A conceptual framework for healthy urban systems for food and waste management in ESA countries.

Urban health community of practice in the Regional Network for Equity in Health in East and Southern Africa (EQUINET)
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1.   Introduction

Health promoting food systems and waste management are critical for health and wellbeing in east and southern African (ESA) urban areas, and urban food insecurity is rising in many ESA cities. Globalisation of food chains, corporate advertising of and diets shifting to fast foods are adding new risks from early ages for non-communicable diseases. Urban agriculture and processing of locally grown foods can provide healthy alternatives, and turn waste sites into urban green spaces if they also protect local environments and natural resources, but are not always formally supported. Waste dumping, and inadequate waste segregation and waste collection services are leading to growing urban risks for communicable diseases and contaminating urban living and natural environments. Yet food and waste management systems are key entry points to foster innovation, collaboration, accountability, literacy and system-wide change to support healthy people, healthy ecosystems (including green spaces, energy and water) and an inclusive, productive, regenerative and circular urban economy, that contribute to a just response to climate change. Urban areas can intensify risk environments, but are also sites of positive innovation.

Urban food systems are drivers of health (in)equity. Rising food costs, food poverty, food import dependency and expanded marketing of ultra-processed foods are generating health, social and economic deficits, while urban agriculture and local food processing can offer opportunities for wellbeing, healthy ecosystems and urban green spaces, waste, water and climate management and for sustainable, affordable energy. Waste management in urban areas affects environment, social conditions and health, with potential for links to climate, urban green spaces, flood reclamation, and new energy sources through recycling and use. Globally, these intersecting issues relate to region-to-region exchanges on laws, technology and practice options, and to global instruments and practices, including by transnationals, and to aligning global resources to regional and local technology priorities.

Food and waste management systems are key entry points to foster innovation, collaboration, accountability, literacy and system-wide change to support healthy people, healthy ecosystems (including **green spaces, energy and water**) and an inclusive, productive, regenerative and circular urban economy.

This calls for urban systems that:

1. Listen and respond to and integrate community evidence and ideas with other forms and sources of evidence, and that generate multi-actor, multisector interactions and collaborations in planning, designing, implementing and reviewing processes.
2. Develop, resource and implement holistic, area-based and system approaches with a 'whole of society' approach that addresses risks and drivers and builds capacities to sustainably and equitably address challenges and realise longer term rights and goals and rights.
3. Provide affordable, safe, nutritious foods in healthy food neighbourhoods and green spaces for all living in urban areas, in ways that promote equity and climate justice.
4. Respect and protect ecosystems and provide an inclusive, poverty-reducing and equity oriented circular economy, that reduces, recycles and reuses urban food and other waste to support other needs and benefits, including for water, energy and green spaces.
5. Involve governance approaches, capacities and measures for implementation, for adaptive change and for strategic and collective learning.

Each of these areas has specific relevant features, noted below.

1. Urban systems that listen and respond to and integrate community evidence and ideas with other forms and sources of evidence, and that generate multi-actor, multisector interactions and collaborations in planning, designing, implementing and reviewing processes, where:

a. Processes gather disaggregated evidence from and dialogue with local communities and implementers from inception, using participatory methods, local ownership and bring evidence to forums that generate inclusive dialogue across all sectors and actors.

b. The design and actions promote and strengthen community leadership, organization, capacities, solidarity and participation, including for participatory evidence gathering.

c. Community generated evidence is integrated with other forms and sources of current and projected and disaggregated evidence, including from routine data, food and water testing, cost-benefit analysis, and use a range of methods and technologies to generate evidence, including through digital technologies, and to show how different elements intersect.

d. Partnerships, collaboration, and community engagement are enhanced from grassroots to national level in inclusive platforms, setting shared vision and objectives, embedding capacity building, consultation, accessible processes for meaningful involvement/engagement and accountability at all stages of processes.

e. Governance practices and collaboration mechanisms, models and accessible processes strengthen relationships for dialogue and co-ordination, including between authorities and different groups in communities.

f. Evidence is institutionalised through mapping, audits, preference and satisfaction surveys, routine information systems and implementing health impact assessments (HIA) in addition to the current environment impact assessments.

2. Urban systems that develop, resource and implement holistic, area-based and system approaches with a 'whole of society' approach that addresses risks and drivers and builds capacities to sustainably and equitably address challenges and realise longer term rights and goals, where

a. Processes and outcomes are sustained, rather than in only short-term time-limited projects, breaking siloes and addressing multiple issues at once, using and generating new system and policy frameworks.

b. Laws and policies at local, national, regional and global level enable holistic, inclusive, participatory and area-based and system approaches and protect against health and ecosystem harms, and are effectively and transparently implemented.

c. Authorities, technical and commercial actors, and communities establish and strengthen social enterprise for efficient and equitable local production, processing, distribution of food and for waste management services, and waste recycling and use, including for bio-energy.

d. Links are made between social, climate and ecosystem benefit and economic / social enterprise opportunities and through networking between local sites.

e. Funders, businesses, authorities and partners provide impact and innovation funding, use budgets, collective/pooled savings, community contracting, social tendering and public procurement to support collaborations to test, demonstrate and scale up innovations that support healthy food and waste management systems and the intersect with healthy ecosystems, green spaces, water and energy, in inclusive economies.

f. Investment is made in locally appropriate, climate sensitive technologies and infrastructures (solar energy, water, public green spaces).

