

Impacts of COVID-19 on food security and nutrition: developing effective policy responses to address the hunger and malnutrition pandemic

(3rd Edition – updated September 2021)

HLPE issues paper



Cover photograph: 5 May 2020, Luanda, Angola - Sellers wearing protective face masks stand at their stall at the Asa Branca Market. WHO and FAO officers, along with local authorities and Ministry of Social Affairs, Family and Women Empowerment staff visited the market to check sanitarian measures adopted to prevent...
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INTRODUCTION

The COVID-19 pandemic that has spread rapidly and extensively around the world since late 2019 has had profound implications for food security and nutrition. The crisis continues to affect food systems¹ and threaten people's access to food via multiple dynamics. We have witnessed not only a major disruption to food supply chains in the wake of lockdowns triggered by the global health crisis, but also a major global economic slowdown and highly uneven recovery as new variants of the virus circulate and cause further threats to public health and food security. These crises have resulted in lower incomes and higher and more volatile food prices, putting food out of reach for many, and undermining the right to food and stalling efforts to meet Sustainable Development Goal (SDG) 2: "Zero hunger." The situation remains fluid and dynamic, characterized by a high degree of uncertainty. The COVID-19 crisis, and its devastating fallout, is far from over. The virus has already circulated for over 20 months and most health analysts predict that this virus will continue to mutate and circulate for at least several more years (Scudellari, 2020).

The food security and nutrition risks of these dynamics are serious and highlight many of the weaknesses in food systems. The complex dynamics triggered by the lockdowns intended to contain the disease created conditions for a major disruption to food systems, giving rise to a dramatic increase in hunger. The most recent estimates indicate that as many as 161 million additional people experienced chronic undernourishment in 2020 as the pandemic took hold, with the number of people facing chronic hunger rising from an estimated 650 million in 2019 to between 720 and 811 million people in 2020. The number of people facing moderate or severe food insecurity also rose by some 320 million people, with hunger at these levels now facing nearly one in three people (FAO *et al.*, 2021). Over 20 countries, including the Democratic Republic of the Congo, South Sudan, Venezuela and Yemen, have experienced a sharp deterioration in food security because of the secondary socio-economic impacts of the pandemic (FAO and WFP, 2021). In Latin America, the number of people requiring food assistance almost tripled in 2020 (UN, 2020a). Food productivity could also be affected in the future, especially if the virus is not contained and the lockdown measures continue. It is imperative that governments take urgent action to accelerate the transformation of food systems to make them more resilient.

The purpose of this issues paper (update #3), requested by the Chairperson of the Committee on World Food Security (CFS) in 2020 and updated further in 2021, is to provide insights in addressing the food and nutrition security implications of the COVID-19 pandemic and to inform the CFS membership in their deliberations, including any follow up activities from the 2021 Food Systems Summit. In March 2020, the High-Level Panel of Experts on Food Security and Nutrition (HLPE) published an interim issues paper on the impact of COVID-19 on food security and nutrition (HLPE, 2020a), and in June 2020, its 15th report (HLPE 2020b) provided an update on the ways in which food security and nutrition are affected by the pandemic. In September 2020, the HLPE published an update to the first issues paper (Edition #2) (HLPE 2020c). In the time since the publication of these reports, we have seen many of the concerns outlined by the HLPE materialize and we have learned more about the complex ways in which the pandemic has affected food security and nutrition.

This issues paper updates and extends the HLPE's earlier analyses noted above by providing a comprehensive and in-depth review of the main trends affecting food systems that have resulted

¹ Food systems include all the activities that relate to the production, processing, distribution, preparation and consumption of food. The three constituent elements of food systems are: food supply chains, food environments and consumer behavior (HLPE 12, 2017). In this document, the term "agriculture" is used in its broad connotation, which includes farming, animal production, forestry, fisheries and aquaculture, and related activities.

from COVID-19 and associated lockdown. It also includes analysis of the pandemic's implications for the various dimensions of food security (HLPE, 2020b).

It is vital that the global community continue to monitor the situation closely, respond in necessary ways to avert the worst outcomes with respect to food security and nutrition, and carefully consider how to build more resilient food systems and ensure the right to food, in order to achieve SDG 2. The recommendations at the end of this document seek to provide guidance for how to proceed along these lines.

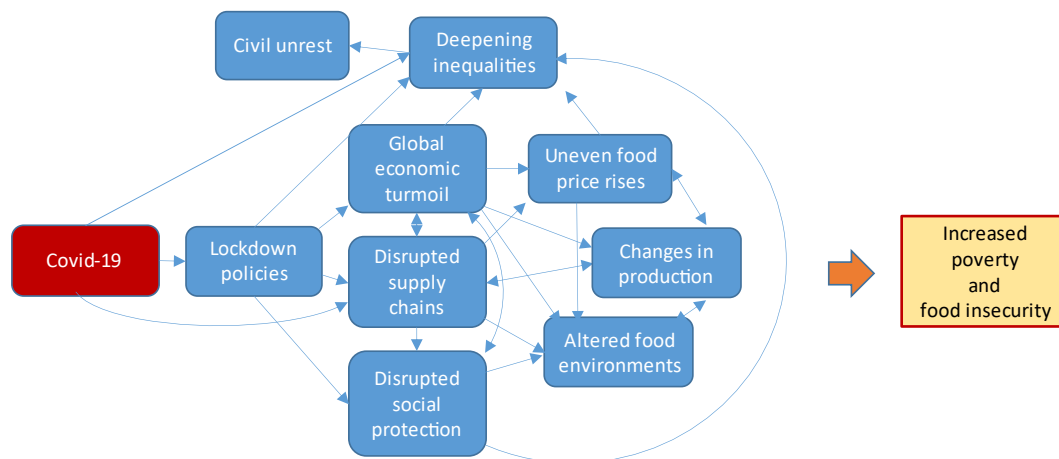
1. HOW COVID-19 IS AFFECTING FOOD SECURITY AND NUTRITION

COVID-19 is a respiratory illness and there is no evidence that food itself is a vector of its transmission (ICMSF, 2020). However, the virus, and measures to contain its spread, have had profound implications for food security, nutrition and food systems. At the same time, malnutrition (including obesity and undernourishment) increases vulnerability to COVID-19 (Butler and Barrientos, 2020). Initial and ongoing uncertainty surrounding the nature of the spread of COVID-19 led to the implementation of strict lockdown and physical distancing policies in a number of countries that in some cases have been lifted and reimposed multiple times as the disease spreads and mutates. These measures have caused serious slowdowns in economic activity and disrupted supply chains, unleashing new dynamics with cascading effects on food systems and people's food security and nutrition. Below we outline these dynamics. We then highlight how these trends are affecting the six dimensions of food security, as proposed by the HLPE in its 15th report—availability, access, utilization, stability, agency and sustainability—which are essential for ensuring the right to food (HLPE, 2020b).

