yayasan Humanis dan Inovasi Sosial, supported by RUAF, and funded by Fondation Botnar.

Our current food systems are not meeting the needs of people or the planet, and cities have a major local and global impact on issues including climate change, youth wellbeing, and economic opportunity. Intermediary cities, which are growing rapidly, play a particularly important role. Their authorities and citizens must take charge of urban food systems transformation by building agency and changing narratives. Young people play a central role in this.
Hand-in-hand with local partners, Urban Futures (UF) operates in 10 intermediary cities/city regions, in five countries to empower youth by amplifying their voices, influencing decisions, and facilitating access to promising economic opportunities within the dynamic food sector.

The countries and cities are: Indonesia (Bandung and West Manggarai); Zimbabwe (Mutare and Bulawayo); Zambia (Chongwe and Kitwe); Ecuador (Manabi-MANPANOR and Quito/Chocó); and Colombia (Cali and Medellin).

UF's main pathways of change are:

- influencing and supporting the development and implementation of transformative urban food policies through multi-stakeholder platforms and youth movement;
- shaping new narratives that reimagine inclusive, climate-resilient cities to inspire behavior change and influence consumption patterns;
- enabling young sustainable food entrepreneurs to flourish and increase financial flows towards inclusive, climate-resilient cities.

Currently in its inception phase, UF has selected the cities, is reaching out to partners, and will further work with multi-stakeholder collaborations and locally-owned innovations. Hivos is the global fund and programme manager, complementing and amplifying these local experiences with linking and learning, advocacy, communication, and strategic coherence. Yayasan Humanis dan Inovasi Sosial leads the work in Indonesia, and RUAF supports these efforts with technical expertise, research, advocacy, and policy development.

More information

- Urban Futures https://hivos.org/program/urban-futures/

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Learning lessons from Urban Food Systems Labs in Africa

Harrison Esam Awuh
Henk Renting
René van Veenhuizen

Food systems' ability to feed the people in a sustainable way, whilst dealing with crises of climate change and resource depletion, is hampered by major challenges. These include, amongst others: a rapidly growing population and increased demand for food; inefficient resource use and food distribution; environmental impacts; and high rates of food wasted at all stages of the food system.

The challenges have amplified calls for transformation towards healthier and more sustainable food practices.

However, achieving transformation is far from straightforward. Transformation involves a diverse range of stakeholders who are involved in multiple system-level interactions. Controlled transformative spaces – or 'living labs' – which are devoid of the usual challenges of transformation processes, are a promising approach.

This and the following 3 articles present experiences with the living lab approach as a leverage mechanism for food system transformation in the framework of the Healthy Food Africa project. First, the overall Healthy Food Africa project is presented, followed by two experiences of Food System Labs in Zambia and Uganda. The final article shares a number of lessons on institutional and policy barriers and driving factors for working in living labs.

The context: Living Labs of the Healthy Food Africa Project

Healthy Food Africa (HFA) is an EU funded project that aims to increase the resilience of food systems and to link food production to nutrition performance, thereby increasing the range and quality of food products for a healthy diet. To achieve this, it engages with farmers, food processors, retailers, civil society organizations (CSOs), policymakers and local experts, and helps them create, and test, innovative technologies, practices and governance arrangements that contribute to a more sustainable, resilient and healthy food system for all. HFA is working through 10 Food System Labs (FSLs) in 10 cities and six countries in East, West and Southern Africa. These include: Korogocho & Viwandani settlement (Nairobi, Kenya), Kisumu County (Kenya), Rwamwanja refugee settlement (Uganda), Kabarole District (Fort Portal, Uganda), Bahir Dar city and Koga irrigation area (Ethiopia), Greater Accra Region (Ghana), Tamale (Ghana), Cotonou (Benin), Lusaka Province (Zambia), and Chongwe District (Zambia). See

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Figure 1 for an illustration of the geographical locations of these FSLs in Africa and the different thematic food system areas that are addressed.

Each FSL seeks to bring together local stakeholders – farmers, entrepreneurs, businesses, and policymakers, and aims at reconnecting sustainable food production with (urban) food consumption and healthy diets. In the joint FSL work, we address the related (local) food system challenges. All 10 FSLs have the same goal, but their status quo, priorities, and therefore the trajectories they want to pursue, and their visions and workplans under the auspices of HFA, differ. Each FSL's members have unique local knowledge and expertise, and the FSL provides a space for experimentation, innovation, transformation, application of knowledge and co-learning, and thus the formation of new, collective insights.

Work in the FSLs is supported by a number of Work Packages (WP), including WP7 that aims at transformational impact, scalability and exploitation. The activities and analyses of WP7 aim at maximizing the sustainable impact of the HFA project by encouraging – at the level of the FSLs –

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self-propelling processes that will in turn lead to wider uptake of approaches, technologies, business models and policies. The work includes providing support to FSL teams in the process of creating pathways for change, and in effectively engaging with policymakers. Related to that, WP7 seeks to guide FSLs in the organization of policy platforms in each FSL. At the project level, WP7 identifies and promotes the most promising initiatives emerging from the FSLs and explores options to link micro level (initiatives and governance) to macro level (policy development).

Fostering transformational impact

Important measures for fostering transformational impact are:

1. Building capacities through meaningful stakeholder engagement. This implies fostering self-propelling processes (i.e., embedding the work in adequate local multi-actor and governance processes, and adding new elements to these processes; finding new ways to involve consumer associations, food SMEs and entrepreneurs, etc.)
2. Promoting actual innovation in food chain governance, technologies, and business models.
3. Identification of limiting and enabling factors in a transition management perspective. This includes key lessons learned and key messages (main barriers and opportunities).
4. Gender: Encouraging and enabling gender sensitivity in all work and activities.
5. Applying participatory foresight methods to assess the options for the further development of initiatives and scaling-up. This will ensure longer-term impact, longer-term research and policy agendas and programmes.

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More information

- HealthyFoodAfrica https://healthyfoodafrica.eu/

AfriFOODlinks: African cities leading a new era of food system collaboration

AfriFOODlinks is a 4-year EU-funded programme, led by ICLEI, that envisions a thriving network of cities in Africa and beyond, in which food systems and nutrition are firmly established on the local governance agenda. Citizen-led multi-stakeholder governance platforms welcome diverse voices to inform policy and urban planning processes that promote food and nutrition security and environmentally regenerative practices.

The project views urban food environments as the key area for improving nutrition and reducing environmental impact in African cities because this is where residents make the choices about the food they eat. It is also where the food security priorities of food availability, access, agency, utilization and stability manifest. AfriFOODlinks is made up of six work packages: 1) Knowledge validation, amplification, creation and uptake; 2) Strengthening multi-stakeholder governance processes; 3) Promoting inclusive and circular agribusiness & innovation; 4) Improving food environments through experimentation; 5) Building lasting Africa-Europe partnerships; 6) mutual learning, exchange communications & outreach.

AfriFOODLinks works in over 65 Cities (15 African and five European Hub cities, and another 45+ Sharing Cities). The five African Hub Cities are: Cape Town (South Africa), Kisumu (Kenya), Mbale (Uganda), Ouagadougou (Burkina Faso), Tunis (Tunisia). RUAF partner Hivos is leading the work in Tunis and WP 2. Rikolto leads in Mbale and Ouagadougou, and WP3. ESTà is working with the Milan Urban Food Policy Pact (MUFPP) in WP5.

More information

- AfriFOODlinks https://afrifoodlinks.org

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Food System Labs as an approach to build citizen-driven food systems in Lusaka and Chongwe, Zambia

Mangiza Chirwa Chongo

Hivos has implemented Food System Labs as part of the Healthy Food Africa project, thereby building on its previously tried-and-tested food change labs methodology in cities in Zambia and Uganda. The methodology promotes inclusion of neglected voices in policy making, promotes new thinking, and enables adaptation to emerging challenges.

Hivos is part of a consortium of 17 organizations implementing the Healthy Food Africa project in 10 Africa cities from June 2020 to November 2024. The project recognizes food system challenges as systemic, and therefore aims to address nutrition challenges through five thematic areas in the food value chain: sustainable production; post-harvest technology and food safety; good chain governance; innovative food products and food production; and healthy nutrition. Hivos' implementation sites for this project are Chongwe and Lusaka (Zambia). We have continued to use the food lab approach in addressing the identified challenges in the project sites.

The Hivos food change lab approach is a methodology derived from the "social innovation lab" concept of co-creating solutions with societal relevance for systemic change. Using its rich experience in spaces where new ideas are born and difficult conversations are had, Hivos synthesized its learnings and customized the approach to the key components of systemic change when dealing with complex societal problems:

A food change lab:

- is a long-term process (not a one-off event) that brings together different stakeholders to discuss a complex social issue. In order to build on conversations, participants must be continuously engaged in interrogating the challenges and identifying strategies to address them incrementally. While this does not necessarily mean the same individuals must participate each time, it does entail representation from the same category of stakeholders, organizations or social groups.

- is an open process that uses an exploratory approach, where one step informs the next. New strategies can be used, and new actors invited throughout the process as need arises. Therefore, depending on the identified challenge and proposed solution, the lab continues to engage stakeholders that are necessary to a particular intervention identified by the lab.

- has room for prototypes (models). While exploring strategies and interventions, it is important to put into practice what is discussed in the lab, in order to see the efficacy of the proposed solutions. Prototypes are quick solutions that are implemented to see whether they respond to the earlier identified challenges. They are neither big budget nor long term; rather, they are small interventions that allow you to learn quickly – and can lead to ideas for larger actions later.

- is a multi-sector, multi-stakeholder process, because difficult societal issues can never be solved by one person or sector alone. Moreover, they should include rights holders, policy makers and researchers as stakeholders to drive the change process. The inclusion of rights holders ensures a bottom-up approach to co-creating solutions that tap into local and informal knowledge rather than imposing top-down solutions from policy makers and other technical stakeholders. However, the inclusion of policy makers is also key as it ensures buy-in and dialogue between people with the means to make a change and the rights holders. Also key to this process is innovation, often facilitated by private organizations and researchers who provide technical knowledge on what can work and what cannot work.

- includes sensing journeys. Sensing journeys are field visits that provoke dialogue and create an atmosphere where participants can *un*learn what they think they know about a challenge and its possible solutions, before creating a sound base of shared knowledge about the underlying problem.

Using these components, Hivos' food change labs put citizens at the centre of resolving food system challenges by ensuring that people who are most affected come up with solutions to the challenges that they face. For example, the food change lab in Lusaka consists of traders as the rights holders; whereas the food change lab in Chongwe consists of farmers as the rights holders. These rights holders were involved from the respective lab's inception, ensuring their involvement both in defining the major challenges and mapping possible strategies for intervention. The mapped strategies inform the capacity building activities and innovations to be implemented by the food lab.

Once a month, the rights holders meet to discuss progress and what needs to be done differently. They also undergo capacity building trainings that have been co-created by the food lab.

Every quarter, the multi-stakeholder platform meets. Representatives from the rights holders making up half of the participants, alongside NGOs and CBOs working on similar issues, policy makers, researchers and private sector. The participants discuss the interventions, and what can be done to improve their performance. The multi-stakeholder platform (in some cases known as the 'food policy council') feeds into the policy making process for the local community. As such, the food change lab approach to multi-stakeholder platforms both ensures the inclusion of stakeholders who are frequently left out of policy making processes and accords an opportunity for continuous dialogue on challenges and experimentation on innovation. The figure below illustrates this process.

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Food change labs in Chongwe and Lusaka

Under the Healthy Food Africa project, the food change lab approach is used in Chongwe and Lusaka to promote production and consumption of healthy food in the target communities.

Hivos has been working with 50 farmers to promote sustainable production of vegetables. The 50 farmers are community leaders from different villages in the project site and are expected to disseminate the capacity that they receive from the lab process into their respective villages.

