

Local Public Markets:

Critical to Achieving a Sustainable Food System





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Written by:

Kristie Daniel, Program Director, Livable Cities
Rhoda Omache, Livable Cities Intern

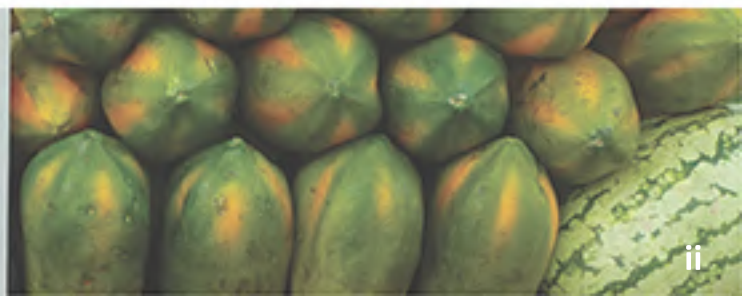
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Key Messages

- Local public markets play an important role in communities and are a critical part of a sustainable food system.
- Markets are important for the health and wellbeing of communities and are an important way cities can help achieve the UN Food Summit's five Action Tracks.
- Formal and informal markets are well positioned to respond to the needs of low-income residents by allowing prices to be negotiated, providing credit and selling in smaller quantities.
- Markets are important for urban food access because they can be located within neighbourhoods and within walking distance of residents.
- A high prevalence of formal and informal vendors, including mobile vendors, influences what people buy and increases fruit and vegetable consumption.
- Neighbourhood markets contribute to reducing food waste by encouraging more frequent shopping trips, which results in customers buying smaller amounts.
- Markets reduce food loss and waste by sourcing locally produced, seasonal food, which reduces the distance food must travel.
- Markets influence both what local farmers grow and what is sold, which increases access to healthy, fresh food.
- Markets encourage fruit and vegetable diversity, which improves biodiversity and reduces environmental degradation.
- Both formal and informal markets in urban settings are an important source of employment in cities as they contribute to local jobs, encourage entrepreneurship, and give workers control and flexibility over their work.
- Formal and informal markets contribute to the resilience of cities by encouraging local economies, supporting local farmers, and creating jobs.
- Markets provide the locations within neighbourhoods for all members of a community, regardless of age, gender, or income, to interact and build community trust, which is key to building resilience.
- Markets can repair and react more quickly in times of stress and breakage, which builds resilience in cities.





INTRODUCTION

Local public markets have played an important role in communities for centuries and are a critical part of a sustainable food system. Markets help create healthy environments that encourage healthy eating. As countries around the world experience the nutrition transition, whereby local, traditional food is replaced with energy-dense, highly processed foods, the role of markets has become increasingly important. To eat healthy diets, people must be able to easily access healthy foods, including fresh fruits and vegetables, at affordable prices. Markets are the main distributors of healthy foods in many cities throughout the world. Markets also serve the community in other ways, including acting as the main trading centre where people can earn a living; creating social spaces in neighbourhoods for locals to meet and interact with one another; and linking rural and urban communities.

With between 720 and 811 million people facing hunger in 2020¹ and with nearly one in three people in the world (2.37 billion) not having access to adequate food in 2020², the world is not on track to achieve Sustainable Development Goal #2:

Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.³

Although there is a considerable rural bias when considering food security and in food security planning⁴, urban areas are afflicted by significant inequalities related to food security.⁵ Rural households have access to land and can grow a significant proportion of the food they consume.⁶ Urban dwellers, on the other hand, usually buy their food and therefore require income for their food needs. The rural bias in food security planning ultimately focuses attention on production, or the availability of food, as the primary means to respond to food insecurity.⁷ It is because of this rural bias that the critical role markets play in the food system is often ignored or mentioned just briefly. However, the distribution of food, especially in cities, needs to be considered as the global community moves forward to transform what the world produces, consumes, and thinks about food.

UN Food Systems Summit

The Food Systems Summit was convened in 2021 as part of the Decade of Action to achieve the Sustainable Development Goals (SDGs) by 2030. Bold actions within the food system are needed to deliver progress on all 17 SDGs, each of which relies to some degree on healthier, more sustainable and equitable food systems.

The Summit identified five Action Tracks to help deliver this bold change:

- Action Track 1: Access to Safe and Nutritious Food for All
- Action Track 2: Sustainable Consumption
- Action Track 3: Nature Positive Introduction
- Action Track 4: Advance Equitable Livelihood
- Action Track 5: Build Resilience to Vulnerabilities, Shocks and Stress

Transforming the food system is a powerful way to make progress towards all 17 SDGs.⁸





Local Public Markets: An Opportunity

Local public food markets are an integral part of the food environment and a type of public shared space that provides healthy and nutritious foods for communities while also acting as a social place and a workplace.⁹ Food environments refer to the elements of the built environment that help maintain good nutrition, diet and reduce chronic disease in neighbourhoods. It encompasses the consumers' needs and food availability, affordability, desirability and convenience. With the recent popularity of energy-dense foods being sold worldwide, the role of markets in communities is becoming even more critical as the types of food outlets available in a community can determine whether individuals or families have access to nutritious and affordable foods.

This document highlights the value markets can have on the health and wellbeing of communities and clearly articulates the links to the five Action Tracks. For the purposes of this paper, we are defining "market" broadly to include wet markets, formal markets, informal markets, farmers markets, and clusters of informal vendors that sell food. This paper will be used to inform HealthBridge's response to the SDGs in general, and international processes such as the UN Food Systems Summit among others. It will also be used to provide HealthBridge's local partners with the background necessary to actively engage with their national and local governments on markets. Although these five Action Tracks are considered separately, they are inter-related and progress in one area depends on progress in another area.