a. Dynamics unleashed by the pandemic are affecting food security and nutrition

A number of overlapping and reinforcing dynamics have emerged that are affecting food systems and food security and nutrition over the course of the pandemic thus far, including: disruptions to food supply chains; loss of income and livelihoods; a widening of social inequalities; disruptions to social protection programmes; altered food environments; and higher and more uneven food prices (see, e.g. Klassen and Murphy, 2020; Clapp and Moseley, 2020; Laborde *et al.*, 2020; FAO, 2021a). Moreover, given the high degree of uncertainty around the virus and its evolution—with numerous variants emerging that are more infectious or which cause more illness, or both—there may be future threats to food security and nutrition, including the potential for lower food productivity and production, depending on the severity, duration and evolution of the pandemic and measures to contain it. Below is a brief overview of these dynamics as they have played out thus far, which are also depicted in Figure 1. These effects have evolved in different ways as the pandemic has unfolded over time.

FIGURE 1 | The dynamics of COVID-19 that threaten food security and nutrition



Source: Authors.

Food supply chain disruptions

There have been major disruptions to food supply chains in the wake of the imposition of lockdown measures, which have affected the availability, pricing, and quality of food (Barrett, 2020). The closure of restaurants and other food service facilities led to a sharp decline in demand for certain perishable foods at the start of the pandemic, including dairy products, potatoes and fresh fruits, as well as specialty goods such as chocolate and some high value cuts of meat (Lewis, 2020; Terazono and Munshi, 2020). As initial pandemic-related lockdowns took hold in many countries in March-May of 2020, there were widespread media reports of food items being dumped or ploughed back into the fields because of either collapsed demand or difficulties in getting these foods to markets (Yaffe-Bellany and Corkery, 2020). Farmers without adequate storage facilities, including cold storage, found themselves with food that they could not sell. These dynamics have diminished somewhat as lockdowns were eased, though in some cases the reimposition of lockdowns as the virus resurged has reignited them in certain locations.

The movement of food through the channels of international trade was especially affected by lockdown measures in the early months of the pandemic. As borders closed and demand for certain food items dropped, food producers reliant on selling their crops via distant export markets were highly vulnerable, particularly those producers focused on perishable food and agricultural products, such as fresh fruits and vegetables or specialty crops, such as cocoa (Clapp and Moseley, 2020). In the early months of the outbreak of COVID-19, some food exporting countries also imposed export restrictions on key staple food items like rice and wheat, which led to some disruptions in the global movement of these staples as well as higher prices of these crops relative to others (Laborde *et al.*, 2020; Falkendal *et al.*, 2021). Certain countries, including those with high prevalence of food insecurity, are highly dependent on imported food and on commodity exports (FAO *et al.*, 2019), which made them particularly vulnerable to these types of supply chain disruptions. Many of these export restrictions were lifted by late 2020, although some countries imposed new temporary food export restrictions in the first half of 2021. The risk remains that such restrictions might be re-imposed, depending on the severity of any future spikes in the disease and the impact of the re-imposition of lockdown measures.

Disruptions to food supply chains also resulted when food system workers experienced high rates of illness, leading to shutdowns and some food processing facilities such as meat packing, for example (CFS, 2020; Stewart *et al.*, 2020). Labour-intensive food production has also been especially affected by COVID-19 among food system workers, including production systems that rely on migrant farmworkers (discussed in more depth below), who face barriers to travel and who often work in cramped conditions on farms and in food production facilities, some of which had to close temporarily to contain outbreaks (Haley *et al.*, 2020).

These disruptions to supply chains affected food availability in some cases, especially where foods were not able to reach markets, which in turn put upward pressure on prices of some scarce goods, as outlined below. The quality of food environments was also affected, leading to some shortages in fresh fruits and vegetables, also discussed below.

Global economic recession and associated income losses

The COVID-19 pandemic triggered a global economic recession in 2020 which resulted in a dramatic loss of livelihoods and income on a global scale (World Bank, 2020a). The resulting drop in purchasing power among those who lost income has had a major impact on food security and nutrition, especially for those populations that were already vulnerable. Those in the informal economy are especially affected. In Latin America, for example, over 50 percent of employment is in the informal sector (FAO and CELAC, 2020). According to the International Labour Organization (ILO), more than the equivalent of 400 million full-time jobs were lost in the second quarter of 2020 with a number of countries enforcing lockdown measures (ILO, 2020a). Some jobs were regained, but at the end of 2020 total job losses stood at 255 million, especially among women, youth and vulnerable workers (ILO, 2021a). Developing countries in particular have been deeply affected, as they were already entering recession by late 2019 (UNCTAD, 2020a). Global growth dropped by 3.3 percent in 2020, although the impact varied across different countries (IMF, 2021). While economic growth was resurgent in the second quarter of 2021, it was deeply uneven across and within countries (Economist, 2021). Global remittances—a major source of finance in developing countries—initially fell, but recovered to a drop of just 1.6 percent in 2020 as a whole (UN, 2021).

According to World Bank estimates, an additional 119 to 124 million people fell into extreme poverty in 2020, with that number expected to rise to 143 to 163 million in 2021 as the impacts of the pandemic continue to be felt in many of the world's poorest countries lacking access to adequate vaccines (World Bank, 2021). The World Food Programme estimates that an additional 272 million people face acute hunger as a result of the crisis (WFP, 2021). A number of severe hunger hotspots emerged as the socio-economic impacts of the pandemic took hold, with countries affected by conflict and civil unrest being the most affected (FAO and WFP, 2021).