The focus of the lab was informed by previous research by the Food and Agriculture Organization (FAO) and RUAF through the local university, which estimated that around 60% of the food consumed in Lusaka is produced in the city region area of Lusaka, and that Chongwe was one of the main districts supplying fruits and vegetables to Lusaka. The research also indicated high use of agrochemicals – and sometimes agrichemicals are not handled safely, endangering the workers' health and the environment. At the beginning of the project, this information was presented to the farmers and other key stakeholders, who discussed how this situation, if not handled, may lead to health complications and poor nutrition among people consuming the vegetables. In addition, unsafe handling of agrichemicals may lead to environmental damage and poor crop yields that would eventually exacerbate the poverty situation in the community.

Meeting participants then mapped the most realistic and effective interventions to address agrichemical use and unsafe handling. The proposed interventions focused on supporting the farmers to grow more sustainably. Strategies included building farmers' capacity in managing fertilizers and pesticides – but even more importantly moving away from farming practices that depend on agrichemicals in favour of organic farming that would help produce healthier crops and also conserve the environment.

The 50 farmers received training in sustainable organic farming and agroecology, and received start-up kits of seeds and ingredients used to make organic fertilizers such as molasses and yeast. This gave them the urge to practice what they learnt and to spread the practices to other members of the community.

Subsequently, 15 farmers (out of the 50 who received training) presented their progress and the challenges they have faced to the multi-stakeholder platform, consisting of government officials, policy makers, private sector and academia. The multi-stakeholder platform then reflected on strategies to address the challenges. One of the challenges was that there is currently no price differentiation between organically and in-organically grown vegetables. This has meant that the farmers' extra

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effort in farming in a healthier manner is not recognized, discouraging their continued commitment to the process. The policy makers have since begun debating the possibility of introducing laws that would incentivize organic production. There are other policy issues discussed following the organic farming intervention, including lack of/limited supply of water. An intervention to address this challenge has involved building farmers' capacity to apply for local financing to drill community boreholes.

In Chongwe, the rights holders involved in the food change lab are traders. Hivos has worked with 50 traders to promote the recognition of the informal sector in policy making processes, while building their capacity to provide diverse, safe and nutritious food.

The focus on the informal sector was informed by research by Hivos and its partners in previous food lab interventions. The Lusaka food change lab is, however, one step ahead of the Chongwe food lab because its multi-stakeholder platform is the food policy council; the resolutions of Lusaka City Council are submitted to the local authority to take action. The food policy council is chaired by a local NGO championing consumer rights (Consumer Unit Trust Society) and is co-chaired by the Lusaka City Council. The food policy council is composed of 15 traders (rights holders) and another 15 stakeholders from various jurisdictions.

An example intervention for the Lusaka food lab was to build traders' capacity to learn simple food preservation and value addition techniques to reduce food waste resulting from poor storage infrastructure in the markets. After the intervention, a report to the food policy council stimulated debate on the need for systems to trace the origins of market produce, in order for the processed food to be marketable as safe and free-from harmful substances. Thus, when a trader preserves or adds value to a commodity through processing, they would still be able to trace the source in case of any possible contamination. The food policy council has committed to continue pushing for traceability of local food products, in order to ensure responsibility when processing.
Without question, the food lab methodology promotes inclusion of often neglected voices in the policy making process. It also allows for constant adaptation to identified challenges, and promotes new thinking as the challenges emerge. The methodology creates an important interface between rights holders and policy makers, so that the latter can appreciate the lived experiences of the people they represent.

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Sustainable Diets for All

Sustainable Diets for All was an advocacy programme on the use of evidence, including evidence generated by citizens, to help low-income communities in Bolivia, Indonesia, Uganda and Zambia and improve their access to sustainable, diverse and nutritious food. The five-year (2016-20) programme was coordinated by Hivos, the International Institute for the Environment and Development (IIED), and partners in the focal countries. It aimed to influence policies, market practices, government actors and international institutions to promote diets which are diverse, healthy, fair and green. A key element of the programme was building multi-stakeholder coalitions and using innovative facilitation methodologies like Food Change Labs, in which multiple actors share knowledge, evidence and ideas, and together develop local, national and international examples of how food systems can be transformed.

More information

- Sustainable Diets for All https://hivos.org/program/sustainable-diets-4-all/

Fort Portal Food Systems Lab, Uganda: The role of governance in improving food systems and nutrition

Bwambale Benard

Faced with the worst rates of child malnutrition in Uganda, Fort Portal's multi-actor Food Systems Lab (FSL) has been instrumental in the formation of sub-national food systems and nutrition governance structures, enabling implementation of the national Uganda Nutrition Policy in districts, sub-counties and towns.

The Uganda Demographic and Health Survey of 2016 revealed disturbing child malnutrition statistics in the Toro sub-region in western Uganda. The survey found out that 40.6% of children under five in the sub-region were stunted, the highest rate in Uganda. Moreover, 3.4% of the children were found to be wasted and 45% anaemic. Since then, the issue has been the subject of much public discourse, with heightened awareness-raising efforts. In an alarming contradiction, child stunting in the Toro sub-region is happening against a backdrop of plenty of diverse nutritious food available to the majority of the population. The region is renowned for producing large amounts of food, much of which is exported to neighboring towns, cities and countries across the East African Region[1].

The Fort Portal Food Systems Lab (FSL) is a multi-actor platform coordinated by Kabarole Research and Resource Centre (KRC-Uganda) that brings together different people and organizations with a role in the food system, including local governments, District and City Nutrition Coordination Committees (D/CNCC), the Coalition of the Willing (a consumer advocacy group), food ambassadors (influential leaders who promote healthy diets in their communities), small holder farmers, small scale food processors, street food vendors, formal chefs, academia, media, artists, consumers and civil society organizations. Together, these stakeholders address systemic challenges of a broken food system and promote sustainable food choices, policy formulation and implementation. The Fort Portal Food Systems Lab has been initiated by Hivos and KRC under the Sustainable Diets for All programme (see article by Chongo, p. 45). It is currently supported by the Healthy Food Africa project, thereby building on applied the previously tried and tested food change labs methodology.

The main goal of the Fort Portal FSL is to influence communities and policy makers on sustainable, resilient and equitable production and consumption of diverse, nutritious and safe food for all, thus contributing towards reduction of stunting and other forms of malnutrition.

The FSL creates space for actors to meet and work towards shaping food systems to be environmentally sustainable and fair. They identify pathways for action to address bottlenecks to sufficient supply of healthy and safe foods to the population, as well as scalability to maximize impacts through strategic partnerships.

The FSL actors are convened periodically to discuss the main issues affecting the Fort Portal City Food System and to generate actionable ideas for improvement. The actors take the lead in influencing Social Behavioral Change (SBC).

The FSL actors take part in:

- participatory research and experiential learning to inform joint decision-making and programming;
- annual FSL workshops to disseminate research findings and foster further deliberations on food systems improvement as well as follow-up on previous commitments;
- creating mass community awareness on food systems and nutrition through different media campaigns;
- building and strengthening the capacity of the stakeholders in the food systems to engage and to effectively play their roles;
- participation in the district and city food systems and nutrition coordination engagements;
- participation in joint planning and implementation of food systems interventions;
- coordination of the food system actors in keeping with the rules of engagement;
- conducting lobbying and advocacy campaigns.

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The disproportionately high levels of malnutrition, and the inherent contradiction, can partly be attributed to failures in the governance of nutrition, especially inadequate translation of policy into concrete actions. Nutrition governance in Uganda is guided by a number of policies and operational instruments, including the National Nutrition Policy (2003), the Uganda Nutrition Action Plan (UNAP) and the National Development Plan III.

The Nutrition Secretariat at the Office of the Prime Minister (OPM) oversees the implementation of the UNAP by lower, sub-national levels of governments. However, due to resource constraints, lack of prioritization of nutrition matters, and absence of a nutrition advocacy agenda, there has been little progress in cascading nutrition coordination to districts, cities and sub- counties across the country. As a result, a number of districts and lower local governments have not localized the UNAP.

In 2019, the Fort Portal FSL actors committed to improving the nutrition situation of the area and recommended the inauguration of the Kabarole District Nutrition Coordination Committee (DNCC) at the district level. To decentralize the nutrition programming at the lower local level, the DNCC inaugurated 14 Sub-county/Town Council Nutrition Coordination Committees (S/TNCCs). For sustainability reasons, all these committees are chaired by the technical heads of the district or sub county. The committees are mandated to take the lead in planning, coordinating, resource mobilization, supervision, monitoring, lobbying and advocacy for food systems and nutrition interventions in their constituencies. The committees also provide technical oversight and leadership of the implementation of the multi-sectoral nutrition interventions in the district and at the lower local government level.

As part of the recommendations to improve nutrition, the nutrition committees pioneered the development of the five-year District Nutrition Action Plan (DNAP) and Sub-county/Town Council Nutrition Action Plans (S/TNAP), as local implementation of the UNAP. These action plans stipulate the specific interventions towards improving food systems and nutrition indicators that all stakeholders in the district must refer to during development of food systems and nutrition projects.

These committees meet on a quarterly basis to share experiences, quarterly milestones, key results, and any challenges and recommendations from food systems and nutrition interventions conducted by stakeholders in their constituencies. They also carry out joint planning for the next quarter. The quarterly plans and reports are submitted to the UNAP secretariat under the office of the Prime Minister to inform further programming and resource allocation.

The mandate and functioning of the Nutrition Coordination Committees, and the implementation of the Nutrition Action Plans in Kabarole District and Fort Portal City, have improved coordination, lobbying and advocacy, joint planning, implementation and reporting on food systems and nutrition interventions in the region. Notably, the District and Sub counties now have budget for food systems and nutrition interventions. Efforts to improve food systems and nutrition in Fort Portal City and Kabarole District have attracted more donors, thus increasing funding opportunities for programmes.

With the above milestones, the food systems and nutrition situation in Kabarole and Fort Portal is improving. All stakeholders are urged to embrace a multi-actor approach and invest in governance for sustainable food systems and nutrition.

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More information

- Sustainable Diets for All https://hivos.org/program/sustainable-diets-4-all/

Institutional/policy barriers and drivers for food system change: learning from the Healthy Food Africa Food System Labs

Harrison Esam Awuh
Henk Renting
René van Veenhuizen

This article presents some of the lessons and insights on working with living labs to realize food system change. It especially focuses on barriers and drivers represented by institutional and policy factors and how these can be strategically addressed the Healthy Food Africa Food System Labs (FSLs)[1].

The methodology that was designed and co-created with the FSLs for their stakeholder engagement processes is based on the Theory of Change (ToC) approach. ToC is a specific methodology for project planning, participation, and evaluation, in order to promote social change. It involves defining long-term goals and then mapping backward and identifying necessary preconditions. The FSLs were encouraged to execute the ToC in their various initiatives. The first important part of the ToC was for the FSLs to identify key actors to target and engage.

Stakeholder engagement under a ToC

In the initial task of stakeholder engagement, it was observed that those FSLs that could draw on pre-existing stakeholder platforms had a head-start over FSLs that had to build such platforms afresh. For example, members of the Lusaka Food Policy Council (developed with support from the Sustainable Diets for All programme, see article by Chongo, p. 45) were invited to the launch of the HFA project, and could be engaged in subsequent activities. Similarly in Nairobi the FSL is aligned to the Nairobi County Agriculture programme and to the FLAG (Food Liaison Advisory Group), meaning that a wide network of stakeholders is already collaborating on food systems transformation. This eased participation and these stakeholders became the backbone of the new multi-sector advisory group for the HFA project.

Secondly, the importance of meaningful engagement with policy-makers at an early stage of the stakeholder consultation for greater outcomes and policy uptake is evident. For example, the Fort Portal FSL reported that local government stakeholders have been involved in actions such as: the development and review of ordinances; approval of implementation of activities; dissemination of the programme outputs; joint activity implementation; and authorization of work plans. As a result of this early engagement, the local government picked up interest in the establishment of the food safety committee and is now pushing for a food safety ordinance. The City of Fort Portal Council is also advocating formation of a Fort Portal Nutrition Action Plan and City Nutrition Coordination Committee. The Rwamwanja FSL, meanwhile, reported that local policymakers participated in the project launch activities, where the project concept was explained, along with the roles and responsibilities of stakeholders, and where project plans were conceived and reviewed. This participation was expected to enhance ownership of the project activities and results. Consequently, some of these policy-makers – such as the local district officials – even spearheaded the establishment of the multistakeholder platforms.

