



COVID-19 and the role of local food production in building more resilient local food systems

BACKGROUND

As of 17 September 2020, global confirmed cases of COVID-19 reached 29.74 million, covering 216 countries, areas or territories (WHO, 2020). The pandemic has put local food systems at risk of disruptions along the entire agri-food value chain. Cities and local governments are currently playing a major role in limiting the spread of the coronavirus that causes COVID-19 and in mitigating disruptions to their local food systems.

To better understand the situation, Food and Agriculture Organization of the United Nations (FAO) has been closely monitoring local food system status and prevailing practices during COVID-19, collecting information and insights from different cities on key challenges and specific responses through various channels. In particular, FAO conducted a global survey between April and May 2020 to map local responses to the pandemic – the survey obtained 860 responses, offering crucial information that provides a focus for strengthening relevant policies and programmes and improving the resilience of local food systems (FAO, 2020a). In addition, in recent months FAO has published a series of articles through the City Region Food System (CRFS) Programme (FAO, 2020b), launched a database on agri-food-related information through the Food for Cities Network, and launched a dedicated COVID-19 section monitoring relevant resources in the FAO Urban Food Action Platform (FAO, 2020c).

The insights, data and cases presented in this paper are primarily based on information from the above sources, which delve into the role of local food production and value chains in enhancing local food systems' resilience against COVID-19.

IMPACTS OF COVID-19 ON LOCAL FOOD SYSTEMS

Restriction measures to limit the spread of the coronavirus that causes COVID-19 have been introduced in cities and regions throughout the world. The measures have been applied based upon prevailing local circumstances. Those affecting food systems include closure of restaurants and school canteens, restrictions on selling food in public spaces, restrictions on the use of public transport, as well as restrictions on human mobility more generally (including limitations in agricultural operations). As a result, disruptions have been observed from food production and supply to food accessibility in urban and peri-urban areas.

Overall, FAO's global survey on COVID-19 demonstrated that the restrictions in the use of public transport (66 percent of respondents overall) and on the selling of food in public spaces such as parks, squares and streets (68.3 percent of respondents overall) have highly impacted local **food accessibility**. Panic buying and hoarding were observed, with a positive correlation between

these activities and the country's income level (71.3 percent for cities of high-income countries vs 43.1 percent for cities in low-income countries), possibly due to the higher capacity of urban residents in high-income countries to buy and store large amounts of food. As a result of both short supply and panic buying, temporary shortages in basic foods were experienced in most of the countries (60 percent of respondents overall). When taking the size of cities and towns into consideration, it was found that food systems in villages (<5 000 inhabitants) and small towns (5 000–25 000 inhabitants) were less affected by the restriction measures than cities (>500 000 inhabitants), supposedly due to the harsher restriction measures and longer food supply chains in the larger cities. Those harsher measures include, but are not limited to: 1) Restrictions on food production, distribution and consumption; 2) Restrictions on market access and opening; and 3) Restrictions on product and human mobility, affecting the choice of food distribution outlets (e.g. only walking is permitted, limited distance from residence) (FAO, 2020a).

Food accessibility was also heavily affected by the mandatory closure of schools, restaurants, canteens and street food outlets, which has disrupted the eating patterns of millions of people, particularly children and vulnerable people, across the world. Preliminary assessments highlighted in *The State of Food Security and Nutrition in the World 2020* (FAO et al., 2020) report suggest that an additional 83–132 million people may become undernourished globally in 2020 because of the COVID-19 pandemic. As described in the FAO policy brief, *Sustainable crop production and COVID-19* (FAO, 2020d), restrictive measures on human mobility and gatherings, including restrictions on the importation of food to contain the spread of the virus, have generated a broad range of short-term and long-term impacts on **food production and supply**, mostly affecting subsistence and smallholder farmers.

Short-term adverse impacts include: i) inability to perform agricultural operations such as plant production and protection measures against pest and diseases (often supplied by seasonal migrants); ii) reduced access to agricultural inputs; iii) limited advisory and extension services supporting crop production; and iv) shortage of human labour, especially in labour-intensive value chains and regions during the harvesting season. In the longer term, the domino effect will lead to shortage and reduced quality of agricultural inputs, disrupted critical research and development activities, reduced purchasing capacity of farmers for inputs and complementary foods, and reduced consumer demand, which could eventually cause the collapse of many small and medium scale farms and lead to widespread poverty among more vulnerable farmers.