Action Track 1: Access to Safe and Nutritious Food for All

Ending hunger and all forms of malnutrition and reducing the incidence of non-communicable diseases is the focus of Action Track 1.¹⁰ Malnutrition, in all its forms, is a global problem and includes the 462 million adults who are underweight, 149 million children under 5 who are estimated to be stunted (too short for their age), and the 1.9 billion adults who are overweight and obese.¹¹ According to the World Health Organization (WHO), around 45% of deaths among children under 5 years of age are linked to undernutrition and most of these deaths occur in low- and middle-income countries.¹²

The World Health Organization (WHO) defines malnutrition as the deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients. The term malnutrition addresses three broad groups of conditions: undernutrition, which includes wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age); micronutrient-related malnutrition, which includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess; and overweight, obesity and diet-related noncommunicable diseases (such as heart disease, stroke, diabetes and some cancers). For more information see: <https://www.who.int/news-room/fact-sheets/detail/malnutrition>

To achieve the goal of Action Track 1, all people must have access at all times to sufficient quantities of affordable and safe food products that meet nutritional needs and food preferences at all times.¹³ "Adequate food" means food must satisfy dietary needs, should be safe for human consumption and free from contaminants and should be culturally acceptable.¹⁴ Unfortunately, as already mentioned, the number of people facing hunger is on the rise. There's a variety of reasons for the lack of progress towards eliminating hunger and malnutrition. The cost of healthy diets and the consistently high levels of income inequality means that around 3 billion people, especially the poor, are unable to afford to purchase healthy foods. In addition, conflict, climate change, economic slowdowns, and the COVID-19 pandemic have all contributed to increasing levels of hunger and malnutrition and it is expected that these challenges will continue to create high levels of hunger and malnutrition into the future.¹⁵

For many city dwellers, the challenge in obtaining food is not the absence of food, it is having the means to acquire the food. Unfortunately, healthy diets often cost more than an unhealthy diet, making a healthy diet unaffordable to large segments of the population. A study from South Africa found that a healthier diet cost 69% more than an unhealthy diet on average and, even if healthy foods were carefully selected based on affordability, a healthy diet would add costs of 10-15% of the total household income for most families.¹⁶ A four country study conducted in Ethiopia, Myanmar, Tanzania, and Bangladesh found that healthy diets cost between \$0.72 and \$1.27/day at a minimum, which puts a healthy diet out of range for large portions of the populations studied.¹⁷ A household study in Hanoi, Vietnam found that 26% of households borrowed money to buy food a month before the survey.¹⁸





Given the levels of poverty throughout the world, in order for a food system to help address hunger, it needs to focus not just on the supply of food but on the affordability of food being supplied and the income-earning opportunities for residents.¹⁹ The income-earning opportunities afforded by the food system will be addressed later in the paper. Although some aspects of affordability can possibly be addressed on the production side of the food system, there are many areas in which the distribution side of the system can impact affordability. It is often the distribution side of the food system and not the farm side that determines the price of the food being sold to urban dwellers. However, when your income is uncertain and low, even affordable food can be too expensive. It is in these cases that flexible quantities and availability of credit, when needed, become crucial to those living in poverty.²⁰

Both formal and informal markets are well positioned to respond to the needs of lower-income residents and can do so in ways that are impractical for the corporate food sector, which includes supermarkets. There is conflicting information about whether the prices at supermarkets are more or less affordable than at local markets, especially for staple foods.²¹ However, in many places, it is clear the prices at supermarkets are too high for low-income earners. A study in South Africa found that street vendors were selling vegetables, such as tomatoes, onions and cabbage, at half or one-third the price of the same produce at the supermarket.²² In Vietnam, less than 3% of those participating in a household study shopped at a supermarket because the prices were too high. Instead, these respondents shopped at informal markets (82%) where they found the prices to be less expensive.²³ In addition to frequently having lower stated prices, markets have an advantage for low-income earners in that they have the opportunity to negotiate food prices. For example, one study from India found the poor were able to negotiate lower prices with market vendors when compared to wealthier customers.²⁴ This ability to barter is an advantage that supermarkets are unable to match.

The corporate food sector refers to those private enterprises that grow, buy, process, market, and sell food, including supermarkets.

With smaller amounts of money, unstable incomes and limited storage, lower income residents often make smaller and more frequent purchases. For example, one study found that four out of five people who bought food daily had a household member engaged in temporary or casual labour.²⁵ Another study in an informal settlement in Cape Town found that only 31% of residents had access to a refrigerator and instead relied on cupboards (49%) and buckets (15%) to store food.²⁶ The ability to buy in smaller unit sizes is an advantage of markets over supermarkets.^{27,28} The supermarket model is typically pre-packaged food in larger quantities. An additional advantage markets have over supermarkets is that many formal and informal vendors provide credit opportunities for their regular lower-income customers and this makes purchasing food possible even when households run out of money. Although this doesn't directly impact the affordability of food, having the ability to purchase food even when income is low, makes food much more accessible to lower-income residents.²⁹





When considering food security, ensuring access is often assumed to depend on income. However, access is also spatially determined and the location of food sources is an equally important determinant of urban food security.³⁰ Physical access to food is largely determined by the distribution of food, which includes the number, type, location, and accessibility of food along with people's overall mobility. The location of food outlets is a crucial element to increase access to healthy, fresh foods for community members. When deciding where to shop, consumers are strongly influenced by how far they must travel, with proximity of the market/shop and time-savings often cited as reasons for visiting a particular food outlet.³¹ The closer a food outlet is to where a person lives or work, the better the physical access to food and the food will be more convenient. This is especially true for low-income residents as they are least likely to have access to a motor vehicle and must walk, cycle or take public transit to buy food.³² In one study location was important to more people than price or quality.³³

Given that women are the typical purchasers of food for the household in most countries, reducing women's time burdens is often discussed as a key principle to improve nutrition.³⁴ The time needed to obtain and prepare food represents a significant time burden for women, who are often juggling the demands of home and work. When food outlets, especially outlets that sell healthy, fresh food, are not located within walkable distance to residents' homes, access to food outlets is poor, thereby creating inequalities in access to food.