Furthermore, in the early consultation process, the importance of early consultation was emphasized, along with the need for it to be a two-way process that not only informs policymakers about the wishes of the FSL actors but also pays attention to what the policy-makers want to achieve. Aligning aims and objectives between policy-makers and FSLs, through the lens of the ToC, leads to positive outcomes. For instance, in the case of Fort Portal FSL, alignment of objectives between the FSL and policy-makers in a two-way communication process has led to a more effective co-creation process, with increased government involvement and ownership of the work of the FSL.

Policy and institutional barriers to operationalization of the ToC

The process of stakeholder engagement guided by the ToC also highlighted certain policy and institutional barriers that impede transformational pathways. The main barriers are: lack of political will; absence of adequate infrastructure to facilitate change; and political instability.

Lack of political will

Although there are advantages to policymakers enhancing communication through collaboration with the FSLs, their engagement has not been optimal in all cases. In Lusaka, the ToC assessment showed that many issues are, in fact, policy related (e.g., vending, infrastructure, middlemen etc.). However, engaging and influencing policy has proven difficult. For instance, the FSL facilitators feel they do not have enough power to bring the right people to the table or ensure they are more engaged in activities. The FSLs in both Lusaka and Chongwe aim to enhance the organic vegetable value chain and seek to influence and change policy to support its development. However, this has been difficult to achieve because the policy stakeholders who attended these consultation meetings are not the ultimate decision-makers. According to an FSL representative:

'The policymakers who attend stakeholder consultation meetings promise to relay information on from the stakeholder meetings to relevant authorities. We do not have the muscle to compel institutional heads who have the power to make the decisions. They always send representatives who are expected to take back reports to influence policymakers.'

In some FSLs, policymakers were only consulted after the FSLs had fully developed their objectives. In such cases, the lack of meaningful engagement of policymakers or their unwillingness to cooperate was a result of the initial co-creation process taking place without policymakers. This was the case in both the Lusaka and Chongwe FSLs. Though the FSLs presented their desired work plan to key stakeholders, the project goals had been decided prior to the stakeholder consultation. Therefore, co-creation did not really materialize. Although currently the FSL collaborates well with local policymakers, as they are successfully working with local councils and the Ministry of Agriculture, the FSLs highlight that they need more support in engaging other influential policymakers in the change process.

Another factor is the lack of political will to enforce regulations or agreements. In the case of Nairobi, the FSL lead signed a memorandum of understanding (MoU) with local policymakers (County Government and Metropolitan Services), which stipulates the role of each stakeholder. By signing this agreement, policymakers are obliged to support the activities of the FSL and live up to their responsibilities, at least in principle. However, in practice that is often not the case. The FSL coordinator for FSL Nairobi:

'The power/political dynamics surrounding the County Government and Metropolitan Services have slowed down the process of enforcing the MoU to guide our partnership with this stakeholder. Some county officials have not been open to further engagement with us before the completion of this MoU process.'

For the Lusaka FSL, the inability of the local city council to enforce legislation on food sanitation in the city has been a problem. There is a public health guide in Zambia that regulates sanitation standards in food being sold in the city. While in theory this would greatly facilitate the FSL's ambitions, it is not enforced by local public health authorities. This has been a major institutional barrier that the FSL does not have law enforcement capabilities to overcome.

Absence of adequate infrastructure to facilitate change

Another form of institutional/policy barrier is ineffective governance, which leads to inadequate development of infrastructure needed to sustain or enable food system transformation. Such issues with enabling infrastructures have been experienced across several FSLs, especially in the domain of farm to market transport. Generally, transport issues impede value chain functioning, and enhancing transportation can maintain the current food system as well as facilitate food system transformation. Farm to market transport is a significant challenge in many regions, and hence also for most value chains that the HFA FSLs work on. In some cases, farmers make losses from their vegetable production not only as a result of the high cost of inputs but also because of issues such as: transportation costs to city markets; levies paid to local authorities to transport their produce; and middlemen involved in the delivery chain. Despite the presence of food processing plants in most city regions in the HFA project, the majority of products from smallholder farmers in rural areas are sold raw because a significant part of the harvests do not reach the urban markets. This results in important levels of food loss and waste, especially of fresh vegetables. The rural-urban transport network, which is the responsibility of state institutions in most of the FSL contexts, appears to be underdeveloped. Problems occur particularly in the rainy season, when rural roads are difficult to traverse, and are compounded by poor storage facilities.

Political instability

The past thirty years have witnessed several positive changes with respect to democratization in Africa. Participatory politics has grown since the 1990s and the percentage of African countries holding democratic elections increased from 7 to 40 percent[2]. In these new or emerging African democracies, there should be greater accountability of political leaders, with their domestic legitimacy linked to the means through which they attain and maintain power. Yet, greater democratization can also pose problems to the continuity of FSL activities, as new

elections might usher in new leaders who do not share the same interest in the aims of the FSLs as the previous leaders. Sometimes, agreements made with one governing party by an FSL are at risk of being nullified by another political party following a post-election change of power. This was a real concern for the Chongwe and Lusaka FSLs. A representative of the latter said, 'We are having elections in August 2022. We do not know what the outcome will be and with change of government how policies concerning our work might be affected'. Although past public office holders have changed in the past without having any drastic effect on the multi-stakeholder platform, change of policy influencers they work with is a looming concern.

Furthermore, there is the ever-present threat of election and post-election violence, which could inhibit transformational impact of certain FSL initiatives. In the case of FSL Nairobi, Kenya has experienced various forms of political and social unrest since independence, the post-election unrest of 2007/2008 being the worst, following the standoff between Moi Kibaki and Raila Odinga. It was reported that, approximately 1,300 people lost their lives and hundreds of thousands were displaced with widespread sexual violence against women[3]. The FSL representative for Nairobi FSL said:

'Yes, we have upcoming elections (August 2022) and there is potential for instability during that period that could threaten achieving our goals. Informal settlements are hotspots for election violence.'

Although William Ruto won the race to be the fifth president of Kenya, according to results announced by the Independent Electoral and Boundaries Commission (IEBC), rival Raila Odinga's rejection and contestation of the decision of the electoral commission revealed the potential for instability that could derail the activities of Nairobi FSL. Such post-election instability is common across the countries in which the 10 FSLs are situated, and could pose serious barriers to food system transformation.

Furthermore, political instability also manifests as strikes, which can inhibit the realization of certain FSL goals. This was the case with FSLs that were most involved with schools. For example, one of the key objectives of the Tamale FSL in Ghana is promoting vegetable consumption in a School Feeding Program through the establishment of vegetable gardens in schools. Any strike action in the educational sector can negatively impact the execution of the activities of the FSL. As recently as May 2022 it was reported that striking school cooks in Ghana want the government to pay them a year's backdated salary and boost their food grant. Likewise, one of the main objectives of Cotonou FSL in Benin is improving child nutrition through school gardens and urban farming in peri-urban Cotonou. However, strikes occur in Benin almost every school year. Most of these strikes are coordinated by the powerful teachers' unions which are a legacy of the

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1972-1989 period when Marxism-Leninism was adopted as the national ideology. Although this kind of strike action did not affect primary schools (the area of operation of Cotonou FSL) it shows the vulnerability of working with schools to promote food system transformation in an environment in which strikes are common.

Next steps

In this article we presented some of the lessons and experiences of working with living labs to realize food system change in the context of African cities in the HFA project. The experience shows that institutional and policy factors frequently emerge as bottlenecks for realizing planned innovations towards food system transformation. In the coming time, these policy and institutional factors, as well as possible steps and strategies to resolve the barriers that they present, will be addressed in foresight workshops. These workshops will also engage key stakeholders from policy at different levels, food supply chain actors and representatives from engaged communities.

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Food neighbourhoods, productive foodscapes and healthy food linkages

Alain Santandreu
Ernesto Ráez
Oscar Betancourt

The findings of an action research project in Lima (Peru) and Quito (Ecuador) show that community initiatives and experiences are an effective strategy to counter the State's inaction in the face of food emergencies.

Failure of public policy to guarantee the right to food and the rights of Nature

The Food Security and Nutrition in the World (SOFI) reports, prepared by several UN agencies, and the Global Hunger Index show a global setback in the fight against hunger, and emphasize the importance of strengthening local action to transform food systems[1].

On a global scale, evidence supports the need to promote better public policies that foster sustainable and healthy food systems that guarantee the right to food and the rights of Nature. The rights of Nature are biocentric (not human-centered) and consider that each individual, space or ecosystem has the right to have its own evolutionary development, regardless of its usefulness or benefit to humans.

Several studies show the impact of the food system on rates of infectious diseases associated with climate change. Added to this, there are clear linkages between international food trade and increased food insecurity, especially in middle- and low-income countries, impacting the health of both people and ecosystems. Meanwhile, there is evidence that changing food consumption patterns are pushing planetary boundaries, tipping millions of people into poverty, food insecurity and hunger, and contributing to the destruction of sensitive ecosystems that are strategic for the food system itself.

Since 2020, the COVID-19 pandemic has impacted food availability and access in most low- and middle-income countries, including Peru and Ecuador, and has increased the percentage of people facing episodes of food insecurity. In Peru, in 2022, 16.6 million people, almost half of the country's population, were food insecure; in Ecuador, moderate and severe food insecurity increased from 20.7% in the period 2014-1019 to 37.3% in the period 2020-2022[1].

To address the health emergency associated with the COVID-19 pandemic, authorities in Ecuador and Peru decreed mandatory confinement and immobility, with curfews limiting the movement of people and prohibiting the use of public spaces. The availability of food for those who could afford it was guaranteed through large supermarket chains that remained open. Traditional food markets and wholesale markets were closed, as were the *bioferias* (organic markets) that operated in parks and squares in Quito and Lima. In both places, the public response aimed at feeding the vulnerable population focused on the delivery of food baskets and snacks to people identified through outdated records and inefficient distribution channels that generated allegations of corruption, some of which ended with officials in prison.

The government response to the COVID-19 pandemic demonstrated that the public policies implemented in Quito and Lima did not guarantee the right to food and the rights of Nature, nor did they contribute to a fairer and healthier food system. As a result, many people faced episodes of food insecurity that could have been avoided with public policies that understood the role of neighbourhoods and collective initiatives that managed to respond to hunger, such as the 'common pots' in Lima or urban gardens in Quito.

Action research to show why scale matters

Urban walkability is one of the most hotly debated issues among planners globally. Cities such as Paris and Berlin are implementing a '15-minute city' approach that seeks to enable people to walk or cycle to food, education, health, and recreation centers[2]. The proposal seeks to define complementary uses for various available spaces and facilities such as parks and squares or schoolyards or clubs that are not used for many hours a week.

However, Latin American cities are very different from European cities, due to the extent of their urban sprawl, the absence of roads or their poor condition, problems of public safety, poor quality public transport, and accessibility problems due to settlements on slopes and other physical barriers. To respond to such concerns, the action-research project *Healthy food hubs: building sustainable and resilient agri-food systems in Lima and Quito was implemented* in Quito.

The project sought to find out whether working at the scale of neighbourhoods associated with productive food landscapes through healthy food linkages could: i) allow the identification of problems that were not visible when addressing food systems at the municipal and country scales; and ii) guide the implementation of public policies that contribute to guaranteeing the right to food and the rights of Nature.

To answer these questions, firstly, the pre-existing food neighbourhoods, defined around the walkability of people to purchase food in reference outlets, were identified. Then, the actors that are part of the food neighbourhoods and productive food landscapes were characterized, and the community experiences that were organized to respond to the inaction of the State to guarantee access to food to vulnerable populations were analyzed. The potential of these experiences to become linkages that bring healthy food to food neighbourhoods, as well as their limitations, were identified.

