

COVID-19 and the crisis in food systems: Symptoms, causes, and potential solutions

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The COVID-19 health crisis has brought on an economic crisis, and is rapidly exacerbating an ongoing food security and nutrition crisis. In a matter of weeks, COVID-19 has laid bare the underlying risks, fragilities, and inequities in global food systems, and pushed them close to breaking point.

Our food systems have been sitting on a knife-edge for decades: children have been one school meal away from hunger; countries – one export ban away from food shortages; farms – one travel ban away from critical labour shortages; and families in the world's poorest regions have been one missed day-wage away from food insecurity, untenable living costs, and forced migration.

The lockdowns and disruptions triggered by COVID-19 have shown the fragility of people's access to essential goods and services. In health systems and food systems, critical weaknesses, inequalities, and inequities have come to light. These systems, the public goods they deliver, and the people underpinning them, have been under-valued and under-protected. The systemic weaknesses exposed by the virus will be compounded by climate change in the years to come. In other words, COVID-19 is a wake-up call for food systems that must be heeded.

The crisis has, however, offered a glimpse of new and more resilient food systems, as communities have come together to plug gaps in food systems, and public authorities have taken extraordinary steps to secure the production and provisioning of food. But crises have also been used by powerful actors to accelerate unsustainable, business-as-usual approaches. We must learn from the lessons of the past and resist these attempts, while ensuring that the measures taken to curb the crisis are the starting point for **a food system transformation that builds resilience at all levels.**

This transformation could deliver huge benefits for human and planetary health, by slowing the habitat destruction that drives the spread of diseases; reducing vulnerability to future supply shocks and trade disruptions; reconnecting people with food production, and allaying the fears that lead to panic buying; making fresh, nutritious food accessible and affordable to all, thereby reducing the diet-related health conditions that make people susceptible to diseases; and providing fair wages and secure conditions to food and farmworkers, thereby reducing their vulnerability to economic shocks and their risks of contracting and spreading illnesses.

1. What is COVID-19 telling us about food systems?

The COVID-19 crisis has shone a spotlight on the vulnerabilities of food systems on three fronts:

Firstly, industrial agriculture is driving habitat loss and creating the conditions for viruses to emerge and spread.

Zoonotic spillover occurs as a result of complex dynamics linking human and natural ecosystems, with socio-economic and structural conditions determining whether or not a spillover event becomes an outbreak, and an outbreak an epidemic or pandemic.

The risks are increased by industrial agriculture through two main pathways. Firstly, intensive livestock production amplifies the risks of diseases emerging and spreading. The probability of outbreaks of high-impact animal diseases is increased by the confinement of large numbers of animals in small spaces, narrowed genetic diversity, fast animal turnover, and habitat fragmentation through expansion of livestock production.

Secondly, risks are amplified by enhanced human-wildlife interaction, which can be exacerbated by habitat destruction due to commercial agriculture, unchecked urbanization, and land and resource grabs. As a leading zoonotic disease expert stated: "Destroy landscapes, and the species you are left with are the ones humans get the diseases from." As documented in the CBD/WHO 2015 Report, the spread of pathogens is exacerbated by climate change, ecosystem destruction and land use change, deforestation, biodiversity loss, and the removal of essential protective barriers. The 'efficiencies' of global trade have paved the way for increasingly uniform farming systems and removed the firebreaks of biodiversity.

Most recent pandemics, including HIV/AIDS, Ebola, West Nile Virus, SARS, and Lyme disease, are rooted in environmental change and ecosystem disturbances. They originate from animals, wild and domesticated. More than 70% of the infectious diseases that have emerged in humans since the 1940s can be traced to animals. Though evidence on the origins of the COVID-19 outbreak is still inconclusive, it is thought to have occurred through a combination of the pathways described above, i.e. the amplification of wildlife diseases through intermediate hosts. Factory farms have also been identified as a potential transmission point.

Secondly, a range of disruptions are testing the resilience of food supply chains and revealing underlying vulnerabilities.

At the time of writing, there has not yet been widespread failure of food supply chains or extreme price volatility. However, the restrictions on the movement of people and goods ('lockdowns') in a growing number of countries are putting major strains on local,

regional, and global supply chains, and testing the resilience of food systems – with varying impacts around the world.

Food chains – both short and long – are proving vulnerable to various logistical bottlenecks. For long food chains, which depend on complex flows of people, production inputs, and foodstuffs, [travel restrictions](#) are likely to prevent the arrival of the millions of seasonal labourers who cross borders each year to work on farms. In some parts of the world, unharvested food has been left to [rot in fields](#), while the [livestock sector](#) is facing reduced access to animal feed and diminished slaughterhouse capacity.