As food demand contracted due to declining incomes, food producers' and food systems workers' livelihoods were further affected: six months into the pandemic, food systems were estimated to lose 451 million jobs, or 35 percent of their formal employment (Torero, 2020). At the start of the pandemic, the UN estimated that around one third of food system livelihoods were at risk due to the pandemic (UN, 2020b). Latest estimates by the ILO confirms that employment in food services, together with accommodation, has been the most affected with a decrease in employment of 13 percent, hitting especially micro and small enterprises. In low-income countries, especially in agriculture and other sectors with prevailing informal and self-employment, COVID-19 has caused higher falls in labour income than job losses (ILO, 2021b).

Widening societal inequities

The global economic slowdown triggered by the pandemic, as well as the spread of the disease itself, has exacerbated existing societal inequities in most countries (Ashford *et al.*, 2020). These inequities are affecting rights as well as access to basic needs such as food, water, and health care, and access to jobs and livelihoods, all of which have implications for food security and nutrition. Food insecurity already disproportionately affects those people experiencing poverty and who face societal discrimination, and it is these very people who are at higher risk of contracting COVID-19 and who have less access to health care services (Klassen and Murphy, 2020). COVID-19 has also exacerbated inequities in access to safe sources of water and basic sanitation. According to the WHO, one in three people lack access to safe drinking water and basic handwashing facilities (WHO, 2020b). People without access to these services, which are vital for health and safe food preparation, are more likely to contract the disease, compounding existing inequities (Ekumah *et al.*, 2020).

Many food system workers face precarious and unsafe work conditions, which have been exacerbated by the COVID-19 crisis. These workers are often paid low wages and lack protective equipment (Klassen and Murphy, 2020), and in some regions, such as in sub-Saharan Africa, South and South-East Asia and some countries in Latin America, the majority work under informal arrangements (ILO, 2020b). Agriculture in many countries depends on migrant workers, many of whom work under casual employment arrangements where they have few rights and are vulnerable to exploitation (FAO, 2020a). As such, migrant labourers frequently face poverty and food insecurity and have little access to healthcare and social protection measures. Migrant food system workers have experienced higher incidences of COVID-19 infection as compared to other populations (Klassen and Murphy, 2020), because they are more exposed to the virus due to cramped work, transport and living conditions (Guadagno, 2020). In some countries, lockdown measures have been coupled with temporary suspensions of workers' rights (European Parliament, 2020; IFES, 2020, online).

Gender inequities have also been exacerbated by the crisis, as women face additional burdens during COVID-19—as frontline health and food system workers, unpaid care work, community work, which has increased during lockdowns (McLaren *et al.*, 2020; Power, 2020). Women are also at risk of an increase in domestic violence due to the recession and confinement at home when lockdown measures are in place (FAO, 2020b; WHO, 2020a). These inequities affect women and their prominent roles in food systems, including as primary actors ensuring household food security and nutrition, as well as being food producers, managers of farms, food traders, and wagedworkers. According to FAO, the agricultural activities of rural women have been affected more than those of men (FAO, 2020b). This gender dimension is important because women, in their caregiving roles for the sick, children, and the elderly, are likely at greater risk of exposure to COVID-19, with knock-on implications for food production, processing and trade (Moseley, 2020).

Inequities in access to vaccines against COVID-19 have exacerbated many of these other inequities. As vaccines became available from manufacturers in late 2020 and early 2021, it became clear that many wealthy and industrialized countries prioritized their own access by purchasing large quantities of vaccines while the majority of poor countries were left to wait until more supplies became available. As of July 2021, there were huge disparities in vaccination rates globally, with some countries with over 50 percent of their populations fully vaccinated while others – including most countries in sub-Saharan Africa, had less than 1 percent fully vaccinated. Some large countries, such as India, which faced a major surge of infections in the early months of 2021, largely driven by the new and more infectious Delta variant, has fewer than 6 per cent

of its population vaccinated (Financial Times, 2021). As additional new COVID-19 variants emerge and spread globally, those countries that are less vaccinated are left highly vulnerable not only to disease but also to food insecurity as a result of the reimposition of economic lockdown measures resulting in job losses, supply chain disruptions and food price increases.

Countries that were already facing humanitarian crises due to conflicts and fragile contexts (e.g. characterized by severe poverty, extreme ecological degradation, high degrees of social inequities, undemocratic political regimes and social and political unrest) were especially affected by growing inequities caused by COVID-19 (OECD, 2020). In some cases, rising inequities resulted in growing social unrest and political violence, which in turn had a negative impact on food security (FAO and WFP, 2021).

Disruptions to social protection programmes

Social protection programmes have been disrupted by the pandemic, which in turn are affecting food security and nutrition. When the lockdowns began, most schools were closed, resulting in the loss of school meal programmes in both high- and low-income countries. The WFP estimates that 370 million children lost access to school meals due to school closures in the wake of the pandemic (WFP, 2020a). In some countries, governments and the WFP are developing alternative means by which to reach school-aged children with food assistance, including take-home rations, vouchers, and cash transfers (WFP, 2020b). While alternative school lunch arrangements (such as in Cameroon (WFP, 2020c)) may close the gap in some instances, in other cases such options are not in place, adding to the financial burden of poor households struggling to feed their families (Moseley and Battersby, 2020).

The global economic recession that resulted from the pandemic and measures to contain it have also strained governments' capacities to provide social protection for those most affected by the crisis (FAO and WFP, 2020). In April 2020, the G20 governments offered to freeze the debt service payments for 73 of the poorest countries, an initiative endorsed by the G7 governments, in order to free up funds to address the fallout from the pandemic. Fully implementing this initiative has been challenging, however, affecting the ability of the poorest countries to provide social protection for their populations through this crisis. According to the UN Commission for Africa (ECA), Africa needs \$100 billion to finance its health and safety net response (Sallent, 2020). Most countries may have or will need to borrow money to finance their response, but unfortunately several countries are constrained in how much they can borrow by already high debt to GDP ratios (Ibidem).

