

Case study on health-promoting urban food systems in Kariba



Background

A number of initiatives promoting healthy urban food systems are underway in urban areas of Zimbabwe, but these promising approaches are not always systematically documented, known and shared to support exchange and learning. To address this, the Urban Councils Association of Zimbabwe in association with the Training and Research Support Centre in EQUINET, with review input from Ministry of Health and Child Care (MoHCC) is implementing work in 2022-23 to gather and share evidence on initiatives underway in Zimbabwean cities/towns to promote healthy food systems, to share and promote uptake of promising practice through UCAZ in Zimbabwe and through EQUINET in east and southern Africa. Kariba is one of the urban case studies, using a collectively developed shared framework.

Kariba context for urban food systems

Kariba is a small tourist resort town in north-eastern Zimbabwe near the border with Zambia and is located in a National Parks area. The town was initially developed to house workers involved in the construction of Lake Kariba on the Zambezi River for hydro-electricity generation. It experiences hot, dry weather throughout the year, with a low summer rainfall. Kariba Municipality covers about 30 000 residents. It is far from major centres and farming areas, with high levels of unemployment, with 51% of people working in the informal economy, many with insecure lives, and with other vulnerable groups such as children orphaned in the AIDS epidemic. As it is situated in a national parks wildlife area, the town has limited land for housing, leading to a significant housing backlog. Some people still live in barrack-style accommodation in Mahombekombe that was intended as temporary accommodation for dam construction workers, or in peri-urban sub-standard housing.



Kariba in Zimbabwe GIS Geography Under CC

Urban food systems in Kariba

Most of the food consumed in Kariba town is sourced from far away, as farming around the town is not viable because of wildlife. There is one banana farm within the peri-urban area of the town, but all open spaces in the town that could support urban agriculture are used for game corridors. Available and affordable kapenta and bream fish support food security, with small volume kapenta sales affordable for low income earners. Kapenta provides a high source of protein for low income communities (Kinadjan and Bodiguel, 2013). While 11.5% of children in the town are poor, surveys report no food-poor children, possibly due to fish and fish by-products as an affordable nutrient source (ZIMSTAT and UNICEF, 2019). Combined nutrition assessments for Kariba and Karoi urban areas do not provide evidence only for Kariba, and non-communicable diseases are poorly diagnosed and reported.

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**Kariba
Municipality**

with Urban Councils
Association of
Zimbabwe (UCAZ),
and Training and
Research Support
Centre (TARSC)



in the Regional
network for Equity
in health in east
and southern Africa
(EQUINET)



Promoting food safety and control of ultra-processed foods

Routine inspections are implemented to control food safety and quality in all food premises, with specific measures for particular types of food and to control risks in food processing, production and storage. Food is checked to determine if it is kept at safe temperatures. Food handlers are medically examined and their certificates held locally for inspection, and they are continuously trained on health and hygiene. Food handling premises are inspected for their cleanliness and safety in line with minimum standards and with their approved plans, including the Public Health Act (Chapter 15:17), Food and Foods Standards Act (Chapter 15:04), Public Health (Abattoir, Animal and Bird Slaughter and Meat Hygiene) Regulations, SI 50 1995, Fruit and Vegetables (Urban Areas): General Regulations SI 459 1975, and council by-laws such as Registration of premises By-Laws SI 223 1999 and Public Health By-Laws SI 132 1999. Inspections also cover expiry dates, open date labelling and notification of contents. Health officers collect food samples for testing and detain unwholesome or diseased food. For example in May 2022, Kariba health officers destroyed flour, drinks, cooking oil and sugar from a supermarket as they had expired or posed specific public health risks.

Kariba town is located on a border, raising the challenge of **managing cross-border trade and food imports**. Food imports from Zambia have increased with liberalized trade, particularly given the higher prices charged by retailers in Zimbabwe. While Zimbabwe's Food and Food Standards (Import and Export) Regulations (SI.8 2015) regulate imported foods, regulations between the two countries are not the same. For example imports of one orange crush from Zambia violated Zimbabwean standards by adding non-nutritive sweeteners without the written permission of Zimbabwe's Secretary for Health and Child Care, as required by Food and Food Standards (Food Additives and Prohibited Substances) Regulations, (SI 136 2001); and by containing an undeclared flavouring. Sale of that drink was thus prohibited in Zimbabwe until the violations were rectified (Sec. H&CC, 2023). Many people cross the border to buy food in Zambia for sale and consumption in Zimbabwe, however, and not all return through formal border posts, posing a challenge for enforcement of port health regulations. Council Health inspectors implement ongoing monitoring of smuggled food products, and various foods such as orange crush drinks and infant formulae have been confiscated for non-compliance with local regulations.