The action-research project *Healthy food hubs: building sustainable and resilient agri-food systems in Lima and Quito* is funded by the International Development Research Centre, IDRC (Canada) and co-implemented by Rikolto, ECOSAD (Peru) and FUNSAD (Ecuador).

In the short term, the project has

1. evaluated, from an ecosystem and gender perspective, the agri-food systems of Quito and Lima, and their resilience to the food crisis associated with the COVID-19 pandemic, including the evolution of gender inequalities and other social inequalities;
2. identified and improved the practices and actions delivered by national and local governments, as well as citizen initiatives, with the aim of strengthening markets and ensuring the supply of nutritious food to vulnerable groups in the two cities during the pandemic.

In the medium term, it has:

3. involved agricultural producers, consumers, merchants, and authorities from Quito and Lima in the development of healthy food neighbourhoods as an innovative strategy that promotes the development of healthy, sustainable, and resilient agri-food systems, with the capacity to reduce gender inequalities.
4. assessed, through participatory action research, the potential and barriers to the development of healthy food neighbourhoods, as well as other emerging solutions in the two cities.

In the long-term the project seeks to translate findings and recommendations into proposals for national and international public policies that promote healthy, sustainable and resilient agri-food systems, with gender equality, and that are capable of responding to future crises that threaten food systems and human health.

Delineating and characterizing food neighbourhoods, productive foodscapes and healthy food linkages

Food neighbourhoods help us understand food dynamics from a different perspective than that of the 15-minute city. To delimit food neighbourhoods, we identify a food centralities – in our case, a traditional food market or a municipal market. We identified the traditional food markets as food centralities using secondary information that refers to their importance in the commercialization of fresh food in both cities. After identifying the main neighbourhood based food centralities, we delimited a 400-meter radius and administered a limited number of consumer surveys. This allowed us to identify new centralities and adjust the limits of the neighbourhoods, the main criterion being "walkability" to stock up on food and a secondary criterion being safety and physical accessibility. A mapping of healthy and unhealthy food supply helped us to locate deserts and swamps in the food neighbourhoods.

To characterize the food neighbourhoods, we calculated the number of inhabitants and households and determined the sample size for consumers. We also identified the number of merchants selling fresh food in the selected traditional food markets, and identified the number of gardens and producers with links to farmers' organizations that supply the neighbourhood with fresh food produced using agroecological practices.

"Surveys were administered among the sample of consumers, and to all traders and farmers who wanted to respond; workshops and discussion meetings were held with consumers; and a limited number of interviews were conducted with farmers and traders."

The information gathered allowed us to characterize the different actors involved in the food neighbourhood.

- To characterize **consumers**, we analyzed their food dynamics by identifying the main places of purchase as well as the motives, frequency, types of product and reasons for choosing each place.
- To characterize **farmers and traditional food market traders**, we identified the infrastructure and resources available in markets, urban gardens and farms. We also identified production systems and practices and the dynamics and main places where they buy and sell food.
- Finally, we analyzed, for **all actors**, the health situation associated with food, exposure to episodes of food insecurity and the help received to cope with food insecurity situations from consumers, traders, gardeners and producers.

At the same time, we characterized the productive foodscape associated with food neighbourhoods that include urban gardens located in the same quarter or close to it, and groups of peri-urban or rural producers who use agroecological practices and market their food through short supply chains (with no more than one intermediary). Using secondary information, such as studies of fresh food supply chains for the city, we

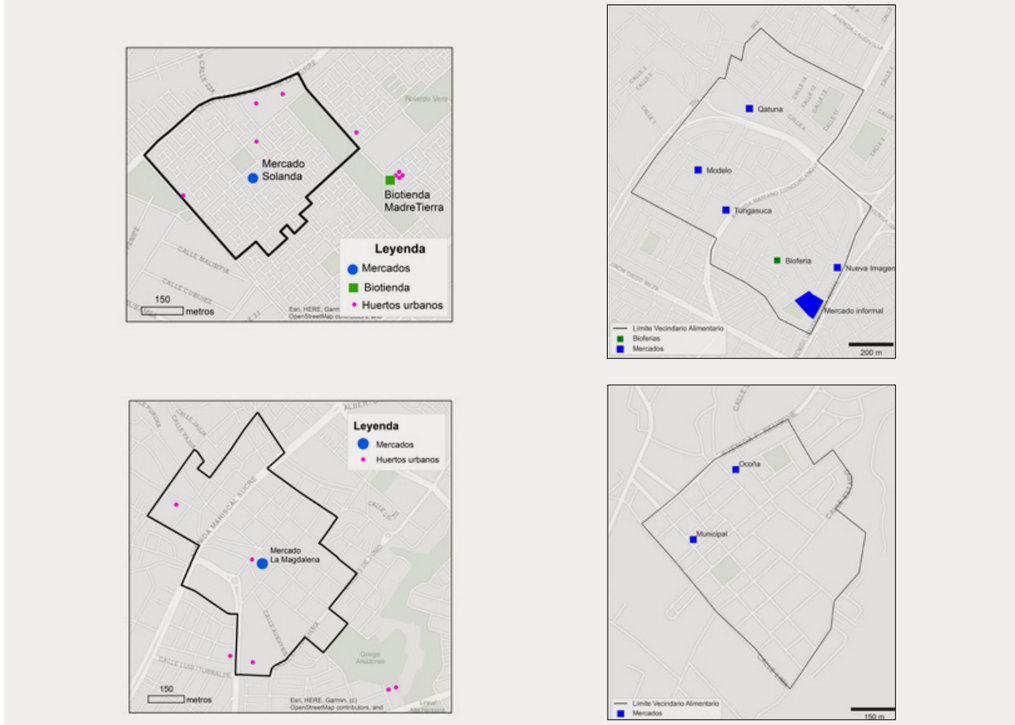
Concepts and definitions

Food neighbourhoods are conceptualized as:
'Spaces made up of a group of households, delimited by the distance that can be covered on foot to buy food in a reference outlet chosen because of the relative volume and diversity of its offer and its permanent presence. This distance implies a radius of approximately 400m around the reference outlets. In the food neighbourhoods, other food outlets coexist in addition to the reference outlets. People decide to go to one or another outlet (which may be far from their homes or even from the neighbourhood) in response to their visibility, the food on offer, their relative prices and the relationships they establish with the traders. Food neighbourhoods can be self-organized as communities, and we find in them solidarity initiatives and other forms of adaptation to food uncertainty.'

Associated with the food neighbourhoods, **productive foodscape** are defined as:
'Agricultural production spaces where there is agroecological production, that offer or can offer healthy food to the food neighbourhoods. The productive foodscapes can be remote, adjacent or inscribed in the food neighbourhoods. In the associated productive spaces, we find self-organizing initiatives of adaptation to food uncertainty. We understand healthy foods as those produced with little or no agrochemical inputs, pharmaceuticals and synthetic ingredients; without contaminants; with minimal or no sweeteners, sodium and saturated fats; grown or raised with ecological responsibility and under fair and dignified labour conditions.'

Finally, to understand whether it is possible to offer healthier food to neighbourhoods, the concept of **healthy food linkages** is defined as:
'Urban collaborative systems, established between a food neighbourhood and its associated productive environment. They involve agroecological producers, traders and consumers, bringing the former closer to the latter. Thus, they reduce or eliminate intermediaries and shorten the commercial chain, improving producers' profitability and consumer prices. They have the potential to form networks.'

While food neighbourhoods and productive foodscape refer to a current situation occurring in territories and spaces that exist in cities, healthy food linkages refer to the possibility of building new social, economic and ecological relationships between producers, traders and consumers that contribute to guaranteeing healthy food associated with the right to food and the rights of Nature.



The maps identify traditional markets, bio-fairs and urban gardens as neighbourhood food centralities in Solanda, La Magdalena, Carabayllo, and Pachacamac

identified the supply chains that provide fresh food produced conventionally.

Finally, we systematized the food response experiences implemented by communities to cope with food uncertainty during the COVID-19 pandemic; we included community responses that arose spontaneously and are intended to be permanent. The analysis of the information collected allowed us to identify both the main characteristics and the potential and limitations of some food productive spaces to become healthy food linkages (such as urban gardens and *bioferias*, and other food vending spaces such as traditional food markets or municipal markets).

What we learned

The study showed that public policies implemented to address the food emergency aggravated by the COVID-19 pandemic were not effective in food neighbourhoods, because they fail to guarantee the right to food; nor were they able to identify and support community experiences that help reduce food insecurity and hunger.

To learn whether food neighbourhoods are an appropriate scale to respond to food system disruptions associated with increased risk of facing food insecurity and hunger, we compared 2020 (when the movement of people and food was restricted) to 2019 (pre- COVID-19 pandemic) and 2021 (post-pandemic).

The results showed that working at the food neighbourhood scale allows identification of food problems and solutions that are often overlooked when considering other scales, such as the municipality or country. One example is the ability of urban gardens to bring adaptive resilience to the local food system through micro food marketing networks that benefit neighbours, many of whom did not receive any food aid from the state during the pandemic. Another example is the difficulty for traditional food markets to become healthy food linkages, bypassing middlemen and strengthening connections between farmers with agroecological practices and traditional market traders.

In short, food neighbourhoods associated with productive foodscapes through healthy food linkages offer us the possibility to improve our understanding of food systems in order to formulate better public policies based on community experiences and community organization.

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The role of urban gardens in the productive landscape of Quito

Alain Santandreu

Two food neighbourhoods in Quito, located in the quarter of La Magdalena and Solanda, were studied as part of the project *Healthy Food Hubs: building sustainable and resilient agri-food systems in Lima and Quito.*

La Magdalena is one of the oldest and most traditional wards in southern Quito. It was founded in 1577 on lands inhabited by indigenous communities and landowners during the Spanish conquest. Between the 1930s and 1950s, La Magdalena experienced accelerated urban development when large plots of land were developed to build housing for Quito's middle class and social housing developments. This influenced its current features, which combine an urban residential structure with a traditional market and some commercial areas offering a wide variety of traditional cuisine. La Magdalena is a gastronomic destination in the city of Quito.

The Solanda ward was built in 1984 as part of the Solanda Housing Plan, promoted by the Ecuadorian government and designed with a progressive housing model so that owners could expand their homes over time. Its construction was intended to curb squatting and self-construction of wards in the south of the city. It was initially planned to house 20,000 people, but today it has more than 100,000 inhabitants. Settled on 100 hectares donated by a wealthy Quito family, Solanda was characterized from the start as having a strong social organization and an active community life[1]. This, together with its municipal market and proximity to the Quito Wholesale Market, make Solanda a ward with unique characteristics.

The municipal markets

Since colonial times, markets have been food centralities in the city[2]. They currently channel at least 29.6% of the purchases made in Quito[3]. The La Magdalena Municipal Market, inaugurated in 1978, is one of the neighbourhood's centralities; while the Solanda Municipal Market, built a few years after the ward was founded, quickly became a reference point for food supply, as well as the Quito Wholesale Market, which is located two kilometres away.

The food neighbourhoods studied

The selected food neighbourhoods located in the wards of Solanda and La Magdalena were defined around the municipal markets and include some urban gardens, as well as a biostore near the gastronomic neighbourhood of Solanda. In the food neighbourhood located in Solanda, 11,529 people live in 2,460 households, while in the food neighbourhood of La Magdalena, 3,998 people live in 871 households.

A survey of 300 consumers in both food neighbourhoods showed that in 2019 municipal markets were the main place to buy food (33.0% of preferences), followed by supermarkets (25.3%) and the wholesale market (23.3%). Grocery stores accounted for only 13.9% of all purchases and fruit and vegetable stores for 2.3%.