Altered food environments

Food environments have been deeply altered by the pandemic (UNSCN, 2020). Lockdown measures and supply chain disruptions outlined above have changed the context and thus the way people engage and interact with the food system to acquire, prepare and consume food. The closure of restaurants and food stalls meant people who relied on foods prepared outside the home for their meals suddenly found themselves preparing food at home. But because of rigidities in supply chains, foods that previously were produced and packaged specifically for food service were not easily repackaged for retail sale and home use.

As the COVID-19 pandemic unfolded, many countries moved to shut down informal food markets, which governments saw as spaces for potential disease transmission, reflecting a 'formality' bias in public health and food policy (Battersby, 2020). Informal markets are extremely important as sources of food and livelihoods in developing countries (Young and Crush 2019). In South Africa, formal food retail outlets, which sell processed and packaged foods, were allowed to remain open

while informal and open air food markets, which typically sell more fresh fruits and vegetables, were shut down (even though open air markets are actually safer in terms of person to person transmission (Moseley and Battersby, 2020)). This move was especially detrimental to poor people who are more reliant on such markets for food because they can buy produce and foodstuffs in smaller quantities. After lobbying from academics and civil society, these markets were eventually allowed to reopen.

Differentiated responses to these changes have emerged. A recent study suggests that poor households are likely to shift their spending away from fresh fruits and vegetables with high micronutrient content to less nutrient-rich staple foods as a direct result of the pandemic (Laborde, Martin and Vos, 2020). Other studies also showed a shift towards consumption of more processed foods (Bracale and Vaccaro, 2020) which increased the risk of severe COVID-19 pathology and mortality (Butler and Barrientos, 2020). In South Africa, rising energy costs have exacerbated this problem as poor households increase processed food consumption as a way of saving on cooking fuel costs (Battersby, 2021). At the same time, in North America, there was a resurgence of interest in community supported agriculture (CSA) subscriptions, as people increasingly grew concerned about the safety of shopping in supermarkets and desired more direct access to fresh fruits and vegetables (Worstell, 2020), meat and fish products. CSA farms, however, were unable to meet all of this demand. There was also increased interest in home and community gardening as people sought to grow their own food to ensure stable access to nutritious food (Lal, 2020). These changes to food environments had variable impacts on food diversity and nutrition.

Food price inflation

Global cereal stocks were at near record levels at the start of 2020 and world food commodity prices overall fell in the initial months of the pandemic from March-May 2020. However, the overall food price index trends mask wide variability in food commodity prices in the wake of the lockdowns. Initially, prices for meat, dairy, sugar and vegetable oil fell sharply, while prices for cereal grains remained steady. As the pandemic deepened, price trends shifted dramatically, with meat prices rising, for example, as meatpacking workers experienced high rates of illness in some countries and meat-processing plants closed temporarily in order to halt transmission of the disease in worker communities (Waltenburg *et al.*, 2020; EFFAT, 2020). By mid-2021, the FAO food price index showed a significant increase (over 30 percent higher than the same period in 2020), reaching its highest level since September 2011 (FAO, 2021a). These price increases are due to a complex set of factors, although it is widely agreed that they have been exacerbated by the pandemic's disruptions to supply chains and made worse by the fact that many people's incomes had fallen due to job losses caused by the global recession.

Food price changes at the local level have also been affected by the dynamics of the pandemic, with some countries seeing steep food price increases, including countries that depend on food imports (Espitia *et al.*, 2020). For example, Venezuela and Guyana saw food price increases of nearly 50 percent in late July 2020, whereas Kenya saw food price rises of only 2.6 percent at that time (FAO, 2020c). By mid-2021, prices in some locations have come down somewhat, but not in all countries. For example, Venezuela's food prices were around 30 percent higher than they were prior to the pandemic, while Kenya's food prices had returned to pre-pandemic levels. In Guyana, food prices were 72 percent higher in mid-2021 than they were in early 2020 (FAO Data Lab, 2021). This uneven food price impact is the product of several complex factors, including export restrictions initially placed on some cereal crops such as rice and wheat by several exporting countries, as noted above (Laborde *et al.*, 2020). Currency depreciation in countries affected by the global recession also contributed to higher localized food prices for countries that rely on

imported foods (UNCTAD, 2020a). In some cases, high food prices are exacerbating social unrest (New Frame, 2021; Sihlobo, 2021), something not seen since the food demonstrations of 2007–2008.

Food price increases have also resulted from disrupted supply chains that have affected the cost of shipping (FAO, 2020c). These localized price increases directly impact food security and nutrition by making food more expensive and thus more difficult to access, especially for people with limited incomes.

Potential for changes in production

As noted above, global cereal stocks were at near record levels at the start of 2020, and food supplies generally were not in short supply. The dynamics outlined above, however, could change due to the high degree of uncertainty surrounding the virus and its evolution and societal impact. It could potentially affect production levels going forward, depending on the need for continued lockdown measures and the uncertainty regarding the timing and extent of these measures.

Labour-intensive crops, often cultivated with a migrant workforce in some countries, particularly horticultural products such as fresh fruits and vegetables, have been more affected by the disruptions noted above, although the impacts have been uneven depending on local conditions with respect to the spread of the virus and extent of lockdown measures. Horticultural production, processing and export has expanded dramatically in many developing countries over the past several decades (Van den Broeck and Maertens, 2016), and these countries have experienced some degree of production shocks due to labour shortages and transportation issues, affecting incomes and in turn food access for many. In some developing countries, such as Senegal, research shows that export-oriented fruit and vegetable production was less affected in the early months of the pandemic than production for domestic markets, as farmers producing for local outlets were more likely to scale back the amount of land under cultivation in the face of local market restrictions (Hoyweghen *et al.*, 2021). Cereal production, especially in industrialized countries where the use of highly capitalized equipment is common, has been less impacted by COVID-19 (Schmidhuber and Qiao, 2020). Global cereal crop production levels remained high throughout 2021 and are forecast to remain high in 2021 (FAO, 2021b). But again, the impacts have been uneven, in part due to high temperatures and drought conditions associated with climate change affecting many parts of North America in 2021. Supply chains for agricultural inputs, such as seeds and fertilizer, have also been affected by lockdown measures, making them both scarce and more expensive, as has already been reported in both China and West Africa (Arouna *et al.*, 2020; Pu and Zhong, 2020).

b. Implications for the six dimensions of food security

The dynamics outlined above affect food security and nutrition in complex ways. The HLPE “Global Narrative” report highlights six dimensions of food security, proposing to add *agency* and *sustainability* as key dimensions alongside the four traditional “pillars” of food *availability*, *access*, *stability* and *utilization* (HLPE, 2020b). The COVID-19 pandemic is affecting, or has been affected by, each of these dimensions of food security, illustrating the importance of each of them in interpreting the food security and nutrition implications of the crisis, including the proposed addition of agency and sustainability. These connections are discussed briefly below and illustrated in Figure 2.