Informal food vending also raises a demand to manage food safety. As one intervention on this, the **Batonga temporary tuckshops** were constructed as prefabricated iron structures on a Council leased stand by an individual in a relatively new township where there were no prior shops. The tuckshops, while temporary, are aesthetically built, with about 6sq meters space. They are rented by vendors who sell various foods, except food prepared on site. The food is procured from nearby cities and from Zambia and sold at a cheaper price than the single large supermarket. The tuck shops ease the pressure on the supermarket and residents, who in the past walked long distances to buy food. The vendors are monitored for compliance with food standards in the laws cited earlier.



Batonga Tuckshops,
C. Mutumbami, 2023

The process involved many actors: The tuckshops were initiated after a needs assessment by Council showed the deficit in food outlets, particularly in Batonga. The application and granting of the operating license was implemented in line with the Urban Councils Act Chapter 29:15, in dialogue with the department of Housing and Community Services. Councillors were consulted on the designation of open stands and spaces for the tuckshops and the Council building and civil works department assessed the building plans and inspected the construction. The structures were designed and implemented as temporary given the site allocated is reserved for a welfare centre in the Kariba Development plan. The Municipality provides inspection services for food quality and risk control, including of **maize mills** and ablution facilities at the site. While there is currently no specific control on sale of ultra-processed foods at the tuckshops, Council health inspectors regularly inform operators and check for sale of prohibited foods.

Urban agriculture and local food processing in Kariba

While there are challenges to urban agriculture and local food processing in Kariba, noted earlier, there are also a number of initiatives to promote health food options in the town.

The **Andora Harbour small-scale bream farming aquaculture** project is a freshwater fish-farming venture established by an individual in 2019 in the town. Initially, in a lease agreement with Kariba Municipality, the project aimed to be a crayfish farm (Municipality of Kariba, 2018). However that scheme was halted by National Parks for fear that the crayfish would invade Lake Kariba, with negative impact on lake fish. The initiative switched to bream farming for local and Harare markets, to also increase the supply of fish which fell due to overfishing in the lake. Fish has health-promoting food long-chain omega 3 fatty acids, proteins, fat soluble vitamins, iron, calcium, iodine, zinc and selenium.



Andora Harbour small scale bream farm pond 3, C. Mutumbami, 2023

The intervention used decommissioned sewer ponds near the lake, leased from the municipality. Freshwater is pumped into the ponds from the lake, and used water flows back into the lake in a simple, relatively unmechanised process. Solar power is used for security lighting. The project employs three people full-time and four further contracted people during fish-harvesting. Marketing and transportation of fish is done by Mr. Martin. Small bream (fingerlings) are purchased from breeders and introduced into fresh water in ponds, where they feed for 7 months until they attain the desired 500g weight. Harvesting follows and the fish are gutted, frozen and sent to local and Harare markets. The initiative was designed and proposed by a local resident and worked in jointly with the Council. It followed legal requirements in the Environmental Management Act, (2006) Chapter 20:27, Parks and Wildlife Act,(1975) Chapter 20:14, and the Municipality of Kariba lease agreement, as well as international water law set in a 1999 protocol between the Zimbabwe and Zambia governments regulating fisheries around Lake Kariba (Kinadjian and Bodiguel, 2013). The Department of National Parks and Wildlife ensures adherence to standards and optimal fish-farming, and with the Veterinary services department ensures that there are no disease outbreaks. The Health department inspects farm water, sanitation, hygiene and storage facilities and transport services to prevent public health risks. The gutting of fish, cleaning of working surfaces is also supervised by environmental health technicians to reduce the risk of food poisoning.

The Council has also partnered with communities and others in various urban agriculture initiatives.

Padare community garden is in Mahombekombe Township, the oldest settlement in Kariba town founded in the 1950s. The intervention provides a sustainable garden to grow and sell fruit and vegetables at affordable prices to members, residents, the town hospital and prison. It is located in a national park area, but secured by an electric fence. During the HIV epidemic, Council allowed a support group for people living with HIV called Padare to lease this land for free for vegetable gardening, and connected council water in the garden. Its location in a national park brings risk to crops and infrastructure from elephants, hippopotami and baboons, but the electric fence provides protection and members take turns in 24-hour guarding in case of electricity outages.