Proximity was shown to be especially important during the COVID-19 pandemic. Cities throughout the world were restricting people's mobility and requiring people to stay close to home, which means the ability to shop close to home became critically important. A recent study mapped the local markets in Arusha and revealed that 15 of the 25 wards/neighbourhoods that constitute the city boundaries have neither formally nor informally established marketplaces. The spatial inequality in the distribution of local markets compel the majority of residents, both vendors and buyers, to spend more time on motorised transport to reach the nearest local market. With COVID-19 preventive measures of restricted urban transport, curfews and lockdowns, this meant that households purchasing their food in small quantities had difficulty accessing the main markets.³⁵

Markets provide the best opportunity to address spatial inequalities that exist in cities. The corporate food sector typically relies on large catchment areas that are often only accessible to residents by driving. In addition, supermarkets are primarily influenced by market-based factors and therefore locate in the most profitable areas, which typically means higher-income communities.³⁶ A mapping study in Cape Town found the distribution of supermarkets is highly unequal with low-income neighbourhoods having drastically lower supermarket densities. The lack of supermarkets in low income neighbourhoods reduced access overall and the distance between low-income and high income neighbourhoods created additional inequalities in access for the urban poor. The supermarkets that did exist in low-income areas typically stocked less healthy foods than those in wealthier areas, which means the supermarkets did not increase access to healthy foods.³⁷





Markets, however, have the benefit of being smaller in scale and can therefore be located within neighbourhoods and within walking distance of residents. Hanoi, Vietnam, a city that was built around its public markets, has over 400 markets of varying sizes that are easily accessible to residents.³⁸ Barcelona is another example of a city that has built its neighbourhoods around local public markets. They have a thriving network of around 43 permanent public markets serving 73 neighbourhoods.³⁹ A case study in Dar es Salaam found the location of the market, located in a densely populated informal settlement, made food accessible to the many people who could walk to the market from the surrounding area on their way to and from places of work or trade.⁴⁰

In addition, informal vendors are often not constrained to specific geographical areas as many walk the streets to sell their goods. Research in Nepal demonstrated that the informal vendors walking the streets provided critical access to vegetables in the city.⁴¹ These informal vendors have the opportunity to go to neighbourhoods that might not have enough people to warrant a full-scale market. A recent example in Dhaka, Bangladesh demonstrated the success of a one-day-a-week farmers' market in ensuring access to fresh fruits and vegetables in a lower-income neighbourhood.⁴² Results of studies consistently show the importance of the formal and informal vendors in providing access to foods, including fresh produce, in poor, urban food-insecure communities.

A final area to consider under this Action Track is food availability. For people to consume healthy food, healthy food must be available. Studies from the U.S. show that when the food supply is analyzed, it closely matches people's actual diets, which, unfortunately, does not closely match dietary guidelines.⁴³ The correlation between food availability and consumption is no doubt bi-directional, in that people eat what is consumed and what people consume influences what is available. However, it is also obvious that if healthy food is unavailable, people cannot have a healthy diet, even if affordability and location are not issues. In addition to actual availability, perceived availability of healthy food is also important. When people perceive greater access to fruits and vegetables, studies show a higher increase in fruit and vegetable consumption.⁴⁴ Markets and informal vendors have better opportunities to increase the perception of availability due to their presence in neighbourhoods and in areas with high pedestrian traffic.

Where people acquire food has been shown to shape diets, nutrition and health outcomes.⁴⁵ There's increasing evidence to suggest that supermarkets, especially in low-income areas, become conduits for cheap, highly processed foods that provide little in the way of nutrition and help create obesogenic environments.⁴⁶ For example, in many countries it may be possible for the population to consume enough calories but it is not possible for everyone to consume a healthy diet because fruit and vegetable availability cannot meet the population's needs with respect to dietary recommendations.⁴⁷ One reason for the lack of fruit and vegetable availability is the increased investments in commodities such as staple cereals, soybeans, sunflower, palm oil, and animal source foods.⁴⁸ Such commodities are needed for many of the heavily processed, sugary, fatty, salty foods produced by the corporate food sector, which are sold in supermarkets worldwide.





However, a high prevalence of formal and informal vendors, including mobile vendors, also influences what people buy and overall nutrition. Research conducted in South Africa showed that markets and informal vendors are the primary and most frequently used food sources for vegetables with over 70% of the vegetables sold from these sources.⁴⁹ A study that examined household food purchases, diets and nutrition outcomes revealed that a higher density of vegetable vendors within 500 m of a household is associated with higher odds of purchasing vegetables and lower total energy intake and the closer the vegetable vendor density is to the household, the higher the odds become.⁵⁰ A review of 23 studies found that street foods contribute significantly to the energy and protein intake of residents in developing countries and street food should be encouraged, provided that they are offering healthy, traditional foods.⁵¹ This contrasts with supermarkets that have made highly-processed foods more spatially and economically available, which some have suggested is increasing the nutrition transition in certain countries.⁵²

Research in North America has suggested that farmers' markets tend to serve higher-income groups. However, the relocation of the Flint Farmers' Market in the United States found that lower-income residents constituted a major consumer group at the market once it was relocated to a prominent central location. The results of the project demonstrated that markets can bring healthy food to communities without healthy food access. For more information visit: <https://www.sciencedirect.com/science/article/abs/pii/S0143622815300369>