Availability: While world grain stocks were relatively high at the start of the pandemic and remain strong, this global situation masks local variability and could shift over time. Grain production in high-income countries tends to be highly mechanized and requires little labour, making it less

vulnerable to disease outbreaks among farm workers. In contrast, cereals production on smaller farms in lower income countries tends to be more labour intensive and female dominated. Supply chains for horticulture, dairy and meatpacking are more vulnerable to the impacts of COVID-19 in higher income countries because of their more labour intensive nature, susceptibility to food worker illnesses, and corporate concentration leading to larger farms and processing facilities where disease outbreaks may spread rapidly. Disruptions in supply chains for agricultural inputs could also affect food production going forward.

Access: More than any other dimension of food security, food access has arguably been the most affected by the COVID-19 crisis. The global economic recession triggered by lockdowns has had a very negative impact on people's ability to access food. As the crisis drags on, short-term coping strategies (e.g., savings, the selling of animals and assets) are reaching their limits or have been exhausted, and in developing countries there is limited capacity to provide extensive social safety nets (Gerard *et al.*, 2020). Poor households operate on tight budgets with little to no discretionary spending. This means that, in the absence of social safety nets, spending on food decreased as incomes declined during the COVID-19 pandemic. These losses have affected low wage workers, some farmers, and informal traders and hawkers. Food price rises, especially where they are most pronounced, have directly affected households' ability to purchase enough food. Comorbidities have also deeply impacted some populations, particularly marginalized groups, making them more vulnerable to COVID-19, resulting in higher mortality and morbidity rates, with implications for labour, income and access to food for lower income groups (Moseley and Battersby, 2020).

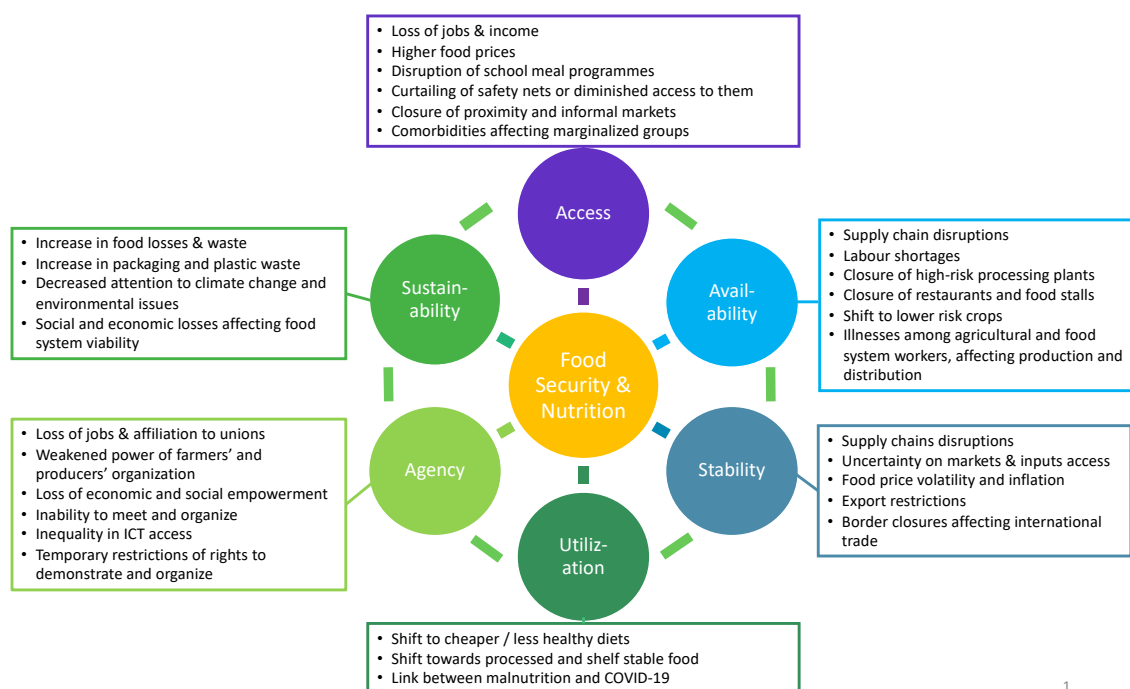
Utilization: Utilization and nutrition have been affected by the pandemic in important ways. Good nutrition is essential for supporting the human immune system and reducing the risk of infections. However, as people's ability to access food diminished in the crisis, this had a negative impact on their ability to afford a healthy diet (FAO *et al.*, 2020). This impact is felt especially in low and middle-income countries, where people typically spend a higher proportion of their income on food compared to people in high-income countries, with the poorest households typically spending around 50-80 percent of their income on food (FAO, 2011). The shift in consumption toward more processed foods and fewer fruits and vegetables during the crisis, as noted above, also contributes to poor nutrition. These sorts of dietary shifts could have reinforcing impacts, as people who are experiencing malnutrition—in any form—are more vulnerable to contracting the disease and developing complications (Micha *et al.*, 2020; Butler and Barrientos, 2020; Barron *et al.*, 2020). Access to clean water and safe sanitation is essential for good hygiene as well as safe food preparation, both vital for ensuring good nutrition, but the pandemic widened inequities with respect to access to these vital services, thus affecting nutrition while at the same time increasing disease risk.