In terms of local **food production**, about **40 percent** of the respondent cities to FAO's COVID-19 survey indicated that restrictive measures on human mobility taken to combat the pandemic have led to a shortage of labour in local agriculture and food-related activities.

Other research has also highlighted how the pandemic has affected local food production and supply. For example, in [India](#) (FAO, 2020b), the countrywide lockdown coincided with the country's peak harvesting time of a variety of crops from staples such as wheat, paddy and barley to high value crops such as summer vegetables and fruits. The lack of harvesting labour has caused huge food waste and economic losses for the farmers. Meanwhile, in [Antananarivo, Madagascar](#) (FAO, 2020b), limited access to supplies such as seeds and fertilizers has constrained the ability of producers to plant, with product shortages and increased prices expected in local markets. This will in turn restrict food access for vulnerable people and lead to food and nutrition insecurity.

Food supply is also heavily affected due to disruptions to traditional distribution channels as well as reduced market demand resulting from the shutdown of restaurants, catering services, food markets and public canteens. In [Antananarivo, Madagascar](#) (FAO, 2020b), the Malagasy

Government has imposed night curfews (from 8 p.m. to 5 a.m.) and restricted market trade to half a day (until midday), which has considerably limited farmers' sales and caused increased losses of perishable products such as milk, vegetables, fruits and eggs. In Melbourne, Australia (FAO, 2020b), disruptions to global logistics and transportation systems have challenged food retailers in maintaining full product availability. Fewer food donations from food retailers to foodbanks were also observed. In developing countries such as Colombia (FAO, 2020b), food distribution relies heavily on the informal sector (e.g. wet markets, street vendors), indicating high vulnerability of local food systems in the case of shocks such as COVID-19.

Overall, COVID-19 impacts observed, underscore the need to ensure and strengthen urban–rural interlinkages in times of crises and, beyond that, underlines the importance of shortening food supply chains and incorporating urban and peri-urban food production considerations into municipal contingency plans as well as long-term food security strategies.

LOCAL FOOD PRODUCTION AS A KEY MEASURE TO MITIGATE THE NEGATIVE IMPACTS

In light of the effects on local food systems caused by the pandemic, a number of policies and measures have been enacted at national and local levels to ensure the food supply and protect vulnerable populations as much as possible.

According to FAO's global survey, 50.9 percent of the responding cities have established mechanisms for monitoring food markets, which in most cases were connected with actions taken by national governments. Measures to ensure effective food distribution – especially to vulnerable groups – were also widely taken, including expansion of delivery services, establishment of temporary food hubs, direct food distribution to vulnerable populations, and logistical support mainly provided in large cities. In response to the closure of school canteens, 55.7 percent of responding cities from Latin America and Caribbean either continued school meal delivery or set up alternative mechanisms to ensure food access to vulnerable families. In Latvia, special store payment cards were provided for children from low-income families for food product purchases.

In terms of local food production, the survey showed that 38 percent of the responding cities indicated facilitation of direct purchases from local producers as one of the key measures to mitigate the impact. Consistent with this, other respondents (see below) identified the importance of having a range of local measures that promote local food production and improve access of locally produced food – e.g. newly created initiatives responding to the pandemic, or the expansion of existing programmes to ensure continued food supply and protection of the most vulnerable residents.

- El Alto, Bolivia (Plurinational State of) (FAO, 2020e): Urban and peri-urban agriculture has been crucial for maintaining the food supply into Bolivia's populous areas. The local government and FAO have been supporting food producers on the peripheries of Bolivia's major cities with safe production activities and new ways to access customers. Specifically, training on safety measures for producers has been organized through the coordinated support of FAO and the Ministry of Productive Development and Plural Economy. As a result, instead of selling through urban markets and shops, the producers now provide home deliveries to urban families using all necessary precautions, allowing for a safe supply of fresh food from orchards and greenhouses to consumers.