Action Track 2: Shift to Sustainable Consumption Patterns

Action Track 2 is focused on building consumer demand for sustainably produced food, strengthening local value chains, and promoting the reuse and recycling of food resources, especially among the most vulnerable. This Action Track identifies the need to eliminate wasteful patterns of food consumption. It also seeks to improve nutrition by recognizing the need to encourage people to eat healthy foods that require fewer resources to produce and transport. This creates a significant challenge for the system as, globally, food accounts for 48% of household impacts on land resources and 70% of household impacts on water resources. Consumption of meat, dairy, and processed food is a major contributor to these environmental impacts and is expected to increase with rising incomes.⁵³

Worldwide, food waste is a massive problem and is a major contributor to environmental degradation. UN Environment Program (UNEP) has estimated that roughly one-third of the food produced in the world for human consumption is wasted or lost every year, which is approximately 1.3 billion tonnes of food. In addition, food losses and waste amount to roughly US\$680 billion in industrialized countries and US\$310 billion in developing countries, with fruits and vegetables, followed by roots and tubers, having the highest wastage of any food. Even if just one-fourth of the food currently lost or wasted globally could be saved, it would be enough to feed 870 million hungry people in the world.⁵⁴

Food waste contributes to excess consumption of fresh water and fossil fuels. In addition, decomposing food creates methane and CO₂ emissions, which contributes to climate change. For example, in the US it was found that per capita food waste, which represents 150 trillion kcal per year, accounts for more than one quarter of total freshwater consumption and 300 million barrels of oil per year.⁵⁵ Unconsumed food accounts for approximately 18% of total solid waste in municipal landfills in the US.⁵⁶

Food loss typically occurs during harvest due to financial limitations, poor infrastructure, inadequate handling skills, and the lack of mechanization, packaging, and storage facilities. Food waste, on the other hand, refers to losses that occur at the end of the food chain (retail and consumer) and is related to the behaviour on the part of consumers and retailers. Urbanization and diversification of diet (such as buying more meat and dairy than in the past) are strongly correlated to an increase in food waste at the later stages of the supply chain. In addition, global supply chains have replaced the short, more locally-focused supply chains of the past, which creates a new challenge for food waste due to the more complex infrastructure needed to distribute food long distances.⁵⁷





Markets can reduce food waste by providing informal vendors with fruits and vegetables they can sell outside of the markets and closer to households. This collaboration helps reduce food loss in markets and also helps to reduce waste within households because consumers can buy what they need closer to home.⁵⁸ Markets that are located in neighbourhoods promote more frequent shopping trips, which results in customers buying smaller amounts and this contributes to reducing the likelihood of food being wasted.⁵⁹ A study in Seoul found that the type of food retailer predicted over-purchasing and trip characteristics. They concluded that the supermarket format contributed to household food waste and that over-purchasing and food waste could be reduced by short travel times and frequent trips,⁶⁰ which is a feature of most purchasing trips at markets.

Sustainable food consumption is the use of food “that responds to basic needs and brings a better quality of life while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations.”⁶¹ In addition to reducing food loss and waste, a review identified several other examples of sustainable food consumption including increasing consumption of plant-based foods, decreasing meat consumption and opting for seasonal products.⁶² Sustainable food consumption also has the benefit of being a nutritious and healthy diet.

There is increasing evidence that small-scale farms require fewer resources to produce food. Small-scale farms, typically thought of as less than 2 hectares, operate only around 12% of all agricultural land, and produce roughly 35% of the world’s food. However, small-scale farms occupy a much larger share of agricultural land than the global average in regions such as South Asia and sub-Saharan Africa.⁶³ Although, empirical evidence on the farm size–productivity relationship is ambiguous, with some studies suggesting larger-scale farms are more productive and some studies showing small-scale farms are more productive, the expansion of large-scale industrial agriculture comes with a high environmental cost. Small-scale farming is much more likely to take into account local landscapes and ecosystems and is more likely to engage in nature-based practices such as organic agriculture, crop rotation, and integrated pest management permaculture.⁶⁴

Markets are well positioned to connect to small-scale farmers. Evidence suggests that the corporate food sector requires farmers to adhere to conditions that support larger-scale producers and this forces small-scale farmers out of competition.⁶⁵ An enabling environment for small-scale farmers includes having trading, processing, and retailing operations of a similar scale and run by people with common cultures.⁶⁶ Such conditions exist in markets. By sourcing locally produced food, markets can potentially reduce food loss and waste because travel time is decreased while selling more seasonal food, an important component of a sustainable diet.

Unfortunately, current levels of fruit and vegetable availability cannot achieve sustainable dietary recommendations for the population. The availability of pulses in Africa, for example, is about one-third of the estimated needs.⁶⁷ Instead, oil crops such as soybean, sunflower, and palm oil, needed for heavily processed foods, along with animal source foods have increased substantially⁶⁸ and this is, in part, due to the rise of supermarkets. Research suggests that corporate food retailers, such as supermarkets, are fostering the nutrition transition towards more highly processed foods





and that the growth of supermarkets in Asia, Africa, and Latin America is correlated with increased consumption of ultra-processed foods even after controlling for income and other socioeconomic variables.⁶⁹ Although part of this increase may be due to consumer preference, consumption decisions are heavily influenced by external factors such as availability, as discussed above, as well as advertising and product placement.⁷⁰ It is well known that supermarkets charge a premium to corporate food producers to place their products in such a way as to encourage their purchase.