In 2020, with the COVID-19 pandemic and the temporary closure of the markets, grocery stores conducted most of the sales (35.8%), followed by municipal markets and supermarkets (17.5%). Sales at the wholesale market, which is not easy to access for those without transport, fell (12.2%). That year, greengrocers alone accounted for 1.5% of sales, while street vendors accounted for 5.3%. Finally, in 2021, with the end of mobility restrictions, the wholesale market recovered its position (31.9%), as did supermarkets (25.4%) and municipal markets (21.8%). Grocery stores (10%) and greengrocers (7.1%) returned to pre-pandemic sales levels.

Traditional markets have been neighbourhood food centralities that consumers have flocked to before (in 2019), during (in 2020), and continue to do so after COVID-19 (in 2021)
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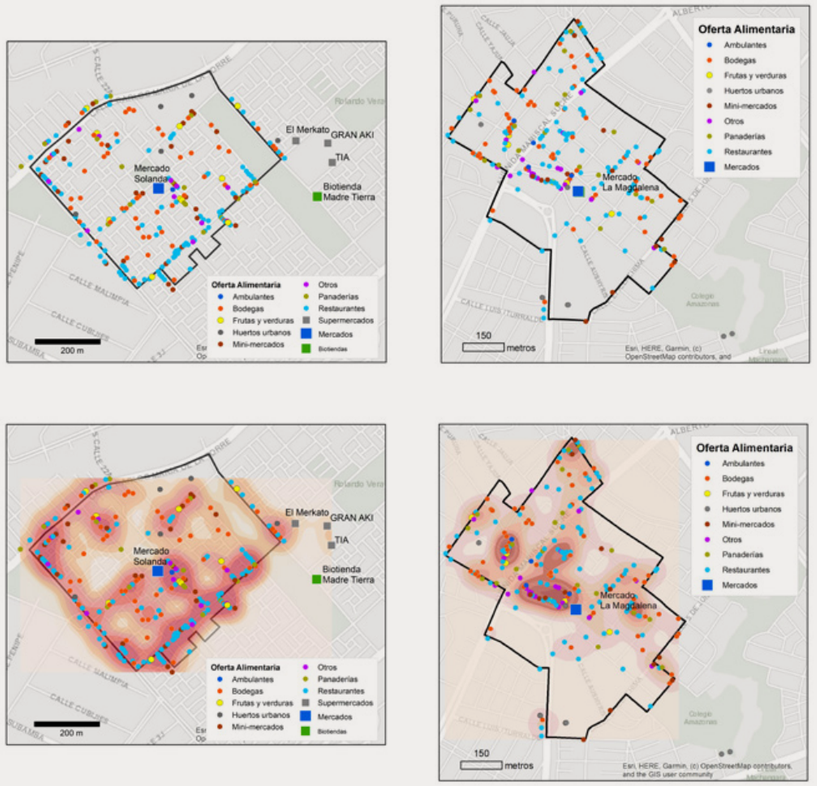


The presence of fast food offerings highlights the existence of food swamps in certain neighbourhoods. Solanda and La Magdalena are reported here
© Maria Cristina Cruz

On average, in the three years analysed, 70% of people mentioned that the most used form of access to reach their main food supply place was walking. This reinforces the importance of 'walkability' as a characteristic of food neighbourhoods.

The mapping of the food supply in both ward showed a higher concentration of fast food and poor-quality food (food swamps) on J Street (José María Alemán), the main commercial space in Solanda and in the proximity of the La Magdalena Municipal Market.

As part of the productive landscape associated with both food neighbourhoods, 29 urban gardens and 25 producers with farms in Ambato were identified. Most of the urban gardens are subsistence gardens although they market their surpluses in the neighbourhood itself. The producers carry out agroecological practices and market their food directly in the bio-shop and the Madre Tierra *bioferia* (organic market), both located very close to the Solanda neighbourhood. Forty-four merchants who sell fresh food in the two municipal markets were also characterized. In the food neighbourhoods studied, 37% of the urban gardens have been operating for more than 10 years, and 30% were created in the last 3 years as a direct result of the COVID-19 pandemic. Most of them are small, with a surface area of less than 50 m2 (27.2%), followed by gardens of less than 800 m2 (25.4%). Consequently, own consumption and commercialization of surpluses as their main activity (93%). Urban gardens produce mainly vegetables (82.0%) and fruits (14.1%) and are managed by individuals (33.9%), families (12.4%) and communities (4.1%).

Urban gardens as productive foodscapes

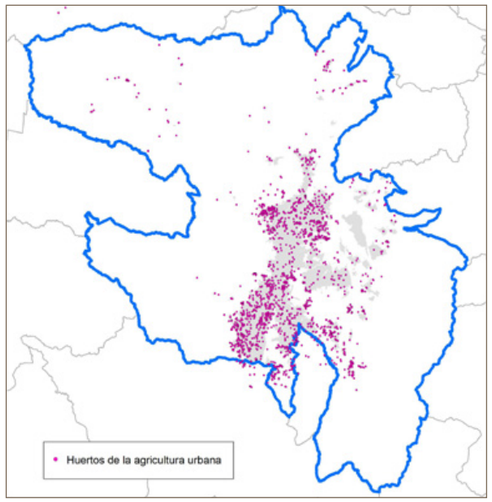
The AGRUPAR participatory urban agriculture project was born 20 years ago. In the first months of 2023, some 2,200 urban orchards were operating, which provided the city with 65 hectares of green food infrastructure. Eight out of 10 people practicing urban agriculture are women (84%) who grow produce in family gardens (66%) intended for their own and their families' consumption (57%), compared to 6% of urban community gardens. Annually, AGRUPAR's urban gardens have the capacity to generate 1,950,000 kilos of food using agroecological practices[4].

During the COVID-19 pandemic, when the Municipality closed the *bioferias* for more than a year, many urban farmers started selling their produce in their own gardens. A recently published study shows that during 2020 sales in the gardens increased by 81%, while sales in the *bioferias* decreased by 14.4%[5]. In 2019 AGRUPAR organized 887 *bioferias*, while in 2022 only 668 were organized – despite the fact that, in the same period, the number of active urban gardens increased.

With the COVID-19 pandemic, urban gardens were reconfigured, bringing adaptive resilience to the neighbourhood. Growers quickly adopted information and communication technologies, such as WhatsApp groups that allowed them to collect surplus production and promote sales in the gardens (CONQUITO, 2022).

This finding leads us to suggest that urban gardens, despite having a small surface area and a clear orientation to self-consumption, have the capacity to generate food aid micro-networks with the potential to provide healthy food to their neighbours when the food system is disrupted, as happened with the COVID-19 pandemic.

It relativizes the role that Quito's *bioferias* and bio-shops have played as the main spaces for the commercialization of food produced with agroecological practices – as shown in a recent study which found bioferias have not been able to recover after being closed for a year during the COVID-19 pandemic[6].



Quito's urban gardens provided food resilience during COVID-19 and are neighbourhood food centralities
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A sampling conducted at a *bioferia* organized by AGRUPAR, located near the study food neighbourhoods, showed that their production was free of pesticides. This leads us to consider that urban gardens are both an important part of the productive landscape and a good example of a healthy food links, because they have the capacity to connect healthy food with neighbourhood consumers, even though the volumes sold are low due to their scale. Finally, while markets are food centres, they do not appear to have the capacity to provide healthy foods as neighbourhood food links, although vendors desire to do so in the future.

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This article is based on reports by Sebastián Betancourt, Juan Cadillo, Fabián Sevilla, Alexandra Rodríguez and María Cristina Cruz.

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Bio-fairs and agroecological food in traditional food markets in Lima, Perú

Alain Santandreu

Two food neighbourhoods in Lima, located in the districts of Carabayllo in the north and Pachacamac in the south of the city, were studied as part of the project *Healthy Food Hubs: building sustainable and resilient agri-food systems in Lima and Quito.*

The first food neighbourhood is located in the district of Carabayllo, one of the oldest districts of northern Lima, founded by the Spanish in 1571. Located in the productive valley of the Chillon River, Carabayllo has always been linked to agricultural production. With the agrarian reform of 1969, numerous agrarian cooperatives and social organizations of farmers were created. Over the decades they have struggled against losing their land to real estate speculation and land traffickers.

The second food neighbourhood is located in the district of Pachacamac, one of the oldest in southern Lima. For hundreds of years before the Spanish conquest, Pachacamac was the main sanctuary and pilgrimage centre of the central coast. The town of Pachacamac, located in the valley of the Lurin River, was founded in 1812 and has maintained a strong productive vocation. In Pachacamac the landowners sold their land before agrarian reform of 1969, meaning the valley's productive physiognomy acquired different characteristics from the other valleys of Lima, where lands were distributed among the peasants. There are numerous productive, social, environmental and cultural organizations that oppose the urbanization of the valley and defend its agricultural vocation.

The traditional food markets

In Lima there are 1,112 supply markets, mostly private (associations and cooperatives), which are important neighbourhood based food centralities of the 43 districts that make up metropolitan Lima. They represent 43% of the total number of supply markets in the country, and supply between 80% and 89% of the vegetables and between 76% and 87% of the fruits consumed in the city[1].

The food neighbourhoods studied

The food neighbourhood in the district of Carabayllo was delimited around the private supply markets of Qatuna, Modelo, Tungasuca and Nueva Imagen and the bioferia that is organized weekly in the Tungasuca Park. The food neighbourhood includes Tungasuca Etapa I and Etapa II housing developments, which were built on agricultural land from the 1970s, and part of the Villa Córpac housing development that was built ten years later on public land donated by the State to a group of workers. Some 8,472 people (in 2,249 households) live in this food neighbourhood.

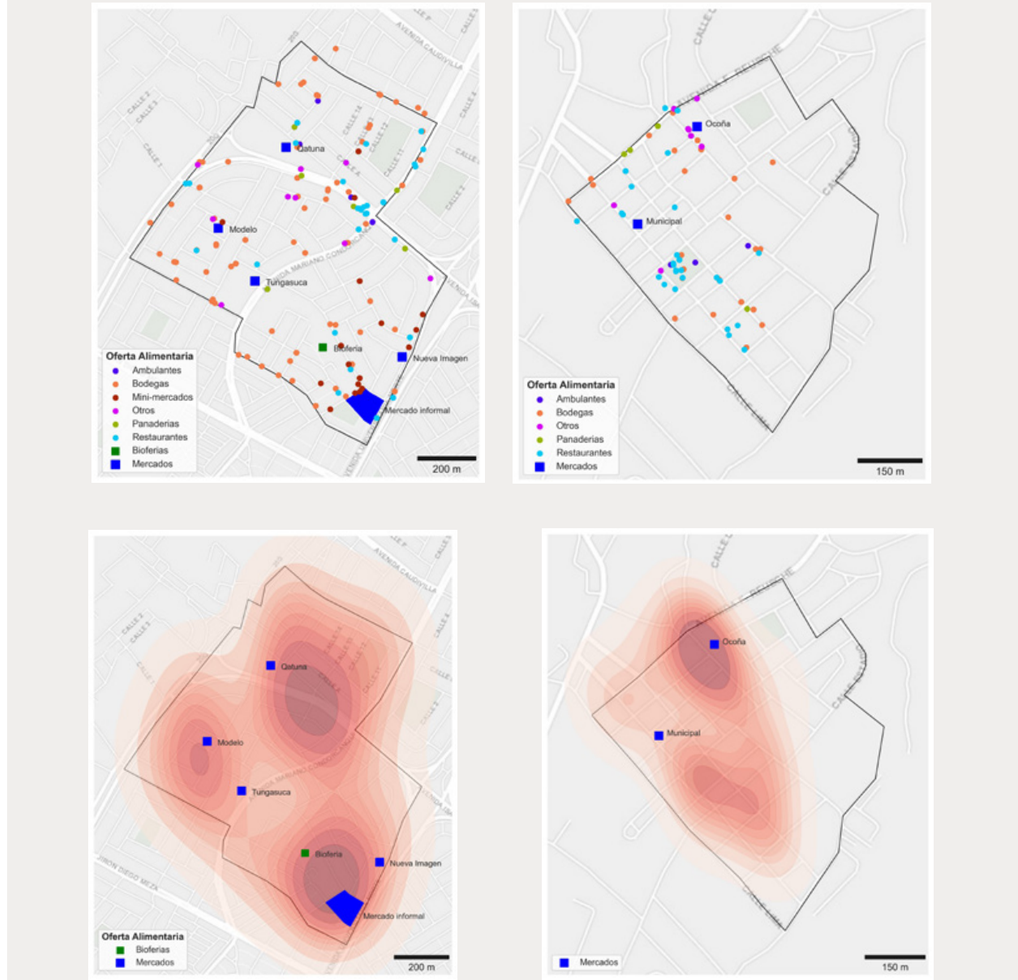
The food neighbourhood in the district of Pachacamac was delimited around the Ocoña private supply market and the Municipal market, covering almost the entire Cercado de Pachacamac. This food neighbourhood has 2,657 residents, in 705 households.