Stability: The severe disruptions to food supply chains noted above are affecting the stability of global food supply and access (Bene, 2020). The export restrictions placed on staples like wheat and rice led to higher world prices for those crops, compared to prices for other foods, which generally fell at the start of the pandemic (FAO, 2020c). Although most of the COVID-19 food export restrictions were temporary, the risk remains that countries may impose new export restrictions (Espitia *et al.*, 2020). The upward pressure on food prices, which is more pronounced in some local contexts, also affects food system stability, and ongoing economic uncertainty, which has contributed to these trends by affecting currency values and presents an ongoing risk to stability in global food markets. Uncertainty over the evolution of the pandemic and of restrictive measures also influences the ability and willingness of people and firms to invest in the agrifood sector (UNCTAD, 2020b), although food price inflation over the course of 2021 may draw in new investment.

Agency: The most marginalized food system participants—including food producers and food system workers—have had little agency as the crisis has unfolded. As outlined above, food system producers and workers have been on the front lines and have suffered higher rates of disease and are affected by supply chain disruptions the most. The loss of jobs and livelihoods negatively affects agency, for example by weakening memberships of workers’ unions, and the capacity of unions to defend the rights of workers that may have lost formal contracts. Youth and women have been disproportionately affected by these impacts. Collective action and the ability to organize have been curtailed by physical distancing measures and lockdowns, as well as government emergency measures in some cases. The pandemic has also negatively affected women’s economic and social empowerment, which limits their agency (FAO, 2020b).

Sustainability: The pandemic is intertwined with the sustainability dimension of food security in complex ways. The expansion of industrial agriculture is associated with a rising prevalence of zoonoses—diseases that transmit from animals to humans—of which COVID-19 is a prime example (Everard *et al.*, 2020; Carter and Moseley, 2021). Fragile ecosystems, especially the degradation of wildlife habitats, are widely seen as a key driver of closer human-wild animal interaction that creates an increased opportunity for diseases to be transferred between them. Once the disease began to spread widely, the initial stages of lockdown measures, noted above, resulted in a dramatic increase in food waste due to restaurant closures and declining demand for certain types of foods (Sharma *et al.*, 2020). The pandemic has also resulted in an increase in the use of single-use plastic food packaging and carrier bags, which are not easily recycled (Vanapalli *et al.*, 2020). The pandemic also raises the risk that attention and funding will be diverted from climate change and environmental concerns such as biodiversity loss (Barbier and Burgess, 2020), which can affect longer-term sustainability in the food system. The longer-term viability of food systems is also affected by the social and economic losses, the shift in production modalities and the loss of jobs and livelihoods that resulted from the pandemic.

FIGURE 2 | The impact of COVID-19 food system dynamics on the six dimensions of food security



1

Source: Authors.

c. Lessons to date and prospects for recovery

Although the COVID-19 pandemic and associated crisis in food security remains ongoing, some initial lessons can be drawn from experiences thus far:

- The pandemic revealed fragilities that already existed within food systems, and in many cases the lockdowns and associated dynamics as discussed in this report have deepened those fragilities. These include rigid supply chains, a lack of protections and rights of food system workers, a lack of diversity in terms of production, distribution and trade channels, and food system concentration, among others.
- Social inequities have been exacerbated by COVID-19, which has had a direct impact on rising levels of hunger and malnutrition since the start of the pandemic due to the inability to afford adequate and nutritious foods on the part of those who have been most disadvantaged.
- Food price trends have been highly uneven over the course of the pandemic, with the latest trends being towards rising food price inflation at the global level with effects being felt in most countries, although to varying degrees.
- Fragile contexts have been especially hard hit by the pandemic, with these countries facing some of the most severe hunger consequences.
- Social protection programs implemented by governments around the world have been vital life-lines for many, but the inequities exacerbated by the COVID-19 pandemic have deepened the need for ongoing support while the availability of resources to different countries to provide it is highly uneven.
- Food supply chains of all sorts have faced disruptions that have affected the availability of nutritious foods and food security and nutrition in those countries with less diversity in terms of food production, distribution channels, and sources of food imports have been especially affected.

These lessons all underline the need for urgent policy action to build greater resilience into food systems. The 2021 Food Systems Summit aims to generate ideas to bolster food system sustainability. Action Track 5 of the Summit – focused on Building Resilience to Vulnerabilities, Shocks and Stress to Enhance Food Security and Nutrition – specifically addresses stresses such as pandemics as a key driver of these vulnerabilities and shocks. The recommendations outlined below provide insights on how to bolster food system resilience to address not just the COVID-19 pandemic, but also future pandemics and disruptions. As such, they are relevant for policy follow up to the Food Systems Summit that takes place in the Committee on World Food Security.

2. RECOMMENDATIONS

The HLPE's Global Narrative report proposed **four urgent policy shifts** necessary to achieve food security and nutrition and secure the right to food (HLPE, 2020b). The COVID-19 pandemic makes abundantly clear why these shifts are urgently needed.

The first policy shift is a fundamental **transformation of food systems as a whole**. In practical terms, this means moving from a singular focus on increasing food supply through specialized production and export to making fundamental changes that diversify food systems, empower vulnerable and marginalized groups and promote sustainability across all aspects of food supply

chains, from production to consumption. As is clear from the nature of the food security and nutrition impact of the pandemic, increased food production alone is not sufficient to address this crisis.

The second shift is to **shape food policies in ways that recognize inter-system linkages**, ensuring, for example, that food systems, ecological systems, and economic systems create positive synergies, rather than working at cross-purposes. The pandemic has made clear that appreciation of intersystem linkages is vital, as we are seeing complex dynamics resulting from ecosystem-food system linkages that resulted in an increased incidence of zoonoses, which, in turn, resulted from an expansion of industrial agriculture. The disease itself is interlinked with food systems in complex ways. Furthermore, lockdown measures are resulting in huge economic shifts that directly affect food security and nutrition.

The third shift is to **incorporate greater understanding of the complex interaction of different forms of malnutrition** occurring simultaneously within societies, including not just hunger and undernutrition, but also obesity and micronutrient deficiencies. The pandemic has made the need for this shift abundantly clear, as those experiencing malnutrition—in any form—are more vulnerable to the disease.

Finally, transformative food policies must also be flexible to allow for diverse approaches, to **fully take into account the specificity of each context**. The variable impact of the pandemic on food security and nutrition in different locations and for different populations and groups highlights why this fourth shift is so important, including the variable impact on food system workers, farmers in different countries and for different crops, gender-differentiated impacts and populations in crisis contexts.