Markets, on the other hand, are also well positioned to influence both what is grown and what is sold. If the food environment signals to consumers what to purchase, what is being signalled in a local market is nutritious healthy food. Small-scale farmers find better returns selling to markets and informal traders compared to supplying the corporate food system. This is, in part, because supermarkets require larger volume transactions, and product standardization, which requires greater costs in terms of effort and money.⁷¹ In addition, smaller-scale farmers are more easily able to shift their products to meet demand and market vendors can provide the necessary feedback for the farms to accommodate those preferences. Examples from Africa and Asia demonstrate that campaigns promoting traditional foods as nutritious and part of the local heritage can change perceptions of traditional vegetables from being considered food only for the poor to being highly desirable food.⁷²

There are promising innovations looking at how solar powered cold rooms could dramatically reduce food loss and waste in Sub-Saharan Africa. The cold rooms have the potential to significantly improve livelihoods for smallholder farmers by reducing the post-harvest loss of crops, reducing waste at the markets. For more information see: <https://nextbillion.net/off-grid-solar-food-waste-africa/>





Action Track 3: Boost Nature Positive Production

Action Track 3 is focused on reducing biodiversity loss, pollution, water use, soil degradation and greenhouse gas emissions. This Action Track identifies the need to eliminate wasteful patterns of food consumption. This Action Track underscores the need to focus on small farms and small-scale enterprises and links to Action Track 2 in that it is intended to support food systems that reduce food losses and other negative environmental impacts.⁷³

Agriculture's contribution to environmental degradation is well known. Farms have become increasingly simplified ecologically over the years, in part by reducing the number of crop species.⁷⁴ It is estimated there are 12 grain crop species, 23 vegetable crop species and about 25 fruit and nut crop species that dominate global agriculture.⁷⁵ For example, in the United States it is estimated that between 60-70% of the total bean area is planted with just 2-3 bean varieties and more than 70% of the potato area is planted with just four varieties.⁷⁶ Researchers suggest this genetic uniformity creates extreme vulnerability.⁷⁷ In addition, although the focus on cereals has reduced hunger and improved peoples' access to calorie-dense staple foods, micronutrient deficiencies are still widespread and causing significant health problems, suggesting the need to promote greater diversity in what is grown.⁷⁸

This reduction in agricultural diversity relies on constant human intervention and has resulted in the over-reliance on pesticides and chemical fertilizers, as well as machinery. Human intervention has essentially replaced the ecosystem services formerly provided by agriculture itself.⁷⁹ Pesticides and fertilizers can poison fresh water, marine ecosystems, air and soil while remaining in the environment for generations. The agricultural sector consumes about 69 percent of the planet's fresh water and degrades water quality. This adversely impacts freshwater systems throughout the world. The livestock sector alone is responsible for 18% of all greenhouse gas production. Additionally, clearing land for agricultural production is a major contributor to climate change, as the carbon stored in intact forests is released when they are cut or burned.⁸⁰

However, evidence suggests that diversified farming systems reduce many of the negative environmental consequences associated with large-scale farming that requires constant intervention.⁸¹ Diversified farming includes ensuring small crop field sizes, increased length of edges between different crop types and between crops, and increased crop diversity, which refers to planting more types of crops.⁸² Traditional cropping systems are known for being genetically diverse and this provides at least partial resistance to diseases that are specific to particular strains of crops and allows farmers to work with different soil types and micro-climates.⁸³ For example, farmers in the Andes cultivate approximately 50 potato varieties in their fields.⁸⁴ More species with smaller fields result in a range of species and a positive effect of crop diversity on wildlife.⁸⁵ In addition, diverse agricultural landscapes benefit people by providing ecosystem services such as increases in provisioning of plant products, invasion resistance, soil fertility, and regulation of pests and pathogens.⁸⁶





Management practices such as intercropping, cover cropping and crop rotation can maintain crop yields, and enhance food security, nutrition, and livelihoods while contributing substantially to the global food supply. Management practices that improve soil structure and stability also enhance water infiltration and retention. This helps stabilize yields against annual environmental fluctuations and can help during disruptions caused by serious environmental events such as droughts and hurricanes. The resulting biodiversity performs additional ecosystem services such as the recycling of nutrients, controlling microclimates, and regulating pests.⁸⁷ Unlike industrial farms, small-scale farmers rely on relatively low-cost, low-technology, knowledge-based methods that are well suited to maintaining and enhancing diversity and these methods are accessible to the small-scale farms that make up the majority of farms worldwide.⁸⁸ The use of machinery and chemicals may make the transition to methods that support diversity more challenging for industrial farms.⁸⁸ When farms are large, economies of scale discourage crop diversity.⁹⁰

Markets, as opposed to supermarkets, are often the place where small farms sell their goods. It is because of this close connection that there is a clear and consistent link between market access and crop diversification.⁹¹ Markets tend to promote fruit and vegetable diversity and this is one of the main strategies adopted by farmers as a way of responding to the local food and farm-to-fork movements.⁹² In addition, selling through markets or small-scale vendors allows for more direct customer-farmer relationships, which provides farmers with feedback that allows them to adjust supply based on customer preferences. This direct feedback impacts crop mix.⁹³ For example, a Swedish study found that one farm selling at a local market grew 169 vegetable species while another grew 115, resulting in larger fields being divided into smaller parts. Such diversity in crops and smaller field sizes created a diversity of habitats that supported wild flora and fauna.⁹⁴ The study demonstrated that vegetable farmers had a strong interest in diversifying their vegetable production, in part because of demand and in part to optimize the conditions of their farm, and it was their access to the local markets that made this diversification possible.⁹⁵ In addition, farmers report that customer feedback was critical for farmer satisfaction and local selling made it possible for smaller farmers to stay in business without increasing in scale.⁹⁶

