

**Policy Review**

**Managing food supply chain  
amid COVID-19: Insights  
from global efforts**

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## **Abstract**

Maintaining food supply is usually most challenging for governments during crises and disasters such as COVID-19 pandemic. In this regard, how different countries face and counter such challenges can provide us with useful insights for the timely and appropriate measures. Globally, COVID-19 has certain implications on food security and food supply chains such as availability of labour and transport, spread of wrong signals about food shortages, and contamination of food (from the virus) thus leading to hoarding and bulk purchase. Likewise, lockdown situations or strict implementation of Standard Operating Procedures (SOPs) may cause food price hike, and undermine the negotiating power of farmers and consumers. This is particularly true for countries where people are living in dense urban and peri-urban agglomerations and rely on transitional food supply chains. However, with some measures that are adopted and practiced globally helped minimize the impact of COVID-19 on food security and supply chains.

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# 1. Introduction

The term food security is implicit in nature, which means a continuous assessment of production, availability, access, and utilization of food in an emergent situation. It is directly linked to the sustainability of vulnerable strata of a country, who may be exposed to hunger and poverty in the aftermath of natural or man-made disasters. During extreme events such as the outbreak of COVID-19 pandemic across the world, such assessments become more critical to avoid supply chain disruptions and food shortages. This policy review aims to provide an overview of global efforts made to combat food insecurity situation in different countries amid the pandemic. Moreover, it warns of the social unrest that may take place if timely and appropriate measures to streamline food security and safety situation were not taken.

The next part of the study highlights implications of COVID-19 on food security and food supply chains in different countries. Further, it explores the ways adopted by different countries to improve the food security situation and strengthen supply chain management. The concluding section implies the short, medium and long-term measures as how to maintain food security situation amid the COVID-19 pandemic.

## 2. Implications on food security and food supply chains

Most of the countries, during lockdowns amid the COVID-19 spread, experienced stress on food production and supply chain. For instance, farm prices for wheat in India have declined because of unavailability farm labour and transport to carry harvest to the markets (Dev 2020). Further, demand for poultry has also shrunk due to disinformation on social media about the possible contamination of chicken by coronavirus. By contrast, disinformation may also lead to hoarding or bulk-purchase of food by the consumers that affects the supply chain.

In terms of food availability, the spread of COVID-19 can affect harvesting and distribution system but its impact on food production is less (Food and Agriculture Organisation [FAO] 2020a). The food is mainly produced in rural areas which are usually far from urban blocks or the epicentres of COVID-19 spread. However, in case of livestock and poultry feed, there is a potential of disruption in its production if the ingredients are imported or locally transported elsewhere in the country (Food and Agriculture Organization [FAO] 2020a).

Owing to COVID-19 pandemic, food supply chains appear to be more impacted, particularly among those countries that rely on modern capital-intensive food processing enterprises and supermarkets (Reardon, Bellemare & Zilberman 2020). However, South Asia whose 70 per cent reliance is on transitional food supply chains (such as labour-intensive food vendors, wholesalers, and retail markets) can also be directly and strongly impacted during lockdowns. This situation may cause hike in food prices due to closure of or costly transportation that result in the spread of wrong market signals of food shortages. It may further instigate social unrest and security situation in the country. In the wake of COVID-19 spread, these are more likely to increase because such small-scale enterprises are mostly located in dense urban and peri-urban agglomerations.

There are the indicators of negative impacts not only on food supply chain (producer-markets-transport-consumer) but also on livelihoods of the population attached to it (Schmidhuber,

Pound & Qiao 2020). The internal migrant workers that provide labour to such markets (stretched from agro-farms, transport, wholesale and retail markets, supermarkets, etc.) has already returned to their hometowns and villages due to the lockdown. This shortage may lead to disruption in food supply within and across different regions of the country.

The situation is quite similar to Ebola Virus Disease (EVD), which broke out in West Africa in 2014 (FAO 2016). The food supply chain was severely impacted through the transportation of agricultural production and food consumption. To limit the spread of EVD, the restriction on movement caused immobility of rural farm labour, lowering farm incomes due to fewer number of buyers (middle-men) that limits the negotiating power of farmers, instability in crop prices and thus creating wrong market signals of food shortages and uncertainties for both producers and consumers. However, food prices were less affected due to decline in the purchasing power of people in the affected African region (Food and Agriculture Organization [FAO] 2016).

