Urban and peri-urban agriculture (UPA) and controlled environments agriculture (CEA)

TEP 1

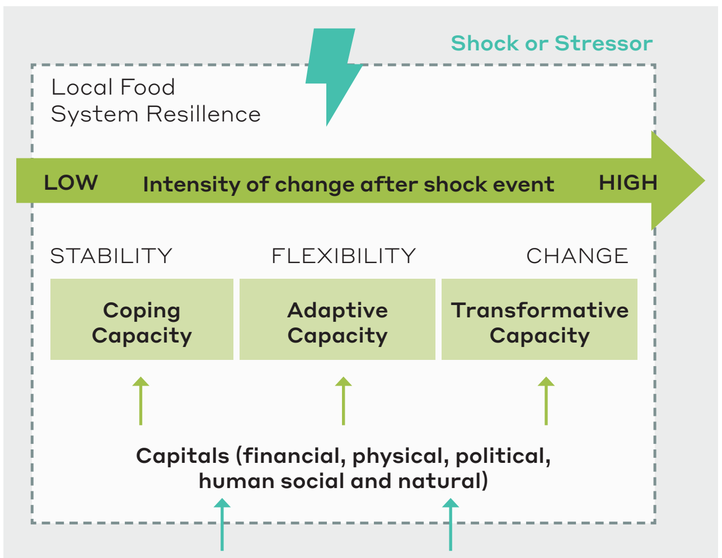
The role of UPA and CEA in building urban local food system resilience to shocks and crisis

Louisa Nelle, Catherine Nina, Jeff Njau, Francis Kabiru, Sammy Kiprono, Jospeh Mathenge, Samuel Kinyanjui, Inviolater Lusweti, Ednah Okello, Bernhard Hoeper, Razack Abdoul Belemgnegre, Samuel Wairimu, Haidee Swanby, Edouard Sango

UPA is increasingly being promoted by policy makers, donors, development agencies, and NGOs based on the assumption of its capacity to reduce vulnerabilities such as food insecurity and increase resilience to shocks and crisis while also bringing mitigation and other environmental, ecological, health, and human well-being benefits.

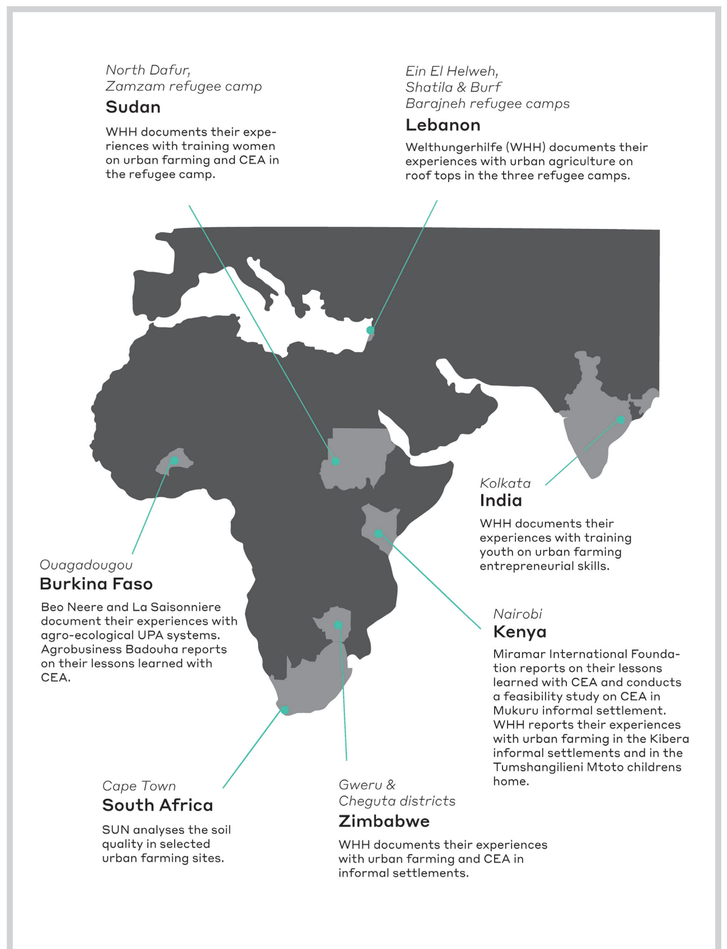
However, there is need for greater empirical evidence of the benefits UPA can provide but also the constraints, and risks, as well as enabling factors needed to harness these benefits to promote UPA as an effective component of urban resilience strategies (Dubbeling et al., 2019).