Efforts to incorporate small-farm products into supermarket supply chains have been largely unsuccessful and, as a result, supermarket chains typically procure their fresh food from a small number of larger producers.⁹⁷ Markets, however, are hospitable to small farms that may experience challenges selling to supermarkets or wholesalers.⁹⁸ Markets, including farmers' markets where farms sell direct to consumers, have a demonstrated benefit for small-scale farmers, which can lead to stronger rural economies characterized by numerous small farms.⁹⁹ Prices received for the produce sold directly to consumers can be substantially higher than typical wholesale prices while still being below supermarket prices.¹⁰⁰ In addition, growing a diversity of crops allows farmers to spread the risk through more products and sell them in different markets, which allows farmers to deal with disturbances in the market such as price volatility.¹⁰¹

GrowNYC has pioneered local grains through their farmers market retail program. They built the marketplace for grains grown and milled in the northeast part of the United States. They educated and connected growers, processors, bakers and chefs, which sparked a rise in demand for local grains while helping ensure the crop supply and processing infrastructure was there to meet that demand. For more information see: <https://www.grownyc.org/grains>





Action Track 4: Advance Equitable Livelihoods

Action Track 4 is focused on eliminating poverty by promoting productive and decent work for all actors in the food system. This Action Track is also interested in reducing the risks associated with the food system, supporting entrepreneurship, and reducing inequitable access to resources. The foundation of Action Track 4 is to improve the social protections in the food system and “leave no one behind.”¹⁰²

According to the World Bank, the food system provides a significant number of jobs in all countries and, in many countries, it provides more jobs than any other sector, a trend that is expected to continue for the foreseeable future.¹⁰³ The food system, in its entirety, includes everything from the farmer who produces the food, to the trucker who transports the food, to the vendors, restaurants and producers who supply food to the consumer. In markets, there are two types of vendors: the formal and the informal. Formal vendors are regulated workers who work within specific areas, which may include a physical structure. However, much of the employment connected to markets is considered “informal” employment where the workers are unregulated and unprotected by the state. Informal work makes up to 60% of the world’s employed people and this work is largely stigmatized, despite its importance both in supplying fresh food to many people and in creating jobs.¹⁰⁴

Street vending, in particular, is an important source of self-employment in many low and middle-income countries. One study in Africa found street vending ranged from 13% in Dakar to 24% in Lomé of all those engaged in non-agricultural informal employment and this employment accounted for a large share of women’s informal employment. In most cities, a greater proportion of women are in informal employment and street trade than men with less than 10% of women in the labour force being employed through a formal job.¹⁰⁵ Women are more likely to be operating survivalist, micro-scale businesses on the street-side with men more likely to operate permanent fruit and vegetable stands.¹⁰⁶

Both formal and informal markets in urban settings are, therefore an important source of employment in cities. One of the reasons for such high levels of employment in markets, especially informal markets, is the relatively low barriers to entry. One study found that only about 20% of vendors had completed secondary school and many had less schooling, which means vending is a job that people can do with limited levels of education.¹⁰⁷ However, the jobs created in and around the markets are not limited to just the vendors. For example, one case study of a market in Dar es Salaam found there were casual labourers packing sacks and unloading trucks, cargo porters who load the trucks, security, management staff, account staff, gate operators and scale operators all working within and around the market.¹⁰⁸

As already noted, local markets are better able to support smaller-scale farmers when compared to larger supermarket chains. One study in South Africa found that one of the leading supermarket chains procures 80% of its fresh produce from just ten agribusinesses¹⁰⁹ versus traditional markets which are an important source of income for small-scale farmers. For example, a Johannesburg





farmers' market requires that market agents must procure at least 10% of their produce from poor, small-scale farmers.¹¹⁰ Research from Asia found that local farmers' markets have a pro-poor multiplier effect across networks of low-income market intermediaries.¹¹¹

Markets, even in higher-income countries, employ more people than the formal grocery sector.¹¹² A study from Spain found that 56 jobs would be generated by the activity in a local farmers' market but that number would increase to 155 jobs linked to indirect spending.¹¹³ In the United States, Oklahoma found farmers' markets generated 795 direct jobs and sustained an additional 1,145 jobs in related activities. In Iowa, they estimated the farmers' market generated 471 full-time equivalent jobs generated as direct and indirect impacts. Finally, in West Virginia, they took into account the net impact farmers' markets would have on grocery store sales loss and found the markets still had a positive impact on the state's employment with an additional 43 full-time equivalent jobs.¹¹⁴

The number of jobs a sector can create is important, but so is the income generated from that employment. One study that examined the benefits of markets to traders in Fiji and the United States found that in Fiji the weekend gross revenue reported by vendors in 2013 was annualized to an amount nearly identical to Fiji's average annual per capita income. In New York, the market was only open one day a week and therefore could not be an individual's sole source of income. However, the income generated represented about 7% of the median household income in the East New York neighbourhood where the market was located.¹¹⁵ The same review that examined the number of jobs created by farmers' markets in the U.S. also looked at economic impacts. They found that the Iowa farmers' markets generated over \$21 million in direct sales, an additional \$10.5 million in indirect benefits and an estimated \$12.2 million in personal income.¹¹⁶

Markets also contribute to local jobs by supporting entrepreneurship. A study conducted on farmers' markets in the U.S. found almost 80% of vendors reported the farmers' markets provided the greatest opportunity for the development of their business as compared to other possible ways to sell their goods. Markets can act as business incubators, supporting vendors in accessing not only clients and business contacts but also improving their skills in areas such as customer relations, merchandising, and pricing.¹¹⁷ Markets foster entrepreneurship and distribute economic opportunities among many people, especially the urban poor, rather than consolidating economic opportunities among only a few people.¹¹⁸