Padare garden, C. Mutumbami 2023

The group, with about 200 members, sourced assistance from a Kariba-based non-government organization, Tony Waite Foundation, for an electric fence, a greenhouse, a water reservoir, a pump, pipes and seeds. The greenhouse material was poorly adapted to the Kariba climate and later removed. The group has had a turnover of members since its inception, and members bring in families to work in the garden. The gardening methods are labour intensive, using simple tools and cheap chicken droppings as fertilisers. Group members grow tomatoes, onions and a variety of other vegetables as individuals on small pieces of land apportioned to them within the garden. Smaller product volumes are sold by individual members, but larger volumes are aggregated between members and the proceeds shared pro-rata. Residents can buy vegetables directly from the garden. As a collective, the group obtains support and training from local non-state organisations, council, and government. The Municipality provides water for irrigation, and health services and inspects the water, sanitation and hygiene facilities. Members are educated on safe food-handling and on informing customers on this.

The initiative faces challenges. As an informal group, there are challenges in meeting tax clearance certificate requirements when selling to large suppliers, and members have asked the Council to negotiate with the Zimbabwe Revenue Authority (ZIMRA) on their behalf for exemption from this. The only available open land for this urban agriculture faces potential health risks from its location under high tension 330 Kv electricity cables. The electricity authority (ZESA) was not involved in the initial siting as the land belongs to the municipality, but was consulted in safety precautions, such as not growing trees below the power line. The site is not intended to be permanent, however, with a plan to move it when Mahombekombe families near the line are moved to new Kasese housing in 2024.

The initiative is also a site of innovation. The garden has a pilot scheme to compost organic waste from the township to produce fertiliser, using tumbler drums donated by GIZ, testing an approach for possible city-wide scale-up, to reduce landfill waste. To date, the results indicate that the tumbler drum technology is too costly as the drums are not durable. Group members proposed production of a more durable version of the tumbler drum. Another innovation is integration of the garden with poultry-rearing to obtain chicken manure as a source of cheap enrichment of compost for good quality organic fertiliser.



Padare garden tumbler drum and compost, C. Mutumbami, 2023

While urban populations were previously considered to be self-sufficient in food, nutrition and socio-economic wellbeing, the recent trends described earlier, and the 2019 Zimbabwe Vulnerability Committee assessment (ZIMVAC, 2019) have led to a review of this perception. World Vision did an assessment of households in vulnerable areas to identify beneficiaries for cash transfers as coupons to redeem in supermarkets for groceries. This **Urban Lean season assistance programme** was extended to Kariba urban for the first time. World vision funded community assets for those in the food assistance programme to build more sustained food security, with some on Council land and others in schools, due to the shortage of council land. Beneficiaries of the cash based assistance chose projects they wanted to engage in after the cash assistance ended. This led to a number of urban agriculture activities.

Shingirirai garden and Mushroom hub in Lake View primary school, a church school, was set up under an agreement between the members and the school authorities. The school provided land and obtains unlimited access to water from the project borehole. The 20 group members were given starter seed packs, an electric diamond mesh fence, solar energy, an energizer, water reservoirs, and materials to build a storeroom and temporary toilet. Members now operate the project themselves, each with a portion of land growing crops and producing mushrooms in a pole and grass shed. Members also carry out gardening (15) and cultivate mushrooms (12). The group has material for drip irrigation but this is not yet in use.



Shingirirai community garden and mushroom hub, C. Mutumbami, 2023

Nyamhunga Primary school Hydroponics project grows plants in containers without soil. Hydroponics projects started in 2022 at Nyamhunga government primary school, Nyanhehwe council primary school and a garden for Lakeview primary school. At Nyamhunga primary school, the initial assets provided included a greenhouse, fenced by an electric fence, and a borehole and pump run by solar energy. Members repair and maintain these assets. The District Development Coordinator, Council, Ministry of Education and Ministry of Agriculture help to manage the projects, producing vegetables for sale to residents and the local market and strengthening food self-reliance in vulnerable urban communities. As earlier outlined, group members were those identified as vulnerable and initially recipients of food cash transfers. Fifteen people were involved in the hydroponic from different backgrounds. The members provide labour and security and maintain infrastructure, and are supported with training, market research and project management services by local non-state organisations, council and government. Women Coalition of Zimbabwe supports in the interface between the members and government and local authority service providers.