The survey of 355 consumers in both food neighbourhoods showed that, in 2019, grocery markets were the main place to buy fresh food (85.9%), followed by supermarket chains (6.7%) and street vendors. The latter were particularly popular in the neighbourhood in Carabayllo due to the existence of an informal market installed a few blocks away from the Tungasuca *bioferia*.

In 2020, with the COVID-19 pandemic, the share of food markets decreased slightly (78.5%), while supermarket and grocery store sales were maintained (6.7% and 6.4%, respectively). In 2021, food markets recovered their position (85.6%), as did supermarkets (7.4%) and street markets, which were strongly affected by the restrictions during the pandemic.

In both food neighbourhoods, between 72.6% and 74.8% of consumers indicated that they walk to the main place where they buy their food. Low prices and proximity were the main reasons for shopping, except in 2020 when lower risk of contagion was an important reason for selecting the main place to buy their food.

The food supply in the food neighbourhoods shows some concentrations of unhealthy food outlets that make up food swamps.



The presence of fast food offerings highlights the existence of food swamps in certain neighbourhoods. Carabayllo and Pachacamac are reported here
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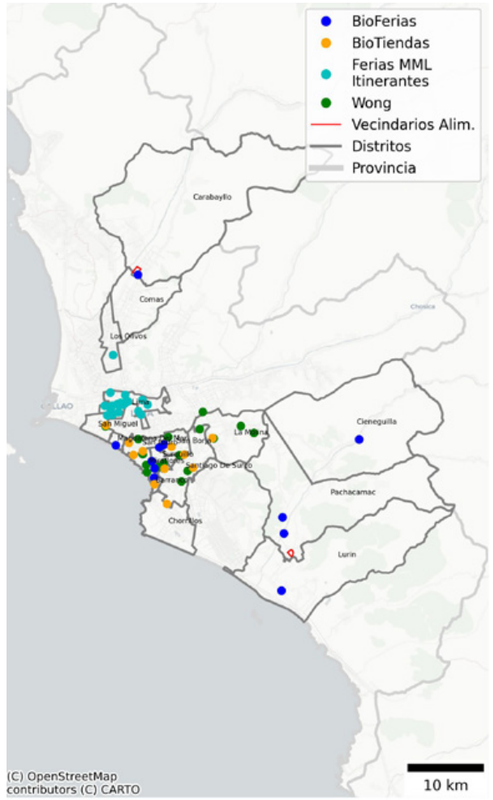
As part of the productive foodscape associated with both food neighbourhoods, 90 peri-urban and rural producers were identified who use agroecological and good agricultural practices in plots located in the Lurín and Chillón river valleys, and who market their products at the *bioferia* in Tungasuca Park and at a *bioferia* located in the Casablanca housing development near the Pachacamac neighbourhood. Forty-six merchants were surveyed who sell fresh food in the Tungasuca, Modelo and Nueva Imagen markets in the neighbourhood in Carabayllo and in the Ocoña market in the food neighbourhood in Pachacamac.

The *bioferia* and the sale of healthy foods in the traditional market provide resilience

A *bioferia* and an agroecological food stall in a food market bring resilience to the food neighbourhood in Carabayllo. *Bioferias* are the main place to sell food produced with agroecological practices. The installation of the first *bioferia* in Miraflores in 1999 followed by the Surco *bioferia* and the Mercado Saludable de La Molina paved the way for the commercialization of food produced with agroecological practices[2]. However, most of the bioferias (as well as experiences of certified supply or associated with agroecological producer groups) are located in the central



Distribution of bio-fairs, bio-stores, and spaces in supermarkets with certified offer or associated with groups of agroecological producers in Lima
© Claudio Ortega

districts of Lima, benefiting those who can pay a differentiated price in exchange for receiving healthy food.[3]

In the food neighbourhood in Carabayllo, two healthy food outlets have been identified. One outlet is the bioferia in Tungasuca Park, which operates every Saturday and is run by a group of producers who have plots of land in the Chillon River valley. The other is a permanent stand in the Qatuna market supplied by the same group of producers. In this sense, Carabayllo is unique in Lima.

Most of the producers with farms in the Chillon River valley produce for commercialization (67%) and specialize in the production of vegetables (66%) and fruits (29%). Most of them sell directly from the farm, with direct agreements between each individual producer and the intermediaries who sell in the wholesale market from where the food is distributed to the whole city, including the food neighbourhood. This form of commercialization comes with enormous social, economic and environmental costs because the food grown in the valley travels about 40 km to the Lima-EMMSA wholesale market (which takes more than 1.5 hours), only to return to the traditional food markets where it is sold.

A small group of producers (no more than five) that use agroecological practices opted to supply the weekly *bioferia* in Tungasuca Park, which was inaugurated in 2021 as a result of Municipal Ordinance No. 459-MDC that promotes the installation of *bioferias* in the district. The *bioferia* is supplied by a group of 12 producers linked to the Association of Agroecological Producers of the Chillon River Valley-APEVCH.

For its part, the agroecological food stand of the Qatuna market, a private market with more than 470 stalls located in the neighbourhood, was inaugurated in 2019.

This is the only known experience in Lima in which a group of producers using agroecological practices have formed a producers' association to manage two marketing spaces located in non-central areas of the city. This means that their prices are similar to those of the local traditional markets. The experience shows that *bioferias* and stalls with agroecological products located in markets can be a profitable option for producers promoting healthy food linkages in neighbourhoods located in districts that are not central to the city.

***Alain Santandreu** is Executive President of Ecosad and principal investigator for Rikolto in the project 'Healthy food hubs: building sustainable and resilient agri-food systems in Lima and Quito'.*

This article is based on reports by Lucía Sato, Juan Cadillo, Saray Siura and Claudio Ortega.

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Development of a draft monitoring tool for the Nairobi Food System Strategy

Samuel Ikua
René van Veenhuizen

Mazingira Institute, with RUAF consultants, has led development of a draft monitoring tool for the Nairobi Food System Strategy, with review inputs from the Food and Agriculture Sector of the Nairobi City County (NCC).

The tool, which was developed under the One CGIAR Resilient Cities programme (see Box) is an adaptation of the Milan Urban Food Policy Pact monitoring framework, customised to the local situation in Nairobi with reference to the City Region Food System (CRFS) indicators (see back cover).

Supported by FAO's NADHALI project, Nairobi began developing a Food System Strategy in 2017. The 5-year Nairobi Food System Strategy (NFSS) was published in March 2022 following a lengthy public consultation in 2021. It contains a summary of the present situation with some baseline data, analysis of gaps with a summary of problems ranked in order of priority and explanatory narrative, and interventions.

The NCC government sector responsible for food and agriculture will be responsible for overall coordination and monitoring of the strategy implementation. Section 8.0 of the NFSS sets out a brief description of the purpose and approach. As yet, there is no monitoring and evaluation plan, but the strategy makes clear there is a commitment to develop and implement one in due course: 'Monitoring will be continuous and will be reported on a quarterly basis while evaluation will be done bi-annually'.

Building on past indicator experiences

The development of a draft monitoring tool based on the MUFPP framework makes sense, since Nairobi is among the cities with the most experience of working with indicators.

Nairobi began implementing the MUFPP indicator framework in 2019, in a project coordinated by the Laurier Centre for Sustainable Food Systems, a RUAF partner. It was executed by two RUAF Associates, Joy Carey and Brian Cook, and Mazingira Institute, who together provided technical and strategic support to the pilot cities. This project was funded by FAO, with data research and the

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publications – an online handbook and resource pack – also supported by the CGIAR Research Programme on Water Land and Ecosystems.

Under the Nairobi MUFPP monitoring framework implementation pilot project, the 2019 pilot project worked with 12 selected MUFPP indicators and provides further foundation and reference for monitoring work in Nairobi done through the Resilient Cities programme.
The Milan Urban Food Policy Pact, launched in 2015, is a non-binding agreement on sustainable urban food policies 'designed by cities for cities'.

The MUFPP Framework of Action sets out practical ways that cities can contribute to the transformation of urban food systems through increased sustainability, articulated in a set of 37 recommended actions with 44 associated indicators, organized around six food system change categories.

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Starting point for a future full NFSS monitoring plan

A draft monitoring tool for the NFSS has received review inputs from the Steering Committee for the Food System. As an adaptation of the Milan Urban Food Policy Pact monitoring framework, it is customised to the local situation in Nairobi with reference to CRFS indicators.

The intention is to help guide further plans for monitoring, with a focus on the problems identified as priorities in the NFSS. These initial priority areas could be seen as starting points for a future full NFSS monitoring plan.

A validation workshop will be organised by Mazingira Institute, in collaboration with the NCC Food and Agriculture sector. The workshop will also serve as an orientation and training platform to introduce the monitoring tool to the agriculture extension officers, who will collect data on the ground.

Creation of food governance structures

The NFSS shores up food systems governance in Nairobi by setting out several structures:

- The Food Liaison Advisory Group (FLAG). Initially formed under the NADHALI project, has been institutionalised through the NFSS, the FLAG comprises members from all the different food system components, public sector, academic institutions, civil society organisations and development partners. FLAG represents the voices of the various food system actors
- The Joint Committee on Nairobi City Food System. Institutionalised in the Intergovernmental Relations Act, the committee comprises County Executive Committee Members responsible for Food and Agriculture from NCC and other county governments supplying food to Nairobi.
- The Steering Committee for the Food System Strategy. The committee comprises directors of all the NCC directorates in charge of implementing aspects of the Strategy. The Secretarial for this Steering Committee will be provided by the Nairobi City Food System Directorate (located in the NCC sector responsible for Food and Agriculture). It meets quarterly to coordinate implementation of workplans.

NCC has recently established a new combined 'Green Nairobi' sector, which brings together the three previously separate sectors of 'Water', 'Environment', and 'Food, Agriculture and Natural Resources'. These are now categorised as sub-sectors of the Green Nairobi Sector.

Samuel Ikua *works for Mazingira Institute. He is the BBC Food and Farming Awards Global Youth Food Champion 2022.*

René van Veenhuizen *is Senior Programme Manager with Hivos, a member of the RUAF Global Partnership.*

Resilient Cities through Sustainable Urban and Peri-urban Agri-food Systems

RUAF is collaborating with the CGIAR research initiative 'Resilient Cities through Sustainable Urban and Peri-urban Agri-food Systems', or in short: 'Resilient Cities'.

This initiative seeks to provide science and research contributions to improve food security and diets, economic opportunities, and environmental health of low-income urban populations.

Resilient cities operates in capital cities in Philippines, Sri Lanka, Bangladesh, Kenya, Ethiopia, Ghana, and Peru, and in five work packages (WP), which work on:

- Enabling sustainable production of nutritious foods in (peri-)urban zones by identifying, piloting and scaling innovations with local partners and in collaboration with local governments.
- Building inclusive and sustainable food markets and safeguarding supply chains to protect and improve consumers' diets, by helping strengthen micro, small and medium enterprises in this sector, with a focus on opportunities for women and youth, and by safeguarding food supplies against losses and waste.
- Strengthening the circular bio-economy, food safety and the urban environment by turning the burden of waste into an opportunity through resource recovery, reducing the risk of contamination and fostering demand for innovation by connecting stakeholders to technology and institutional change options.
- Strengthening consumer demand and access to healthier diets by exploring ways to improve food environments and nutrition knowledge in collaboration with consumer initiatives and stakeholders such as schools and women's groups. The evidence will inform the design of policymaking toolkits.
- Strengthening the evidence base and research and innovation capacities for urban agrifood system growth through improved research and monitoring tools and processes, and innovation hubs targeting young urban entrepreneurs.