- Quito, Ecuador (FAO, 2020b): Urban agriculture is helping the city mitigate its problems in relation to food provision and livelihood support, especially for the most vulnerable. Specifically, urban gardens in Quito can produce around 1.35 million kg of healthy food each year, of which 57 percent is consumed by producer households and 43 percent sold through various short supply chains. In response to the closedown of Quito’s farmers’ markets – where urban producers usually sell their surplus – alternative pathways were developed to focus sales more on producers’ neighbourhoods and direct surroundings. This has been fundamental to feeding vulnerable families and providing food to poor neighbourhoods; each week, about 11 tonnes of fresh and healthy food are sent to the city’s most vulnerable neighbourhoods. Social movements have been helpful in providing weekly delivery baskets to enable direct sale from producers to urban households.
- Antananarivo, Madagascar (FAO, 2020b): The Malagasy Government has established the food supply chain strategy as a major priority during the COVID-19 period, with an emphasis on local production and relevant commercialization activities. For example, potential production areas within the Antananarivo city region have been identified and a product flow diagram with territorial needs has been created. Creation of markets for locally produced food was discussed with the Mayor’s office. And efforts have been made to increase online sales of local products to supply food to regions facing food shortages and to the poor and vulnerable through food banks, etc. As a long-term post-COVID-19 strategy, the City Region Food System approach developed by FAO and RUAF Foundation will continue supporting local government to reinforce resilient local food systems.
- Medellin, Colombia (FAO, 2020b): Medellin’s municipal programme of urban and peri-urban gardens (*Huertas para el Abastecimiento*) has provided solutions in both production and distribution. The programme allowed groups of food vendors to sell in neighbourhoods, helping to mobilize 20 tonnes of food in the first two weeks of lockdown. The City Council also supported local producers in distributing their produce by connecting them with private companies, providing transportation services, and facilitating the supply to popular canteens which benefited the most vulnerable populations in Medellin. Overall, support to local food production and distribution generates income for producers, lowers the costs of supplying vendors and ensures a secure channel of food supply, enhancing the resilience of the city region food system in Medellin.
- Pacific Small Island Developing States (PSIDS) (FAO, 2020b): People in urban areas of PSIDS rely heavily on imported foods. The top five primary food imports of Pacific Island countries contribute to more than 50 percent of the total dietary energy consumed (DEC) in some PSIDS. To mitigate the impacts of the pandemic, PSIDS have taken measures to promote and support local food production. In Fiji, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu, governments have distributed planting materials and agricultural inputs to urban and peri-urban households and encouraged food production especially of short-cycle crops. In Vanuatu, to guarantee the supply of local produce to urban households at an affordable price, the “COVID-19 Food Security Response Plan” prioritized the “Commercial Food Basket” initiative, in which the Department of Agriculture and Rural Development (DARD) collaborated with key producers in collecting local produce and selling it at the DARD warehouse at an affordable price. Mobile marketing using trucks was also promoted to sell local food. In addition to COVID-19, some of the PSIDS are frequently exposed to other shocks such as cyclones – this highlights the necessity for a comprehensive, systemic, multi-hazard approach to improve resilient local food systems.
- Nantes, France (FAO, 2020a): The “Nourishing Landscapes” project was developed to cultivate vegetables in urban areas in order to provide free food for 1 000 poor

households. Production sites are scattered in 11 districts throughout the city, with entirely organic agricultural practices used by a total of 250 urban gardeners with the support of local specialists. Between July and October 2020, the gardeners plan to harvest 25 tonnes of vegetables, which will then be distributed directly to the families concerned. These united vegetable gardens not only boost food provision to vulnerable groups in the city but also educate citizens on topics such as nature, agriculture and healthy cooking with locally produced food.

- Victoria, Canada (FAO, 2020a): The city council of Victoria has expanded a local food production programme and temporarily reassigned park staff to grow 50 000–75 000 seedlings, which it is planned will be given to residents in the coming months to encourage local food production, along with planting materials such as leaf mulch, compost, wood chips and soil, and educational resources such as instructions for novice producers. There are also plans to stream live greenhouse tutorials to educate children and teenagers about gardening during the suspension of schools. It is widely believed throughout the city, from the government to grassroots organizations and citizens, that growing food in cities could increase community resilience and food security during the current health and economic crisis.
- Davao, Philippines (the) (FAO, 2020a): The city's "Buyback, Repack and Distribute" programme launched during COVID-19 has benefited both the livelihoods of urban producers who had difficulties in selling and distributing their produce, and the food access of low-income families whose income was severely affected during lockdown. Through the programme, the city government bought products from local small farmers at higher than normal farmgate selling prices, then repacked and distributed these fresh food products to the most vulnerable families. Twelve thousand families in Barangay Tibungco, the programme's pilot area, have greatly benefited from the initiative – so far more than 10 tonnes of vegetables have been purchased and distributed to the citizens.

WHAT NEEDS TO BE DONE TO SUPPORT LOCAL FOOD PRODUCTION AND BUILD RESILIENT LOCAL FOOD SYSTEMS

The FAO survey elicited 860 responses from a wide range of cities globally, with local government representatives completing 56 percent of the responses.