The recommendations below support these broad shifts and support the transformation of food systems to make them more resilient. While some of these recommendations address concerns that have emerged in the short, medium and longer term in the face of the COVID-19 crisis, in general we move from those addressing short-term problems caused by the pandemic to those necessary for building longer-term food system resilience.

1. Implement more robust targeted social protection programmes to improve access to healthy and nutritious foods

While governments may be facing budgetary constraints, now is not the time to be cutting back on social safety net programmes, especially those that improve household access to healthy and nutritious food. Income assistance, vouchers for household food purchases, renter eviction protections, housing assistance, and school lunch programmes have all been shown to be effective means of support in some social contexts, especially as declining incomes and food price inflation affect food access (Gerard *et al.*, 2020). Vouchers for food purchases should function in formal and informal markets and allow for adequate fruit and vegetable purchases. In cases where schools are closed for extended periods due to COVID-19, governments need to think creatively about how to deliver alternatives to school lunch (WFP, 2020b). In other cases, public works employment programmes have allowed governments to build or maintain vital infrastructure and provide employment during an economic recession. However, agencies should recognize that food-for-work programmes have been problematic in rural areas if they interfere with agricultural work calendars. In those areas facing significant food supply disruptions, emergency food aid is vital. Unfortunately, the international community fell short in providing the necessary assistance needed during the pandemic (Khorsandi, 2020).

Priority actions include:

- Provide adequate emergency food aid, including in fragile and conflict affected contexts, wherever possible with local and regional purchase of foods for food assistance.
- Provide debt relief to governments struggling to maintain necessary social safety nets.
- Maintain robust social safety nets recognising that household food expenditures rise and fall in relation to other expenditures (e.g. on housing, health care, education, etc.).
- Design food assistance programmes that offer adequate access to healthy food, not just sufficient calories.
- Whenever possible, provide alternatives to school lunch programmes when schools are closed.
- Allow for adequate access to health care, including access to mental health services, in the design and implementation of social safety nets.

2. Ensure better protections for vulnerable and marginalized food system workers and farmers who are disproportionately affected by the crisis

The COVID-19 pandemic has clearly revealed that food system workers are critical to the response to the emergency. However, despite being essential workers, food system workers often lack labour rights, as legislation in this area is weak in many countries (Yeshanew, 2018). Given the extent to which food systems depends on a variety of types of labour, from small scale family farm labour, to food processing workers, to migrant farm labour, it is essential to ensure that all food system workers, including migrant labour, are granted clear and protected rights within legislation at the national level, in line with internationally recognized standards. This includes access to safe working conditions and paid sick leave, access to social protection and adequate living conditions that ensure their safety and wellbeing, including for migrant workers (World Bank, 2020b). Expanding access to social protection, including health insurance, transfers to mitigate income losses and measures to support production (e.g., seeds distribution) to small-scale farmers is key to reduce their vulnerability (FAO, 2020d). Such protections would strengthen the resilience of food systems in the face of crises such as that unleashed by COVID-19.

Specific recommendations include:

- Ensure food system workers' rights are recognized and integrated in national legislation; promote and enforce compliance with established norms.
- Ensure food systems workers have access to full protection from hazards and risks (in terms of personal protective equipment, distancing measures, clear health and safety guidelines, paid sick leave, adequate sleeping, eating and sanitary facilities, quarantine shelters).
- Pay special attention to migrant workers in the food system to ensure they are protected from health risks, have access to health services and social protection.
- Implement mechanisms to protect farmers and small-agricultural producers from uncertainties and income losses, such as improved access to markets, transfers, the provision of specific insurances, and more affordable access to inputs.

3. Provide better protections for countries that depend on food imports

Countries that depend on food imports are especially vulnerable to international supply chain disruptions caused by COVID-19 as well as food price inflation. Some of these countries may have the opportunity to better balance their food sourcing portfolios, while others may face ecological limitations to producing more food at home (Clapp, 2017). It is important that international food trade not be constrained in a crisis or weaponized by those countries that are exporters. Export restrictions, for example, have been associated with higher food prices, and put food import reliant countries in a difficult situation (Laborde *et al.*, 2020). Given that circumstances in each country with respect to their capacity to produce and/or import food vary, it is important to provide adequate policy space for governments to pursue policies that best meet their food needs and build food system resilience. For some countries this may include trade while for others it may include minimizing risks associated with reliance on imported food. For those countries that have the capacity to do so within their ecological boundaries, improving domestic food production capacity, including in crops in which they wish to reduce their reliance on imports, can be a way to reduce price risks and build local market resilience in the medium and longer-term. Improving domestic storage capacity also increases countries' ability to ensure food availability through crises (Viatte *et al.*, 2009).

Specific recommendations include:

- Discourage food export restrictions to protect countries reliant on food imports.
- Provide policy space and support to countries seeking to improve their domestic food production capacity within their ecological boundaries in the medium and longer-term.
- Encourage countries to build up better long-term grain storage capacity.
- Diversify sources of food imports to reduce risk and uncertainty due to unpredictable supply chain disruptions.

4. Strengthen and coordinate policy responses to the COVID-19 pandemic impact on food systems and food security and nutrition, including at the international level

The HLPE's Report 15 stresses that the urgent and deteriorating conditions resulting from the COVID-19 crisis "demands measures to improve food systems to make them not only more resilient to crises, but also more equitable and inclusive, empowering and respectful, regenerative, healthy and nutritious, as well as productive and prosperous for all" (HLPE, 2020b). Yet thus far, there has been a lack of international policy coordination and response to the COVID-19 pandemic's impact on food security and nutrition. The pandemic clearly illustrates the interconnected nature of food systems with health systems, economic systems and environmental systems, and as such, policy responses require coordination across different governance systems – including at the international level – that address the various ways in which the crisis is affecting food security and nutrition. The CFS is the obvious and appropriate policy coordinating body at the international level to lead in the development of a global policy response to COVID-19 and its impact on food security and nutrition. In 2009, the Committee on World Food Security (CFS) underwent reforms to make it a more inclusive international governance body whose purpose is to be the foremost body in the establishment of international norms and guidance on food security and nutrition policy (McKeon, 2015). To accomplish this role, the CFS has, as a core function, a role in facilitating the sharing of national experiences among its members, as well as developing guidelines that outline best practices for achieving FSN goals. The CFS has established guidelines for monitoring CFS decisions and guidance (CFS, 2013), and as such

could serve as an important focal point for information on policy responses regarding the impact of the pandemic on FSN, in order to better facilitate policy coordination across different governance areas and among governments.