RUAF collaborates under the WP on Governance, in Nairobi (with Mazingira), Lima (with Ecosad), Accra (with IWMI) and Dhaka.

More information

- CGIAR Research Initiative on Resilient Cities https://www.cgiar.org/initiative/16-resilient-cities-through-sustainable-urban-and-peri-urban-agrifood-systems/

“Toolkit for People”, empowering change through multi-dimensional solutions

Bianca Minotti
Francesca La Rocca
Andrea Calori

ESTà – Economia e Sostenibilità has developed the Toolkit for People, a “civic technology” for participatory data collection, scenario-building, and facilitation. This article explains how the toolkit works, and its pilot application to understand waste management narratives in the village of Elinkine, Senegal and to inform locally appropriate policies.

Interconnected tools towards a civic technology

In global climate narratives, certain prevalent ideas, statements and assumptions have taken root – such as, for example, that the decarbonization of productive systems will bring a higher rate of employment in several different sectors; or that short food supply chains deliver higher revenues for producers and fewer climate impacts than longer chains. Such statements are so frequently repeated that they have become received wisdom, even though they are not backed up by solid data at the local level. Where it does exist, data often cannot be compared across contexts. Some data will probably never be collected because it relates to informal activities, or there is no capacity or will for systematic data collection.

However, if we continue making these assumptions and developing initiatives without solid data behind them, we will not be able to understand all the local determinants of an issue, and therefore we will be unable to properly address local needs. No local solution can be effective if it is developed solely following global narratives.

How, then, can we fill the gap between the global climate narrative and conditions in local areas? How do we gather data in a territory, often in informal contexts? How do we cross-analyse topics that use different units of measurement and parameters?

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ESTà – Economia e Sostenibilità has contributed to filling this gap by designing and testing the Toolkit for People, a “civic technology” consisting of three tools and activities:

- an exercise in participatory mapping of resources on the ground;
- a calculator of known socio-environmental and economic impacts, which enables scenario-building of the possible benefits of public and private interventions;
- evidence-based facilitation between local authorities and other food system stakeholders.

This toolkit brings together numerous experiences in supporting public policies on sustainability and economic issues, and has been applied in a project in Elinkine, Senegal, in partnership with Fondazione ACRA. In this first application, the toolkit was used to gather information on food waste management through participatory mapping, in a context where there is a lack of official data and documentation. However, this toolkit can have many other applications in different areas of investigation and in different contexts, to produce a quantitative scenario of the economic, employment and environmental effects of a public or private intervention.

First application: Elinkine, Senegal

The pilot of the *Toolkit for People* was carried out in the rural village of Elinkine in southern Senegal, where it was used to analyze the local food waste management system and to promote increased waste recycling. All aspects of food waste were included – not only organic food waste itself but also food packaging (paper, plastic, aluminum). The aim was to provide local institutions with a snapshot of elements that impact the circular economy locally, so as to provide scenarios to inform policies based on local needs. In Elinkine, the local circular economy narrative gave much weight to the employment and economic issues. Hence, the solutions proposed by the toolkit were

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aimed at giving economic and employment value to some pre-existing informal circular economy practices.

ESTà conceptualized and designed the toolkit, facilitated interactions with local authorities, and analyzed data. Fondazione ACRA (which has been operating in Senegal for many years) secured public participation in the experiment through the local middle school, which gathered data for analysis and scenario-building, as well as local authorities and important community stakeholders. Fondazione ACRA also supported analysis of the context and the formulation of research questions.

The project produced four main outcomes.

1. Teachers and pupils of the main school in the village were trained and sensitized in issues related to the circular economy and on the implications of individual, daily food waste behaviors and their socio-environmental effects.
2. Very detailed quantitative and qualitative data on waste management in the village were collected in a participatory manner by students. The participatory mapping was implemented through an open-source application of data collection, with an easy interface for smartphone and tablet, designed to work also offline and to be low cost.
3. Environmental and socio-economic impact scenarios on waste management in the village were prepared by ESTà, based on the data collected. The combination of participative data collection and calculation algorithms enabled a clear and understandable quantitative projection of the economic potential of improved waste collection, while also providing different detailed scenarios of the potential CO2 reduction.
4. Emerging evidence and opportunities were fed back to local authorities and institutions, facilitated by both ESTà and ACRA, with translation into the local language by ACRA. To support the public discussions, the toolkit provided both quantitative data and geographical maps that allowed the information to be visualized and better understood.

The strengths that have been identified in the first application of this civic technology were:

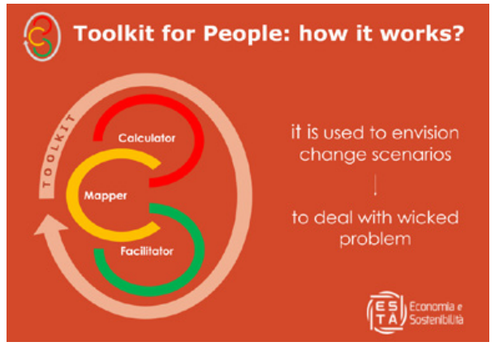
- the **adaptability** of the tools to the informal context, in this case stimulated by the lack of pre-existing formal data;
- the **modularity** of the individual tools (mapper, calculator-scenario, facilitator) allowing each to be adapted to local needs;
- the **synergy and complementarity** of the partnership between a research institution and an NGO with a long experience and presence in the local context.

Where next?

The pilot application in Elinkine provided a number of useful lessons. In particular, it confirmed the premise that the toolkit could be applied in other fields of research and in many other contexts beyond informal and rural settings.

Drawing on data gathered in a participatory manner, the toolkit enables users to form a picture of the existing situation. By cross-analysing environmental and economic parameters, they can formulate several change scenarios, together with local stakeholders. Among the lessons learned in the pilot test, some elements seem to be crucial:

Cross-analysis of parameters: The selection of parameters and the ability to read the interactions and intersections between them is a fundamental part of the toolkit. In the case of waste management in Elinkine, environmental and employment data were cross-analysed to answer the



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question: *to what extent do environmental practices increase or decrease employment rates related to them?*

Start from local practices: The outcome of participatory mapping depends on which data users decide to gather. These decisions are based on analysis of the local context, placing high value on local practices. In the case of Elinkine, for instance, learning about traditional waste management practices helped the users to understand which waste supply chain to investigate and how.

Mix of qualitative and quantitative data: A civic technology such as this toolkit needs to take into account both qualitative and quantitative data, which can be used to substantiate each other and add more detail to the findings. Analysis of the context, for instance, provides qualitative information that can be further investigated through participative mapping to obtain quantitative data, and vice versa.

Value partnerships in loco: The context of application is so fundamental that without a partnership in loco it is very hard to achieve effective results. Partnership between researchers and local organizations enables better understanding of the cultural and traditional aspects, fine-tuning of the research questions, and efficient facilitation. Local partners can help international organizations to understand power dynamics, authorities and institutions, which are fundamental in the final stage of facilitation and hand over to the population.

Finally, how can the application of the toolkit continue? *Some of the possibilities are:*

a) to replicate the toolkit in another context with similar characteristics;
b) to scale up use of the toolkit to increase the beneficiaries and dissemination of the solutions in the target context; and
c) to strengthen the toolkit by involving other actors in implementation.

In the case of Elinkine, given the positive outcomes the project will continue with the toolkit being made available to the entire circular economy supply chain. The toolkit will be used to engage businesses involved in recycling of plastic, aluminum, and organic waste. The geographic area of application will be larger, from Elinkine through the municipality of Mlomp to the Ziguinchor supply chains. Finally, it will be supported by outreach activities to beneficiaries and the provision of capital goods to facilitate the work of collecting, separating, and transporting waste.

In the meantime, EStà is looking for opportunities to experiment with the toolkit in other contexts and on other topics related to food.

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EStà – Economia e Sostenibilità – Is an independent non-profit research, training and consultancy centre that acts as a bridge between scientific knowledge, public and private policies and active citizenship. EStà is a member of the RUAF Global Partnership on Sustainable Urban Agriculture and Food Systems.

More information

- EStà website https://assesta.it/
- Toolkit for People https://assesta.it/progetti/toolkit-for-people/
- KoboToolbox, the data collection app https://www.kobotoolbox.org/

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Food security for marginalised women: complementing urban agriculture with social protection initiatives

Deepa Joshi
Jess Halliday

Drawing on the findings of a recent study in Bangladesh, Deepa Joshi and Jess Halliday argue that marginalised people's ability to participate in UA is contingent on multiple intersectional factors such as, gender, class, migration status, age, as well as social, economic, and political contexts. This means that there is no blueprint solution to improving urban food security and nutrition. As the context demands, UA needs to be accompanied by interventions at other food system nodes – as well as structural changes in socio-economic regimes that prevent diverse groups of people from securing adequate, nutritious food.

Multiple experiences from around the globe have shown that urban agriculture (UA) projects that provide the land, equipment, and skills for low-income families to produce their own nutritious food can, in some contexts, improve household food security. From sack gardening in the slums of Nairobi, to microgardens in Dakar, Senegal, to the agroecological community gardens in Quito, Ecuador and Rosario, Argentina, various techniques and approaches have been adopted to suit local conditions and the specific needs and realities of local communities.

In Dhaka, Bangladesh, UA has been practiced in urban and peri-urban pockets for many years, in spaces such as riverbanks and beside lakes, on rooftops, in backyards, and even on windowsills. For some of the urban poor, the ability to grow food has become a lifeline, especially over the last three years since COVID-19 affected traditional food systems and value chains. With the support of international organisations, the government of Bangladesh is promoting the scaling up of many urban agriculture initiatives designed to benefit local communities. The One CGIAR Initiative, Resilient Cities, also aims to strengthen a vibrant, largely informal urban and peri-urban agrifood sector (including in Bangladesh) with the aims of improving sustainability, equity and opportunity growth and mitigating risks to human and environmental health.

These positive experiences notwithstanding, urban agriculture proponents need to be wary in assuming that UA would be helpful – or even possible – in all local contexts. In some situations, even when food insecurity and malnutrition is severe, marginalised urban and peri-urban communities are simply unable, for multiple reasons, to adopt urban agriculture.

Could UA address the food security and nutrition needs of Bangladesh's Readymade Garment workers?

The Readymade Garment (RMG) industry in Bangladesh is a key driver of economic growth, contributing about 14 per cent to Bangladesh's GDP (Bangladesh Bank 2022) (Agarwal 2002). In 2022, women constituted around 61% of the industry's 3.5 million workers. Paid employment in the RMG industry for large numbers of marginalised women is said to have empowered women (Hossain 2012) and contributed to Bangladesh being the most gender-equal country in South Asia, according to the World Economic Forum's Gender Gap Index measure.

However, recent studies have reported that 80% of female ready-made garment workers in Bangladesh suffer from health impacts of inadequate diets and lack of dietary diversity (GAIN 2022).

A recent study led by the International Water Management Institute (IWMI) in Bhadam, a peri-urban settlement in Gazipur District in metropolitan Dhaka, explored how gender norms, formal and informal governance of food, water and environment combine to impact 'liveability' for women Readymade Garment (RMG) workers. Liveability is defined here as 'the subset of sustainability impacts that directly affect people in a community, such as economic development, affordability of food and basic services, public health, social equity (Litman 2011)' and safe living conditions (Litman 2011; 1).