Overall, the survey identified five main areas that should be the focus of building back better while "leaving no one behind":

- Developing evidence-based and inclusive policies and plans on food systems' preparedness and resilience to shocks, extreme events and protracted crises.
- Promoting sectoral cooperation among local departments, vertical cooperation between municipal and subnational/national governments, and horizontal coordination with other local governments.
- Promoting local food production and short supply chains and a greater degree of self-sufficiency.
- Facilitating access to food for the most vulnerable through social protection programmes complemented by efficient, safe and innovative food distribution.
- Establishing/strengthening networks and knowledge exchange between cities.

In particular, promoting local food production and short supply chains to help build more resilient and sustainable local food systems was mentioned frequently by respondents:

- Winnipeg, Canada (FAO, 2020a), recognizing the lack of support for local producers and farmers' markets, made several recommendations to assist local producers and the local food value chain. These included supporting marketing and distribution, encouraging the purchase of local foods by local customers, improving producers' access to urban and rural land, and providing financial and educational support for novice local producers.
- Sapuyes, Colombia (FAO, 2020a), recommended that the national government should promote local products such as potatoes, lettuce and milk, and improve farmers' access to departmental and national markets. The point was made that, through development of urban and peri-urban agriculture projects, government should specifically provide support for: 1) access to inputs and financial resources for small- and medium-scale producers; 2) local seed banks to guarantee local producers' access to seeds; 3) purchase of local products by traders; 4) production of horticulture crops and minor species in small areas such as patios; 5) good practices such as water harvesting; and 6) indigenous and smallholder communities to increase food production to guarantee food sovereignty and adaptation to climate change.
- Aude, France (FAO, 2020a), observed challenges in developing communication tools to promote local production. The city has taken innovative measures such as interactive mapping of local producers. To improve resilience of the local food system, it was recommended to re-establish agriculture and food production among the territories, ensure production self-sufficiency in each district and prioritize short channels.
- Gaza, Palestine (FAO, 2020a), reported challenges in lack of resources supporting urban farmers and their activities, including the limited access for poor producers to local and national markets. Palestine already had positive coping strategies to enhance resilience such as the urban and peri-urban agriculture project (GUPAP). Gaza recommended enhancing coordination among different actors, developing strategic plans, and continuing to promote existing mechanisms to sustain local food systems, including: rooftop gardening and food processing; micro local seed banks for small-scale urban farmers; provision of community-led space to support entrepreneurs' products; good practices such as hydroponic and vertical farming techniques; rainwater harvesting systems; urban waste recycling; and integration of solar energy in agriculture activities.
- Veneto, Italy (FAO, 2020a), made a number of recommendations for building more resilient food systems, including increasing local food production through home and community gardening and providing tailored advice for food producers. It was pointed out that future agri-food supply chains should allow for a new organizational model where local producers develop synergies with large chains and distribution platforms to organize sales. Further, the region contended that resources should be made available to support the evolution of new production and distribution models.
- Douala, Cameroon (FAO, 2020a), facing challenges in supplying food to markets due to restrictions on movement, emphasized the importance of encouraging local food supply while respecting measures to contain the spread of COVID-19. To enhance food system resilience in the face of such a crisis, it was recommended to promote local production and consumption, and develop policies to support local product distribution.

In summary, numerous respondents underlined how crucial supporting the entire value chain of locally produced food is for building resilient and sustainable local food systems, especially in: 1) accessing resources such as land, agricultural inputs, funds/incentives and extension services to ensure local production activities; 2) setting up diversified and innovative distribution channels and accessing markets to ensure supply and sales of locally produced food; 3) encouraging/promoting the purchase of locally produced food to develop consumption habits.

CONCLUSIONS AND LESSONS LEARNT

From the qualitative analysis of the individual city cases demonstrated above, it appears that cities that were already engaged in developing urban and peri-urban agriculture had the ability to ensure fresh food supply during the pandemic and meet the needs of their most vulnerable residents. In addition, many of the above-mentioned cities that are mainly dependent on longer distance food sources have highlighted the importance of promoting local food production and short supply chains as concrete measures to cope with the type of distribution and import disruptions seen under COVID-19.

The clear message is that, in order to cope with shocks such as COVID-19, cities with suitable socio-economic and agroclimatic conditions should adopt policies and programmes to empower local producers to grow food, and promote short food chains to enable urban citizens to access food products. Cities have to diversify their food supplies and food sources, reinforcing local sources where possible, but without shutting off national and global supplies.