3. Urban systems that provide affordable, safe, nutritious foods in healthy food neighbourhoods for all living in urban areas in ways that promote equity and climate justice where

a. Everyone — individuals, families and neighbourhoods — can access and afford a diverse range of nutritious, safe, accessible and culturally relevant food, including indigenous foods.

b. Authorities, communities and others in the food system use a range of methods and approaches to gather, integrate and collectively review evidence on the distribution of food, nutrition and food-related disease, including chronic diseases, and on the health- promoting nature of nutritious food, to inform system design and implementation.

c. People, especially young people, are protected from promotion and consumption of harmful, unhealthy, unsafe and ultra-processed foods across the whole food chain, including through inspection and testing services, market-controls and through laws and their enforcement.
d. People, especially women, are empowered with information, knowledge, skills, resources and appropriate technologies and processes to produce, process, store and prepare healthy and safe food in an ecologically sustainable way, to eat well and to reduce food waste.
e. Different actors in the food chain increase connections with local food producers, processors, retailers, communities and authorities in approaches that generate local jobs, incomes, appropriate local technologies and innovation across the food supply and value chain.
f. Urban food producers/ farmers are supported to access ample land and safe water, including through water harvesting and other water conserving approaches, to use innovative appropriate urban agriculture models and practices, including micro-gardening, herb and nutrition gardens as a means to increase sustainable, climate-friendly local food production, food security and strengthen livelihoods.
g. Urban agriculture is incentivised and enabled to use interdependent, dynamic and sustainable water, land and energy systems and locally-produced technologies, including in hydroponics, to use waste-water in ways that do not pose harm to health and environments, and to optimise climate-proofing and win-win synergies for environmental sustainability and social equity.
h. Urban agriculture is implemented in circular economy models and regenerative practices that support healthy ecosystems and promote green public spaces in urban areas.
i. Locally grown food is sold in accessible, hygienic and climate change-proofed markets for communities, schools, health services and other use.
j. Distribution of and access to nutritious food is protected during emergencies, pandemics and epidemics, especially for those most vulnerable and impacted
k. The food and waste management economy and system is linked to support for urban public green spaces and to strengthened sustainable access to clean energy.

4. Urban systems that respect and protect ecosystems, that provide an inclusive, poverty-reducing and equity oriented circular economy, that reduce, recycle and reuse urban food and other waste to support other needs and benefits, including for water, energy and green spaces, where
a. Urban systems and society increase ways through which urban agriculture and food production, processing and marketing ensure that foods, food by-products and other forms of urban waste circle back into the system, contributing value rather than waste.
b. Urban food, water, energy, waste, and green spaces interact synergistically, where actions address underlying drivers at different levels and address distributional equity to achieve green, equitable, empowering, adaptable, transformative, and sustainable urban development.
c. Residents, local authorities, enterprises, producers, retailers gather, use and monitor evidence on food and other waste, waste hotspots, and links between different forms of waste (plastic, water) and use the evidence to co-design and assess the impact of interventions.
d. All in the system understand and form new links to segregate, reduce, recycle and reuse food and other waste, including biomass waste, to generate renewable energy, to manage waste water and improve access to and conserve clean water and green spaces and to add value for environmental, social and economic benefit.
e. Innovative business models and approaches are tested and research, demonstration projects, experiments used to identify sustainable options to reduce avoidable waste and repurpose/recycle unavoidable waste.
f. The waste management economy and system is linked to support for urban public green spaces and to strengthened access to clean energy.

5. Urban systems that involve governance approaches, capacities and measures for implementation, for adaptive change and for strategic and collective learning, where
a. Policies, regulations, infrastructures, organisations, practices and communication resources, including digital systems are designed and established to support the above features of a circular healthy food and waste management economy.

b. Information systems, data analysis, indigenous knowledge systems, socio-cultural norms, continuous learning and sharing, social and other media outreach are integrated and used to better understand local assets, opportunities, tools and issues and to engage stakeholders to discuss and design action for projects, policies, programmes and innovations.

c. Expertise is shared and training implemented to increase health literacy, awareness, knowledge, skills, resources, capacities, and partnership/collaboration to co-design and implement solutions and services for healthy and circular and climate-responsive systems, including in primary to tertiary education curricula.

d. Local initiatives link to policy, legal, funding and system change for scale-up in 'process not project' approaches.

e. Local technologies, innovations and life-forms are protected from external commercial patenting and extraction, without sustained fair benefit for local communities.

f. Local actors link to other cities and national level within the country, and with other cities and countries internationally to exchange and engage on knowledge, approaches, ideas and practices, including at global level.

g. Local systems and actors engage and get feedback from political and government actors on negotiations and for accountability on the links between climate and urban health in national, regional and global processes.

An initial graphical representation of the framework is presented in *Figure 1*.

Figure 1: A graphical representation of the conceptual framework

Principles → **Systems** → **Goals:** Urban systems

Principles:
- Equity
- Integrated across sectors, actors & systems
- Partnership & participation
- Sustainability
- Inclusive, circular economy
- Climate justice
- Strategic, shared learning

Systems (within circle):
- Inclusive, equitable economy
- Food ↔ Waste
- Generating evidence & knowledge
- Institutional capacities, tools, governance
- Water ↔ Green spaces ↔ Energy
- Designing, sharing promising practice
- Engaging global drivers, policies & rules
- Ensuring climate 'proofing'

Goals: Urban systems:
- Listen and integrate community and other forms of evidence, for multi-actor, multisector collaboration
- Develop, resource, implement sustained holistic 'whole of society' approaches that address risks, goals and rights
- Provide affordable, safe, nutritious foods in healthy food neighbourhoods in ways that promote equity and climate justice
- Respect & protect eco-systems & equity in circular economies for food and waste, linked to water, energy and green spaces
- With inclusive governance approaches & capacities for adaptive change & strategic, collective learning