Nyamhunga primary school hydroponics, C. Mutumbami, 2023

The hydroponics technology is applied in a greenhouse drawing on a continuous supply of borehole water, and using solar energy for the pump. The hydroponics unit is secured by electric fence to protect against baboons and elephants.

The hydroponics and garden activities and the water, sanitation and hygiene facilities are regularly inspected by the town health department, who also educate garden members on safe food handling.



Green house for the Hydroponics project, C. Mutumbami, 2023

Kariba town has only **small-scale poultry projects** run in industrial stands, Council open spaces and in residential properties. Council encourages poultry projects. The 1998 Kariba Public Health by-laws provide for up to 25 chickens to be reared in homes without a license from Council, assuming this to be for domestic consumption. Council health inspectors consult with neighbours, inspect siting of the chicken runs and supervise the construction of these projects. Poultry farming in industrial areas are encouraged for marketing at Council fruit and vegetable markets. Open spaces reserved for poultry farming are leased to operators and licensed by the Council. These operators are expected to produce high numbers of chickens for sale to the community.

The Nyamhunga 1 poultry project, is one example of a poultry project established in 2020 by a resident using an open space leased from council on temporary basis. The project accommodates chicken runs for broilers and indigenous chicken breeds. It has an incubator and a hatchery for indigenous chicks. Broilers and indigenous chickens are sold live and the project sells indigenous chicken fertilised eggs, day old chicks and fully grown chickens for breeding and meat. The intervention aims to make chickens more accessible to the community, particularly as the cost of poultry feed and the location of the town in a non-farming area makes chickens locally expensive and sometimes unavailable.

The chicken runs are built of bricks and cement, with an incubator and hatchery which are constantly maintained. The site is connected to running water and electricity, and toilet facilities outside the security fence. The poultry is sold in the local community, many of whom prefer indigenous chickens for their taste and nutritional value, and the intervention provides the community with access to indigenous poultry breeds for meat and breeding. The Veterinary services give professional advice and oversight to prevent disease outbreaks, while the Council Health department ensures that there are no public health and hygiene risks, regularly inspecting adequate cleaning of the chicken runs, proper disposal of waste and control of flies and rodents. The intervention is implemented in line with the Public Health Act (Chapter 15:17), Food and foods standards Act (Chapter 15:04) , Kariba Public Health by-laws, 1999, Regional Town and Country Planning Act (Chapter 29:12), and the Urban Councils Act (Chapter 20:15) and lease agreement.



Nyamhunga 1 egg incubator and hatchery, C. Mutumbami, 2023

Kariba Council provides sites for fruit and vegetable sale, such as the Nyamhunga People`s market vegetable and fruit vending. Nyamhunga people`s market was constructed using heavy duty steel members not prone to climate related disaster risk. Council markets consist of a shed and a simple slab providing tables for each operator as a selling point. The intervention aims to make fruits and vegetables accessible and affordable for the community, by keeping rentals very low. Operators pay US\$2.80 in local currency for a day`s use of a table, and pay daily until they complete their sales. More permanent retailers pay US\$8.07 monthly also in local currency at Council revenue offices



Nyamhunga fruit and vegetable market, C. Mutumbami, 2023

Operators are usually low income, unemployed people, particularly women, who apply and are put on a waiting list to be allocated tables in markets as new markets are built. The markets regulated in terms of the Public Health Act, related regulations and Council by-laws, with measures regularly reviewed given new challenges. For example, during the COVID-19 pandemic, markets were briefly closed during the lock-downs and reopened when they satisfied the regulations set to control spread of infection.

The markets are built after consultation between Council Management structures, councillors, non-state actors, Ministry of Agriculture, Zimbabwe Republic Police and ZIMRA, to plan and site markets and to allocate budgets for them. During the consultations, resident associations, vendor associations, Zimbabwe Chamber of Informal Economy Association and organisations such as Women Coalition of Zimbabwe and others noted earlier in this brief provide their inputs, and government ministries and adjacent rural and urban local authorities are also consulted. Council provides a user-friendly infrastructure that meets public health and hygiene standards and sets the operating parameters of the markets, in line with a policy framework for the markets set by council resolution.