Moreover, the scope of growing food in cities and city regions is not limited to food supply. It can encompass multiple dimensions of sustainability at various scales, all of which benefit cities and citizens' lives while building cities' resilience to multiple shocks and stresses that cause disruptions to food systems:

- From an **economic** perspective, surpluses from either small-scale urban gardens or from large-scale peri-urban commercial farms can be sold and bring incomes to producers, while providing employment opportunities for production or post-harvest activities.
- From a **social** perspective, many community gardens established in urban and peri-urban areas have greatly facilitated social cohesion and inclusion, especially of marginalized and the vulnerable residents in city regions. At the same time, urban and peri-urban agriculture schemes have proven valuable as educational tools and in providing recreation for urban dwellers.
- From an **environmental** perspective, local food production shortens food supply chains, which can help reduce carbon footprint and food losses; urban waste can be reused as inputs for local production activities, which contributes to the circular economy; and expanded greening areas either on roofs, walls or abandoned city land can mitigate cities' heat island effect while making urban settings more attractive and appealing to live in. In addition, strategically placed production areas (green infrastructure) can improve water infiltration and retention in soils and mitigate flash flooding and/or landslides. Further, specific high-tech practices of local food production, such as hydroponics and vertical farming, can be an effective solution to optimize scarce resources (land and water).

To be more resilient and sustainable, cities should carefully analyse their own local context – what resources are available? what are the potential opportunities and challenges? – and use this to develop tailored long-term development plans that integrate local food production schemes. Policy levers to promote local food production could include land zoning, education, public procurement, infrastructure building, urban waste reuse etc.; while close collaboration and coordination of all actors along the value chain and at all levels of government is indispensable to achieve the synergies needed to build better agri-food systems. Moreover, awareness-raising campaigns on the benefits of producing and consuming local seasonal food and the necessity of reducing food loss and waste along the supply chain are also crucial.

Given the options available, local governments have great potential to transform the way they support food production and supply. By comprehensively analysing local food system challenges and opportunities and connecting strengths from within the whole of society, there is now a

real possibility for cities and surrounding regions to turn a crisis into a brighter new era with a more resilient food system and healthier environment.

REFERENCES

WHO. 2020. Coronavirus disease (COVID-19) pandemic. In: *World Health Organization* [online] Geneva. [Cited 18 September 2020]. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

FAO. 2020a. Cities and local governments at the forefront in building inclusive and resilient food systems: Key results from the FAO Survey "Urban Food Systems and COVID-19", Revised version. In: *Food and Agriculture Organization of the United Nations* [online]. Rome. [Cited 18 September 2020]. <http://www.fao.org/documents/card/en/c/cb0407en>

FAO. 2020b. City Region Food System Programme: COVID-19 updates. In: *Food and Agriculture Organization of the United Nations* [online]. Rome. [Cited 18 September 2020]. <http://www.fao.org/in-action/food-for-cities-programme/news/covid-19/en/>

FAO. 2020c. Urban Food Action Platform: COVID-19. In: *Food and Agriculture Organization of the United Nations* [online]. Rome. [Cited 18 September 2020]. <http://www.fao.org/urban-food-actions/areas-of-work/covid-19/en/>

FAO. 2020d. Sustainable crop production and COVID-19. In: *Food and Agriculture Organization of the United Nations* [online]. Rome. [Cited 18 September 2020]. <http://www.fao.org/documents/card/en/c/ca8807en>

FAO. 2020e. In times of COVID-19, Bolivian urban farmers rethink their ways of working: Home deliveries help provide fresh food to cities during the pandemic. In: *Food and Agriculture Organization of the United Nations* [online]. Rome. [Cited 19 September 2020]. <http://www.fao.org/fao-stories/article/en/c/1272851/>

FAO, IFAD, UNICEF, WFP and WHO. 2020. *The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets* [online]. Rome, FAO. [Cited 18 September 2020]. http://www.fao.org/3/ca9692en/online/ca9692en.html#chapter-executive_summary

ACKNOWLEDGMENTS

The brief has been developed with contributions from: Shulang Fei (NSP), Jia Ni (NSP), Guido Santini (NSP), Makiko Taguchi (NSP), Bruno Telemans, (NSP), Shane Harnett (NSP), Gilles Martin (PSUF), Tamara van't Wout (OER), Meeta Punjabi Mehta (ESA), Kayo Takenoshita (PSUF), and Kostas Stamoulis (DDCT).