The training and support offered to vendors via the market can extend to the informal vendors operating in and around the market. An example from Johannesburg highlights the role markets can play in supporting informal vendors. The Johannesburg Fresh Produce Market (JFPM) provided training to informal vendors on how to use the market, financed a business skills training program for informal traders, and supported both formal and informal vendors with a program to obtain financing for their businesses. The JFPM also housed a business incubation program for black-female-owned entrepreneurs to supply produce to hospitals and prisons.¹¹⁹ Examples from South Africa and Namibia demonstrate that markets can support informal traders through training in basic market activities and providing much-needed skills training in areas such as bookkeeping.¹²⁰





In addition to the benefits to the local economy and jobs, markets also provide opportunities for decent work. Issues such as control over one's work and flexibility are key elements to job satisfaction. In the study examining the benefits of markets in Fiji and the U.S., traders from both countries reported the ability to earn an income, autonomy, respect and social connectedness were all benefits of being a vendor. Being able to decide their working hours, making their own decisions, and having no one dictate their activities were all mentioned by vendors as being important to them. Participants in the study also mentioned that vending earned them respect, which contributed to their satisfaction with their work. The vendors felt this respect resulted from their ability to earn an income. The authors of the study noted the economic and social benefits identified by the vendors were similar to research conducted with markets in both the Global North and the Global South.¹²¹

Markets can provide good working conditions for vendors. A study of markets in Arusha, Tanzania and Kampala, Uganda found that 83% and 84% of vendors respectively were either happy or very happy with their work.^{122,123} The cooperative nature of markets also contributes to overall job satisfaction and decent working conditions for the vendors. Markets, especially in low and middle-income countries, are typically organized so that traders of the same foods sit together and they tend to sell for the same prices with no easily discernable way to distinguish the goods. In this way, they do not undermine each other's businesses.

In the case study of a market in Dar es Salaam, the traders themselves help one another by travelling to the wholesale markets together, watching over each other's stalls, and occasionally looking out for each other's children. When one vendor is sick or unable to tend their stall on a given day, the other vendors will look after that person's stall, selling goods on their behalf and giving them the money when they return.¹²⁴ Many vendors also show newcomers how the business works and support their assistants in getting into the business themselves.¹²⁵

The ability to create and join a vendor cooperative is a key factor that can also help with decent working conditions for vendors. A cooperative is a group of market vendors who advocate on behalf of vendors, which helps to empower people who may be disadvantaged in some way. There are several examples of traders' associations advocating for improved market infrastructure. In Busia, Uganda, the produce dealers' association successfully negotiated with the municipality to improve the safety of the market by resurfacing the market square and by improving market security. There are examples in India, Pakistan, Nepal, and Myanmar of associations working with local governments to address the physical environment changes necessary to create decent working conditions for those working in the markets.¹²⁶ When the Iron Market was rebuilt after the earthquake in Haiti, vendors, despite making lower incomes than the informal vendors on the streets, stayed at the market because of the relatively good working conditions and the security they felt in the market.¹²⁷





Unfortunately, the strong sense of belonging and safety often does not extend to the informal vendors working in the areas surrounding the markets and on the streets. Informal vendors face several problems typically resulting from their often illegal status. Confrontations with police and local officials are a huge problem as is their inability to access capital, which prevents them from improving equipment or accessing technology.¹²⁸

However, work in South Africa demonstrates that improving and maintaining markets can be beneficial to both the formal and informal vendors. For example, the Johannesburg Fresh Produce Market has 71 stalls for informal traders and a place where they can store goods overnight. In Rundu, Namibia the town council built a market with running water and basic facilities and then quickly identified the need for additional markets for informal vendors.¹²⁹

The Market Cities Program offers "How to Create Successful Markets" training online. Over the course of four weeks, market operators, developers, policymakers, and advocates learn the essentials for creating a thriving public market that is economically sustainable, maximizes community benefits, and contributes to the creation of inclusive public places. Participants also explore the principles of Market Cities centered on the value of systems thinking to strengthen the shared efforts of public markets, as well as how markets are continuing to adapt to challenges brought about by Covid-19. For more information visit: <https://www.marketcities.org/>





Action Track 5: Building Resilience to Vulnerabilities, Shocks and Stress

Action Track 5 is focused on building a resilient food system that can withstand shocks created by conflict, climate change, environmental change, as well as health and economic stresses. This Action Track is focused on building food systems that can anticipate, maintain, recover and improve as a way of ensuring that “good reaches everyone”.¹³⁰

Globally, the number of reported weather-related natural disasters has more than tripled since the 1960s, and these disasters result in over 60,000 deaths annually, mainly in developing countries.¹³¹ The food security challenge, which will see the world needing to produce about 70 percent more food by 2050, is intensified by agriculture’s extreme vulnerability to climate change, the impacts of which are already being felt. Increasing temperatures, weather variability, invasive crops and pests, and more frequent extreme weather events are reducing crop yields¹³² and decreasing the production of staple foods in many of the poorest regions.¹³³ For developing countries these types of disasters can cause a major setback to health and development for years.¹³⁴

The COVID-19 pandemic has given insight into what the future might hold in terms of disaster preparedness and, unfortunately, that future does not look promising. The pandemic increased global food insecurity in almost every country because incomes were reduced and global food supply chains were disrupted. These supply chain disruptions, along with increased consumer demand, created higher food prices around the world. This resulted in hunger spiking in 2020 with 2.3 billion people lacking year-round access to adequate food.¹³⁵