The objective of this thematic entry point is to understand the role UPA is playing and can play in building urban local food system resilience, understood here as the capacity of the system to deal with uncertainties, absorb disturbances, reorganize and maintain its functions along a particular development trajectory (Elmquist et al., 2019). Thereby we seek to strengthen sustainable and inclusive development pathways and not reinforce existing inequity and negative externalities of food production.



Local Food System Resilience adapted from Paganini et al. (2020) and Béné (2020)

COVID-19 revealed the fragility of our food systems and how easily those can be disrupted. Cities in Sub-Saharan Africa are characterised by structural issues such as high rates of poverty and food insecurity, the world's fastest urban growth, inadequate infrastructure, and lack of access to services that make communities vulnerable to reoccurring and concurrent shocks (drought, flood, economic downturn) and stressors (corruption, insecurity). We understand that resilience results from a set of capacities or abilities (Béné, 2020). These capacities, depend essentially on a combination of assets or capitals (financial, physical, political, human, social, and natural) that households can draw on in anticipation, or in response to a sudden shock or a recurrent stressor (Béné, 2020). Communities' or households' coping capacities cushion shocks while their adaptive capacities provide the flexibility to deal with shocks. Transformative capacity provides the opportunity to create longer-term change to sustainably improve the community or household food system (Paganini et al., 2020).



Our preliminary findings and reflections are based on case studies from different contexts (see map) drawing on previous research and secondary literature, key informant interviews and focus group discussions. We also explore the potential of controlled environments agriculture (CEA) by conducting a feasibility study in Mukuru, an informal settlement in Nairobi.

Greenhouse and raised beds promoted by WHH at Tumshangilieni Mtoro childrens home in Kibagare informal settlement, Nairobi

PRELIMINARY KEY FINDINGS

1. The main challenges urban farmers face across cities and scoping sites are lack of space, land tenure, and reliant water sources putting marginalized communities at a disadvantage. Necessary inputs such as organic fertilizers or pesticides are often difficult to access (either because they are not available or unaffordable).
2. In crisis ridden contexts where fresh nutritious foods are very difficult to access (because they are either unavailable or totally unaffordable), UA in densely populated areas can be a coping strategy by contributing to the dietary diversity of a household.
3. In crisis ridden contexts with high unemployment rates UA in densely populated areas can be a coping strategy of households by diversifying their income source and marginally contributing to the overall income of the household.
4. COVID-19 containment measures interrupted in many places the flow of food from rural to urban areas. Some urban and peri-urban farmers saw an increase of demand for their produce while others faced difficulties in accessing inputs such as seeds. Interrupted public transport inhibited their access to markets and generally reduced the purchasing power of customers ultimately also reducing the income of farmers.
5. Controlled environment agriculture (CEA) is space and water efficient, and crops are protected against climate variability, making the system more resilient to climate change. However, a CEA system is dependent on a reliable water and electricity source.
6. CEA systems require relatively high investment and operational costs (financial capital) as well as solid agronomic and technical skills (human capital). Miramar learnt that farmers practicing CEA require at least four to five years of loan repayment periods. Currently, financial institutions do not provide farmers with adequate investment/loan plans in Kenya.
7. Despite the informal markets being a relatively significant player in the production and trading of food in Nairobi, Miramar finds that financing institutions in Kenya hardly support farmers with informal contracts as they lack the certainty of cash flow to secure the loan.
8. CEA systems can ensure better food safety when a clean water source is guaranteed. Further, CEA systems can ensure better product traceability, which can be a market advantage, finds Miramar.
9. When well moderated, UPA can be a means to create and strengthen social networks, enabling knowledge exchange (human capital) and support (social capital) among the community that in turn might enhance their adaptive capacities.
10. Ouagadougou's green belt shows how peri-urban farming and agro-forestry can generate multiple functions, including protection of the city from wind and dust, enhanced water retention and infiltration, production of firewood (natural capital), providing a recreational area for urban dwellers as well as low-income opportunities for farmers.
11. In most study contexts UPA policies are inexistent (political capital). If existent they are fragmented, inadequate, and underfunded (financial capital). UPA is nowhere considered in longer term spatial planning processes. For urban agriculture to unfold its potential transformative capacity in building local food system resilience, UPA needs to be firmly embedded in cities' food system policies, planning and budget allocation.

Wooden raised beds promoted by WHH on rooftops in a refugee camp near Beirut

Agro-ecological farming system promoted by Beo-Neere in the peri-urban area of Ouagadougou

Construction of a greenhouse by Miramar on the premises of Ruben Center in the Mukuru informal settlement, Nairobi.

CONTACT

Louisa Nelle
louisa.nelle@tmg-thinktank.com

Ednah Okello
Ednah.Okello@welthungerhilfe.de

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