Specific actions to support this recommendation include:

- Recognize the role of the CFS as a lead body in coordinating an international governance response to the impact of COVID-19 on FSN.
- Address vaccine distribution inequities between and within countries to more effectively slow the spread of disease and reduce its contribution to food insecurity.
- Create a task force led by the CFS to track the food security impacts of COVID-19, including the collection of contextual and disaggregated data within countries to identify those who are most vulnerable to enhance the effectiveness of social protection programs.
- Establish a reporting system for CFS member states to share information and experiences with respect to the impact of COVID-19 on FSN in local and national contexts.
- Develop a global campaign to educate and inform the public on nutrition-sensitive practices to prevent and manage COVID-19 infections at household and individual levels.
- Include food system workers and agricultural producers' organizations in COVID-19 decision processes at national and international levels.
- Consider the establishment of a funding mechanism to support the above recommendations.

5. Support more diverse and resilient distribution systems, including shorter supply chains and territorial markets

The widespread disruptions to food supply chains resulting from the pandemic indicate a need for more resilient food distribution systems. Although various types of supply chains have been disrupted by the pandemic, those that are particularly elongated and complex—especially for perishable and specialized agricultural crops transported over long distances—have been particularly affected. Producers and consumers in low-income countries are most vulnerable to these disruptions, although producers in all regions of the world have felt these impacts. As these dynamics unfolded, there has been growing interest in bolstering local and regional markets to build greater resilience into food systems by ensuring a diversity of distribution systems to reduce reliance on any one type of supply chain. More localized markets, sometimes referred to as “territorial markets” (Kay *et al.*, 2016), are the dominant types of markets for local foods in developing countries and have increasingly grown in importance in developed countries in recent decades as farmers' markets have been redeveloped with rising demand for local food. These types of markets typically provide outlets for foods from diverse production systems that are often better able to respond to disruptions and changes in demand of the sort we have seen in the wake of COVID-19. Markets embedded in local and regional contexts are also important in strengthening livelihood opportunities for local food producers, processors, and sellers. They also have the potential to reduce national and community dependence on distant transnational corporations that dominate transactions in concentrated global supply chains (HLPE, 2020b). There is, however, often a lack of infrastructural support for the development of territorial markets, including storage facilities for example. Innovations such as digital e-commerce platforms that are specifically designed for small- and medium-scale enterprises and not subject to control by large corporations can also support locally embedded markets that are better able

to respond to supply chain disruptions unleashed by COVID-19 (Reardon and Swinnen, 2020). National and local governments can play a big role in strengthening infrastructure for territorial markets (Blay-Palmer *et al.*, 2020).

Specific actions along these lines include:

- Invest in enhanced territorial market infrastructure at the regional, national and local levels.
- Carefully review policies that may unjustifiably privilege formal retail food outlets over more informal markets that provide points of connection between small producers and lower income consumers, including periodic rural markets and street vendors.
- Consider adopting stronger regulation, including competition policy, to empower small and medium agrifood enterprises (SMEs) to participate in national, regional and global supply chains.
- Develop and enforce food safety measures for informal food systems at the local and national levels.

6. Support more resilient food production systems based on agroecology and other sustainable forms of food production

Strengthening food system resilience is critical for an effective response to the COVID-19 pandemic. As international supply chains are strained by COVID-19, relocalizing food production, or seeking a better balance between imported and locally produced food, is a sound strategy for building robustness and resilience. While some have advocated for industrial food production techniques as the best way to boost food production at home, this approach is limited because it is inaccessible to the poorest of the poor due to cost; often requires purchased external agricultural inputs that are similarly subject to supply chain disruptions; and may be unsustainable in terms of waste and environmental impacts (Moseley, 2017; Gengenbach *et al.*, 2018). Agroecology, for example, is the science of leveraging ecological interactions within farm fields to improve crop yields and minimize input costs and waste (HLPE, 2019). Agroecology provides a strong response to the COVID-19 food security and nutrition crisis because it is a sustainable strategy for boosting food production at home that is accessible to all types of farmers, both rich and poor (Altieri and Nicholls, 2020). Research suggests that agroecology is just as effective as conventional methods for improvements over the long run, especially when the system is examined in terms of energy input versus output (Badgley *et al.* 2007; Brzozowski and Mazourek, 2018). Smart plant combinations, and mixed cropping strategies, may also reduce or spread out labour demands. There is a strong need for more research and training to support a transition to more agroecological production systems that can build food system resilience. In the current context, because of the risks posed by COVID-19 to in-person training, such efforts would require masks and physical distancing, and in some cases could be supported with digital communication technologies, provided those technologies are centred on the needs of poor farmers and the data is openly accessible. Nutrition-sensitive agriculture, home gardens and urban agriculture, including in humanitarian and fragile contexts (Bounie *et al.*, 2020), can also prove more resilient to shocks and disruptions and ensure access to more varied and nutritious food for the urban poor (Lal, 2020). Sustainable fisheries and aquaculture provide important sources of nutrition and are key for livelihoods and employment (Love *et al.* 2020; Bennett *et al.*, 2020).

Specific recommendations include:

- Invest in more agroecological research-action projects and programs for nutrition-sensitive agriculture.

- Support the development of an agroecology curriculum at schools of agriculture in a range of countries.
- Given that the majority of agricultural development assistance projects support conventional or industrial agricultural approaches, work to support more projects that encourage agroecology and other sustainable forms of agriculture.
- Include support for nutrition-oriented individual and community responses, such as home and community gardens.
- Ensure sustainable fisheries and aquaculture, as well as animal production and forestry, are integrated in policy responses to COVID-19 so as to reap their full potential in terms of nutrition and livelihoods.

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