Food safety is another area in the food supply chain where COVID-19 may impact adversely (Shahidi 2020). The supply of perishable commodities such as vegetables and fruits are at risk due to inadequate packaging and hygiene standards. This also implies to dairy and poultry products where risks of contamination are higher for COVID-19 during production, transportation, sale, and consumption.

At the individual or household level COVID-19 spread may cause malnutrition and ill-health due to unhealthy diets (United Nations Systems Standing Committee on Nutrition [UNSCN] 2020). In a lockdown situation, individuals or households faced disruption in daily food supply affecting food choices, which are mainly due to the access and availability of food, particularly more important for women and children (Global Food Security Cluster 2020). People are preferring food items with longer shelf life, which are either unprocessed or have low nutritional aspects. Likewise, social distancing is causing restricted access to food markets/superstores and restaurants, experiencing long queues and hours of waiting that encouraging e-commerce home deliveries and home cooking (Cullen 2020). Moreover, closure of parks and sporting facilities that spread over weeks and months are causing health problems like obesity, diabetes and other heart-related diseases.

Urban food systems are also highly vulnerable because of COVID-19 pandemic. It is particularly more evident for 1.2 billion people living in dense urban and peri-urban agglomerations with poor health and sanitation facilities, and unhealthy food and inadequate infrastructure (Food and Agriculture Organization [FAO] 2020b). COVID-19 has implications on the informal food sector (transitional food supply chains), that has limited sustenance capacity due to lack of capital safety nets and access to the financial sector for support during lockdown. Moreover, urban poor mostly depend upon such informal markets for their food purchases. Closure of markets multiplies the already volatile situation and can lead to social unrest if lockdown persists longer.

### **3. Measures to improve food security and supply chain management**

Under this backdrop, there are potential measures and ways to overcome challenges of food supply chain disruption. Looking into the example of China during COVID-19 spread, can provide some valuable insights (Food and Agriculture Organization [FAO] 2020b). Four key steps were taken by China during the COVID-19 pandemic to ensure smooth functioning of food supply and support smallholder production. First, the smallholders adopted the late 1980 ‘vegetable basket’ policies that ensured fresh food supply to the cities (at the COVID-19 epicentre) from suburbs by establishing a variety of food stocks, including eggs, meat, grains, vegetables and fruits. Second, local government purchased a stock for necessary food items, monitored meat supply and storage by cooperatives and fully subsidised cold storage facilities. Third, e-commerce was promoted for food purchase during lockdown. Alibaba, an e-commerce company, set up a platform for the farmers to sell their unsold farm produce directly to consumers or another market elsewhere in the country. Lastly, the Chinese government provided subsidies worth US\$ 20 million for the purchase of modern farm machinery (like drones) to increase productivity and thus protecting the food supply chain. Furthermore, Italy under COVID-19 pandemic scenario is supporting its agriculture through the advanced payment of subsidies, supply of seed and fertilizers, and distribution of food among the poor.

In India, the whole food supply chain is allowed to function in the lockdown situation (Dev 2020). The farmers are accessing markets for the sale of farm produce and buying farm inputs such as fertilizers, seeds, etc. The government is encouraging food home deliveries and has announced US\$ 22 billion for the relief package. There are suggestions to include vulnerable groups, migrant workers and children in the package for food and cash transfer.

There are suggestions to strengthen the different food supply chains. In South Asia, mostly food supply chains are transitional which are labour-intensive, informal, having unregistered employees and thus they lack safety nets and unemployment insurances. The COVID-19 provides the opportunity to modernize these food supply chains. In the short-run, employees of these SMEs can be given food and cash support and ensure sanitation standards. However, in the long-run, better monitoring and regulation should be done for ensuring health and sanitation of not only the workers but also improve hygiene standards and healthy workplace design. This was successfully done in Southeast Asian food markets after the avian flu pandemic that gave rise to the modern food supply chain, which includes e-purchasing, promoting and establishing high tech processing units and supermarkets.