Formal and informal markets are a vital part of the neighbourhood-based food distribution models and contribute to the resilience of cities. Before a shock, markets encourage local economies by supporting local farmers, creating jobs and providing for goods exchange. This contributes to the economic self-sufficiency of a city, which is a key factor of a resilient city¹³⁶ as self-sufficient cities are less impacted by external disruptions when they do occur. Food distributed at the neighbourhood level responds well to the needs and circumstances of residents, especially those living in poverty. When food is predominantly run by local actors, it becomes embedded in the community and therefore needs to respond to local requirements and purchasing capacities.¹³⁷ And when the food system is focused on connecting predominantly with small-scale actors such as the local farmers who produce the food to the small-scale vendors working in the markets, economic opportunities are spread throughout the community rather than being concentrated with corporate interests.¹³⁸

During the pandemic, many governments disrupted the natural ability of neighbourhoods to distribute food, which reduced the economic opportunities that come from food distribution. Although markets, along with food retailers, were universally declared essential and permitted to stay open during mass closures and lockdowns, the same cannot be said of the informal vendors that are a key part of many cities’ food distribution system. Their important contribution to food security was not considered and this resulted in people needing to travel further to get food and





expose themselves to more people at the crowded shops that were allowed to remain open, which was the opposite of what was needed in the crisis.¹³⁹ In addition, the increases in food prices seen during the pandemic can be attributed, in some places, to the absence of informal vendors who would normally sell food at lower prices.¹⁴⁰ COVID-19 confirmed the important role that markets and vendors play in the food system, especially at the neighbourhood level.

An additional benefit of markets is that they provide spaces for residents to connect to their neighbourhoods, which contributes to creating social capital. Social capital refers to the trust, social norms and networks that impact social and economic activity.¹⁴¹ The same social capital that helps to create a decent work environment, builds trust among vendors and creates economic viability, also helps to create resilience. People in the food system give food on credit, share the cost of common transport for their goods, and show newcomers how the business works, which all helps build social capital. In a study from the U.K., many market vendors gave considerable support to one another, allowing vendors to rely on each other during times of stress or struggle.¹⁴²

Markets provide the locations within neighbourhoods for all members of a community, regardless of age, gender, or income, to interact and build community trust. Markets provide places for a diverse group of people to mingle and become accustomed to each other's differences.¹⁴² Markets can also act as the main focal point for a community. Research has found that markets provide four different social functions. They provide opportunities for social interaction, they allow the formation of social ties, they enable social mixing across groups and they provide social inclusion.¹⁴⁴

In a U.K. study, shoppers stressed the importance of their relationships with the vendors and markets emerged as a crucial space in the daily life of older adults. Markets are places for older adults to interact and places that allow community members to respond to their needs.¹⁴⁵ Experiences in Japan and India demonstrated that this type of social capital becomes a critical component of recovery after a disaster.¹⁴⁶ Examples from Haiti demonstrated that the solidarity and social capital that comes from vending in a market helped vendors in the aftermath of the earthquakes and were, in some cases, seen as the key to survival.¹⁴⁷

However, during a disaster, the markets' ability to distribute food to residents quickly and efficiently becomes vitally important. Short supply chains, a key feature of local markets, can repair and react more quickly in times of stress and breakage.¹⁴⁸ In addition they are less susceptible to global shocks and disruptions. In North America during the pandemic, markets played an essential role in coordinating the flow of local produce from farmers to consumers. As mentioned in Action Track 3, crop diversification, more common in smaller, local farms, is an important strategy for building resilience as it allows farmers to spread risk and diversifying crop mix is seen as a major risk management strategy. It has been suggested that African agriculture will become more profitable through diversified crop operations as the global climate continues to experience more extreme temperatures, thereby reducing the need for disaster insurance.¹⁴⁹ A diverse crop mix provides farmers with diversity in income sources and forms a type of insurance to overcome weather and market variations, which is key to dealing with climate-related challenges in the future.¹⁵⁰ And, as already highlighted, markets are critical for small farmers focused on a diverse crop mix to sell their goods.





In the Netherlands, the Dutch cabinet allowed the continuation of markets during Covid-19 as they were considered ‘vital parts of the food chain’ where many residents do their groceries. In addition, they were seen as a way of relieving supermarkets from the hoarding crowds. In addition, markets were presented as providing healthier solutions to food distribution because the food was sold in the open air without carts being used by multiple people without being disinfected. For more information: <https://onlinelibrary.wiley.com/doi/full/10.1111/tesg.12431>

Conclusion

Local public markets are a critical piece of a sustainable food system and bring value to communities by providing healthy, affordable, and nutritious food while also creating a space to socialize, play, and learn about tradition and culture. They assist in meeting the UN 5 Action Tracks by linking small-scale, local farmers to urban dwellers, thereby supporting both access to nutritious and affordable food, while also supporting the nature-positive practices that ensure a resilient, environmentally sound food supply.

Even though markets provide all these benefits, they are still under threat around the world. Threats include cities' development and “modernization” efforts, lack of management capacity, and economic practices that neglect women and the most marginalized.¹⁵¹ Markets in many cities do not live up to their full potential because there is a lack of effective policies and funding. Many national and local governments do not understand their market systems’ value. Although some municipalities recognize the importance of ensuring that markets are located within communities, there is no municipal planning for the formal or informal food environment for many cities. Many cities allow economic development forces to decide where food and food outlets will be located. So, although the food environment is profoundly shaped by municipal planning, the spatial characteristics of the food environment end up being the byproduct of a lack of decisions by policymakers.¹⁵²

With such clear benefits, governments must protect and invest in their market system to ensure continued universal access to this essential service and promote local public food market resilience and sustainability. This will require significant investments in urban planning for markets. As communities, cities, and nations look for ways to create sustainable food systems, they need to consider the strategies that will impact the greatest number of Action Tracks and SDG goals and targets. Developing a market system is a critical strategy that can transform the food system and make progress toward developing a sustainable food system.



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