Meetings are also held with vendors and their representatives, with local civil society further supporting vendors with training, information and materials such as face masks and sanitisers. Ministry of Agriculture, ZRP and ZIMRA ensure that the market operations adhere to national laws, and the Municipality health department assesses the cleaning of the floors, waste management and general hygiene and cleanliness of the markets. The inspections also cover assessment of products for sale, storage facilities and transporting of farm produce, to ensure that foods not permitted to be sold in markets like groceries, meat or cooked foods are not sold in the markets. The inspectors also control illegal vending in undesigned sites in streets, open spaces and in homes.

Urban maize milling gained momentum in the late 1990s and early 2000s due to the rising prices of mealie meal and presence of ultra-processed mealie meal brands unpopular with some consumers. Maize milling is now largely done in home industry sites and temporary Council open spaces, with operators of grinding mills applying to lease open land for this on temporary basis. Residents buy maize from vendors in the Council market or farms in neighbouring districts, and bring it for milling for a fee paid to the operator of the grinding mill. This assists to make maize meal affordable for low income households. Councillors were consulted on designation of temporary spaces for maize milling and the Building and Civil works department approves plans for the temporary structures and inspects their construction. The grinding mills are modern electric mills that do not produce noise or dust. Council inspects the hygiene, health and safety standards of maize mills and their ablution facilities.



Temporary grinding mill, C. Mutumbami, 2023

Other aspects of Kariba's urban food system

Small scale fish marketing is a challenge in Kariba. Many small-scale operators have nowhere to sell their fish. Small-scale marketing operates from houses, compromising health and hygiene. Both Council and ZIMRA have needed to regularise these operations from houses, to license, ensure food safety and enable tax collection from operators. The Council has thus created stands for selling fish, and plans for shops have been designed by the Engineering department, with the design including running water, ventilation and smooth internal working surfaces. Council is mobilising funds to build these shops for fish operators to lease and sell under healthier conditions, in line with legal standards noted earlier.

Kapenta fishing is a result of the introduction of kapenta into Lake Kariba in the 1960s from Lake Tanganyika (sic). A fishery shared between Zambia and Zimbabwe now contributes to food security and the local socio-economy of both countries (Kinadjian and Bodiguel, 2013). A technical committee involving both countries, set up in 2013, meets periodically to manage the Kapenta Fishery. The number of fishing boats were set in line with what would make the fishing sustainable and avoid overfishing. Over time both countries have allowed this number to increase, reducing catches, with losses for downstream industries and an escalating price of Kapenta. This is threatening the sustainability of Kapenta fishing in both countries. Kariba Town council was one of the delegates in a Technical Committee meeting held with others from institutions of higher learning, fishery departments, relevant local authorities and kapenta associations of both countries to resolve the situation. The meeting was facilitated by FAO, and Lake Cabora Bassa personnel were represented to share good practice in Kapenta fishing. The meeting made clear the need to reduce the number of fishing boats in both Zambia and Zimbabwe.

Dialogue and co-production in the food system

Kariba town council has dialogue with other local authorities on urban food systems through the UCAZ Health Officers Forum. Thematic areas are allocated to different local authorities in this forum, and Kariba town is presently one of three local authorities selected for risk based food hazard control. Work in this thematic area aims to guide all urban local authorities to migrate from a food testing approach to a more comprehensive risk audit of the whole food process, moving from an 'end-of-pipe' approach to a more comprehensive food safety assurance. The Health officers' forum also shares information on food borne disease outbreaks and interventions. Various other structures for dialogue on food systems are noted in the brief, enabling dialogue between different town council departments, government sectors, councillors, civil society, non-state actors, partners and technical actors.

These mechanisms address the range of issues involved in food systems, from planning, siting, budgeting and designing interventions, to supporting their implementation and ensuring that they meet legal standards, and strengthening local capacities and information outreach. As a border town, Kariba also has cross-border dialogue mechanisms, such as the Technical Committee between Zimbabwe and Zambia on Kapenta fishing in Lake Kariba noted earlier, and a cross-border collaboration between Zambia and Zimbabwe in Malaria, that could, through the respective health ministries, be extended to cover urban food systems.

Kariba town is also a member of Connective cities, an international network for sustainable urban development. It includes food as an issue, especially after COVID-19 exposed urban vulnerabilities around food supply chains, and the urgency for urban areas to develop local food production capacities.

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