Some insights can also be sought from West African countries (such as Guinea, Sierra Leone, and Liberia) as to how their food markets sustained during the spread of EVD pandemic (Food and Agriculture Organization [FAO] 2016). In this regard, special efforts were made to secure the rice market chain. Rice is considered a staple food in many African countries. Rice production was affected due to restriction of collective labour work in the farms, ban on the mobility of farm labour, illness of farmers due to EVD, lack of buyers (middlemen) for rice production from the farms, and stoppage of rice trading from EVD-hit areas to other markets for consumption. Thus, EVD pandemic posed high risks to African society. Therefore, a systemic policy approach was adopted for synergies between the private and public sectors. In the systematic approach, efforts were not only made to inform multiple stakeholders (producers, consumers, market regulators, media, academia, civil society, etc.) but also to engage them in the decision-making process for better internal and international cooperation by devising interdisciplinary approaches (such as better use of science, innovative technological solutions) to

improve farm production, food distribution and accessibility. The government also encouraged EVD-affected region's growers/farmers to organize (in the absence of middlemen) themselves to sell their products directly at consumption zone markets. Some of the farmers sold their items directly as street vendors (Food and Agriculture Organization [FAO] 2016).

Amid the COVID-19 spread, Food and Agriculture Organization [FAO] (2020c) devised a four-pronged strategy on the following lines by:

1. Establishing a global data facility to analyse evidence-based food security assessments and programmes,
2. Developing programmes while working with national governments for stabilising income and access to food, particularly for food-vulnerable populations (Food and Agriculture Organisation [FAO] 2020d),
3. Making efforts to keep the food chain going on for vulnerable populations (and small farmers) through sustained functioning of local markets and innovative solutions for food chains and systems, and
4. Devising strategy for the safety of people working along the food supply chain from COVID-19 transmission.

This involves raising awareness about methods and measures for food safety, health regulations for workers, potential risks, and their role and responsibilities in the food supply chain.

## **4. Conclusion**

The implications of COVID-19 on food security are not only wide-ranging but also emerging. It is less likely that food production will be on the decline soon, but have serious implications to farm operations such as harvesting, sowing as well as on-farm labour that may cause COVID-19 to spread in rural areas. However, livestock and poultry sector may face immediate setback due to improper food safety distribution practices, lack of feed availability and disinformation of COVID-19 transmission through poultry products. Food supply chains may also face disruption due to false market signals emerging through lack or insufficient logistic arrangements causing artificial food price hike and shortage. The transitional food supply chains, as in Pakistan, may be impacted due to the lockdown situation. If such supply remains closed for a longer period then it might cause unemployment, food insecurity, social unrest and massive increase in urban poverty. On the contrary, if allowed to open, then it might cause to spread COVID-19, as most of the food-related SMEs are located in the densely-populated urban and pre-urban areas. Thus, COVID-19 pandemic is a double-edged sword for the proper functioning of transitional food supply chains. The It is also a hurdle in the access and availability to safe and secure food due to lockdown and social distancing practices which is also causing widespread health issues.

## **5. Policy Recommendations**

The literature review also highlights some of the measures for food security amid the COVID-19 pandemic. Following are the short-term and medium to long-term policy measures

### **5.1. Short-term measures:**

Through short-term measures, the government needs to:

- Establish data facility dash-board for analyzing and monitoring food supplies and demands to better inform policymakers about food shortages, bottlenecks in logistics and controlling food prices. This is particularly important because there are potential chances of disruption of the food supply chain during 2020 (Cullen 2020).
- Ensure food supplies to the most vulnerable people of the society through local means and cash transfer, particularly among urban and rural poor (the landless and non-farm households).
- Devise a comprehensive strategy to counter and control propaganda about food shortages, as well as disinformation about the virus transmission through food products. Social, electronic and print media with credible information may be used for this purpose. (Wheat is a staple food, therefore, synergies between key stakeholders are essential regarding production, access, utilization, and safety.)
- Purchase, hold and regulate food stock to avoid hoarding and to continue a regular supply of food commodities.
- Improve hygiene conditions in food supply chain markets for food safety.

### **5.2. Medium to long-term measures:**

The following medium to long-term measures can guarantee food security and safety in the wake of pandemics or any such disasters. As regards the government needs to:

- Provide subsidies, modern farm tools, seeds and fertilizer and loans to small farmers to overcome deficiencies in food production and post-harvest losses.
- Promote e-commerce and modern food supply chain for safe, regular and secure food supply.
- devise and implement urban ‘vegetable basket’ policies for cities that may ensure fresh food supplies to cities from the city suburbs.
- Reduce the role of middleman through e-commerce or online farm markets to benefit (small)farmers and end-consumers.
- Create awareness about food safety standards and practices is crucial among people working along the food supply chain.



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