Transforming the rules of the game: Understanding gendered liveability in peri-urban Dhaka

In 2022, IWMI researchers undertook fieldwork in Bhadam, a sub-urban area of metropolitan Dhaka in Gazipur province, where a large number of RMG factories are located. Three field researchers (two females and one male) lived among the RMG workers during a five-month period to gain a rapport with, and an understanding of, the community and the issues it faces through non-participant observation. These researchers were supported by three senior researchers who visited Bhadam each week.

Over this period, interviews were conducted with 20 women RMG workers to understand their everyday experiences, particularly in relation to food-, water-, and environment-related issues and governance in Bhadam. The researchers also spoke extensively with the husbands of eight (of the 20) workers and interviewed five local (non-migrant) women who did not work in the RMG factories. Focus group discussions and conversational interviews were conducted with 20 community actors, including landlords, house managers, shopkeepers, restaurant owners, cleaners, waste-pickers, community leaders (e.g., religious leaders, influential social figures), men engaged in formal and informal governance and politics, and schoolteachers.

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Among other conclusions, the researchers found that RMG workers in the area experience food insecurity and malnutrition.

The majority of RMG workers in Bhadam are female migrants from far-off rural villages. The researchers found that, far from being aspirational RMG work is an outcome of distress migration due to diverse reasons, including extreme poverty, family illness, debt, and in some cases, as an escape from social expectations such as finding their own marriage partners, or escaping abusive marital relations. The women see opportunities of work in the RMG industry as a temporary coping strategy. Some came alone, others with their husbands or other family members. The majority aspire to go back home but eventually find themselves stuck in an exploitative system where they exchange labour for wages that are insufficient to provide a decent life or liveability (adequate, nutritious food, decent living conditions and living wages). As migrants, as women, and as workers, the RMG workers find themselves in a social position that disallows any participation in formal or informal community governance. They barely make ends meet and are mostly unable to save any money to return home.

The RMG industry in Bangladesh, credited with enabling women's economic empowerment, does allow the women workers in Bhadam to earn between BDT 8,000 to 13,000 (c. US$77.5 to US$125) to a month (depending on position, attendance bonus and overtime). These wages were revised in 2018 from a much lower amount. Nonetheless, because almost 40% of their wages is spent on rent and most workers are trapped in cycles of debt repayment, workers are mostly unable to purchase nutritious food for the whole month. Many eat small meals lacking dietary diversity, saving larger, more nutritious food portions for their husbands and children. When the money runs out, they obtain credit from shopkeepers, paying higher prices to defer payment for lower quality food, until payment during the next pay period.

Coming from rural areas, most of these women have prior experience growing vegetables or keeping small livestock. However, any project to introduce UA in Bhadam would face multiple challenges.

Bhadam is largely unplanned, with no **public spaces** that would easily accommodate food production. What little vacant land there is, such as on the riverbanks, tends to be contaminated by waste and factory effluents. The women themselves lack both **land tenure** as well as physical space in and around their residences.

The majority of RMG workers live in rented, tin-roofed, one-roomed accommodations in the vicinity of the factories, with one bathroom serving several households. Due to the high cost of accommodation, often multiple family members live in the same single room.

Even if food were to be grown using techniques that require minimal space (for example, sack gardening or roof top growing), **permission would have to be obtained from the landlords or house managers.** The landlords and managers are responsible for basic services such as sanitation, waste management, and water provision.

Landlords express concern for the smallest of things, such as additional water and toilet use when workers have visiting guests. The women are generally accepting of poor basic service conditions, and any requests for improvements in services are turned down. The gender-power hierarchy between the local, male landlords and poor, migrant RMG women workers is prominently visible in their everyday interactions. In such situations, it is extremely unlikely that RMG women workers would take the initiative to advocate for the right to grow food or have the ability to keep livestock or demand additional water for productive use.

Even if viable space and permission could be secured, women RMG workers are **time poor.** They work over eight hours a day, six days a week. In addition to their factory work, they are responsible for all domestic and care work – including preparing food for their husbands and other family members who live with them. They often get up to cook before 4 am, when there is gas supply to the shared residences for factory workers. It is hard to imagine that these women would find any time for cultivating food. In fact, given their time constraints many of the women we spoke to wished they could buy 'ready to cook' food, such as chopped vegetables.

Given the demands on their time, women also have very **little opportunity for social interaction** with peers that could develop into collective initiatives to produce food. At the most, they sometimes share food with their neighbours, or converse with colleagues on the shared challenges and situations on the way to the factory. Paid work for women (sometimes as the main or only earner in the family) has not changed social relations. Their salaries are managed by their husbands, who tend to restrict women's mobility to go anywhere other than the factories. Patriarchy is deeply ingrained, and most women prefer to not go to the local markets to buy food (from male shopkeepers). Good women are described as those with minimal contact with others outside of the household, particularly other men.

To the locals, RMG workers are external migrants and outsiders, no matter how long they have lived in the community. The workers themselves hesitate to integrate with the local community. Also, as they rely entirely on

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their landlords for basic services, they have **little to no contact with other actors engaged in the formal and informal governance** of water, food, and waste management. Their isolation and disenfranchisement is so severe that it is inconceivable that they could be engaged in a peri-urban agriculture initiative.

Taking account of all these challenges, it is unlikely that UA can be an entry point for addressing food insecurity and malnutrition among RMG workers in Bhadam.

Other interventions to improve food security and nutrition for RMG women workers

While UA initiatives are beneficial to large populations of the urban poor, the findings show that it cannot be considered as a panacea to food insecurity and malnutrition in any given setting. Many RMG workers spoke of the poor quality of fresh food and fish sold in the markers in Bhadam. They are often nostalgic about the food they had access to in the villages and these food memories shape their aspirations to go back home. The lack of regulation on pollution of food and water is not uncommon in peri-urban locations. In Bhadam these processes of poor governance are exacerbated for the RMG workers, who lack voice and visibility in systems of formal and informal governance of basic services.

In the case of RMG workers in Bangladesh, transformative change would involve more inclusive governance, as well as re-drawing the socio-economic structures that cause displacement, forced migration to poorly paid work which, far from improving liveability, is hardly enough to secure food security and adequate nutrition.
Organisations promoting UA need to be cognisant of local socio-ecological contexts, systems and processes of governance, and particularly of women's increasing economic work in situations where unequal gender norms are hard to reverse.
In Bangladesh, there are existing small-scale interventions to address food security and nutrition for the urban poor. With the support of local and international NGOs, a small number of factories have introduced on-site provision of nutritious meals on payment for workers. These isolated interventions receive significant national and international media coverage yet reach only a fraction of the RMG population. The research

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also shows that mobile public food distribution systems implemented by the Trading Corporation of Bangladesh (TCB), a wing of the Ministry of Commerce, have yet to reach places like Bhadam. Such interventions, if expanded, could begin to address more immediate food security challenges of RMG workers like those interviewed in Bhadam.
However, the findings show that without more systemic and structural reciprocity by the RMG industry, fuelling Bangladesh's national economy to its marginalized workers, there will be no easy solutions, especially in a complex, fast-evolving peri-urban context.

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Urban agriculture under the Dhaka Food System project

The Dhaka Food System (DFS) project (2019-2023) aims to make the city's food system more inclusive, resilient, and sustainable. Funded by the Kingdom of the Netherlands, it supports the Government of Bangladesh in developing a Dhaka Food Agenda 2041.

The project takes a food systems approach, and activities include action research and formation of multistakeholder partnerships. With the support of FAO and Wageningen University (WUR), the project is implemented across all four of the city corporations that make up the Dhaka Metropolitan Area: Dhaka North, Dhaka South, Gazipur, and Narayanganj. Promotion of urban agriculture falls under largely the project pillar 'promote nutrition and food security'.

The DFS partners work with national NGO Proshika to provide (mostly women) slum residents with seeds, seedlings and saplings, fertilizer, tools, and training in both nutrition and urban farming methods. Some 1050 slum dwellers received urban gardening and nutrition awareness training in a pilot urban gardening programme by FAO and WUR during the 2019-2021 COVID-19 pandemic. Since August 2022, the programme has been scaled up to over 5000 urban and peri-urban households across all four city corporations. The kinds of foods that participants produce vary by location and technique, but often include leafy vegetables, root vegetables, chili, tomatoes, and fruit. Some people also keep goats and chickens for meat and eggs.

In view of the lack of space within dense urban areas, the DFS project set up 20 rooftop demonstration urban agriculture plots, and is now being scaled up to over 1500 roof top gardeners. It has also convened experts in nutrition and food security, national and local government officials, and representatives of urban poor communities in seminars to showcase the role of urban gardening in reducing food and nutrition insecurity. Following a seminar for ward councillors in December 2022, the Dhaka North City Corporation announced the possibility of introducing a 10% tax rebate for city residents practicing rooftop agriculture.

More information

- FAO Urban Food Agenda: Improving Dhaka's Food Systems https://www.fao.org/urban-food-agenda/projects-dhaka/en/
- FAO Bangladesh Newsletter, April 2021, issue 4 https://www.fao.org/3/cb4499en/cb4499en.pdf
- Dhaka Tribune: Rooftop agriculture needed to ensure sustainable food production in Bangladesh https://www.dhakatribune.com/bangladesh/2022/12/21/fao-rooftop-agriculture-needed-to-ensure-sustainable-food-production-in-bangladesh

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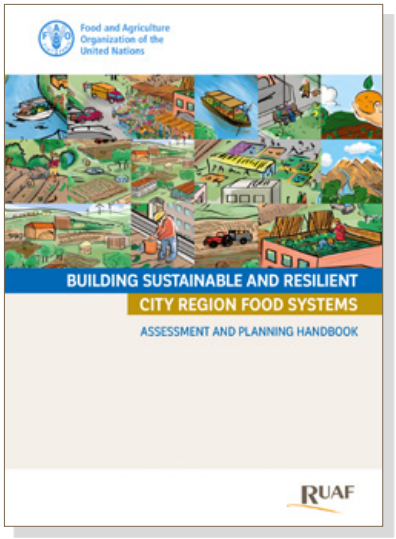
Launch of the new City Region Food Systems Assessment and Planning Handbook

In May, RUAF and FAO launched the City Region Food Systems (CRFS) Assessment and Planning Handbook and accompanying online toolkit. These new resources are instrumental in helping stakeholders to understand the sustainability and resilience of their food system.



The Handbook and toolkit are outputs of the CRFS programme, co-run by RUAF and the United Nations Food and Agriculture Organization (FAO) since 2014. The CRFS programme has been funded by the German Federal Ministry of Food and Agriculture, and by the CGIAR International Water Management Institute.

Complementary resources, and a customizable process

The Handbook and toolkit contain two thematic tracks: the 'main track', which relates to the overall functioning and performance of the CRFS, its resilience and sustainability; and the 'multi-risk' for more detailed look at specific potential hazards, such as climate shocks and stresses, pandemics and their impacts.

The CRFS process consists of five modules: Inception, Define the CRFS, Rapid Scan, In-depth Assessment, and Action Planning. While the Handbook sets out the activities, the online toolkit contains supplementary guidance, explanations, examples, templates and training materials all accessed via clickable links.

A central pillar of the CRFS process is multi stakeholder working, which ensures a range of perspectives are represented, that the project team can draw on a base of knowledge and experience, and helps build momentum for long-term action on multiple fronts.

The CRFS process has been piloted in a total of eleven city regions: Colombo (Sri Lanka), Lusaka (Zambia), Kitwe (Zambia), Medellin (Colombia), Utrecht (Netherlands), Quito (Ecuador), Toronto (Canada), Kigali (Rwanda), Antananarivo (Madagascar), Melbourne (Australia), Tamale (Ghana).

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UA Magazine is a vehicle for sharing information on urban agriculture and urban food systems. It publishes good practices and impact stories.

UA Magazine welcomes contributions on new initiatives at individual, neighbourhood, city and national levels. Attention is given to technical, socioeconomic, institutional and policy aspects of sustainable urban and peri-urban food production, marketing, processing and distribution systems. Although articles on any related issue are welcome and considered for publication, each UA Magazine focuses on a selected theme (for previous issues, visit www.ruaf.org).

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