Meanwhile, interruptions to the transport of commercial beehives could result in shortages of honey bees, a critical pollinator, with impacts on a range of crops (for example, in [China](#) and the [US](#)). Vulnerabilities are also emerging further along the chain. Supermarkets, with their “[just in time](#)” [sourcing model](#), are struggling to cope with a sudden surge in demand, resulting in [empty shelves](#), and particularly in shortages of fresh fruits and vegetables in developed countries.

Export restrictions – introduced by only a handful of countries to date – are also interrupting crucial flows of staple foods. For example, the [suspension of Vietnamese rice exports](#) has prompted concerns in Malaysia, which has been left with only 2.5 months of rice supply. The closure of borders by Malaysia has, in turn, sparked fears that the fresh foods it normally exports might not reach [Singapore](#).

In short supply chains, vulnerabilities have grown due to closures and restrictions on informal and open-air markets, based on high perceived risks (e.g. high density, low ability to enforce hygiene and social distancing). This is a worrying trend given that ‘[territorial markets](#)’ remain the principal means by which most people in the Global South obtain their food. For example, [market closures across Africa](#) – including in [Burkina Faso](#), [Rwanda](#), [Senegal](#), [South Africa](#), and [Zimbabwe](#) – have cut off vital provisioning routes for communities, and sales outlets for farmers.

COVID-19 has also shone a light on the [precarious situation of food- and farmworkers](#), and thus the precarity of the global food supply. Food- and farmworkers have largely continued to work to keep food supplies flowing, and are doing so [in the face of major health risks](#). Facilities along the food chain have been unable to accommodate physical distancing and hygienic practices without loss of profitability, while food system workers – who, ironically, have now been deemed ‘[essential](#)’ in a range of countries – remain at the back of the line for protective equipment, and are often working [without hazard pay](#). Migrant farmworkers, in particular, are at high risk of contracting and spreading COVID-19, as well as struggling to get tested and treated. This is a result of living and working in [unsanitary conditions](#), being transported to fields on crowded buses, facing multiple formal and informal [barriers to taking sick leave](#), and lacking access to information. These risks come on top of the generally poor conditions and low pay faced by food system workers (see below).

Thirdly, hundreds of millions of people are living permanently on the cusp of hunger, malnutrition, and extreme poverty, and are therefore highly vulnerable to the effects of a global recession.

Before COVID-19 hit, 820 million people were already under-nourished, with 2 billion people experiencing food insecurity. Many millions more are living perilously close to the poverty line: they lack the economic and physical means to procure food in light of enforced social isolation, movement restrictions, supply interruptions, lost income, and even relatively minor food price spikes.

For example, with 25% of Pakistanis unable to afford more than one meal a day, the country's prime minister has warned that an interruption of economic activity will be extremely detrimental. As Ghana entered a lockdown, staple food prices increased by an estimated 20-33%, with major repercussions for those living in poverty. In Latin America and the Caribbean, over 10 million children rely on school nutrition programs as one of their primary food sources, making them highly vulnerable to school closures. The loss of remittances from other parts of the world where the economy is in recession will deal a further blow to developing countries.

As economies grind to a halt, the impacts will fall hardest on those already facing discrimination or marginalization. Globally, women and girls are more vulnerable to economic shocks and bear the brunt of hunger in poor families. In India, for example, 90% of women workers are in the informal sector and therefore face massive income losses in the wake of COVID-19. Migrant labourers and displaced persons will also suffer, including the 'surplus populations' forced off their land by the expansion of industrial agriculture. Migrant labourers in agriculture and in cities face major hardships, and are unable to benefit from state safety nets or social solidarity: for example, thousands of migrant labourers within Myanmar, and across the border in China and Thailand, have been left stranded following factory closures.

Across the world, food system workers face insecurity and low wages, and are therefore among those most at risk from economic disruption in food supply chains and beyond. People working in casual labour, services, restaurants, and retail face massive job losses (in part due to social distancing policies, and in part due to the broader economic slowdown). They will surely see a major drop in their incomes, which are already low: in the US, jobs in the food system consistently rank among the lowest paid, particularly food processing and service workers (#1), dishwashers (#2), and farmworkers (#7).

Farmers are also highly vulnerable to economic disruptions. In rural areas, the International Labour Organization estimates that "most jobs do not ensure sufficient levels of income for workers to afford adequate food for themselves and their families". More than 50% of farmers and rural workers live below the poverty line in several

countries in the Global South with the largest rural populations. Meanwhile, around 30% of French farmers earn less than one third of the country's minimum wage.

Inability to get produce to market, and volatile demand, can therefore bankrupt farmers or prevent them from making key investments – with knock-on effects on food supplies.

Even in wealthy countries, access to nutritious food is proving fragile for millions of families, particularly those relying on food banks which are struggling with excess demand and staff shortages, not least as a result of older at-risk volunteers being unable to work. COVID-19 has also underlined the vulnerabilities of those already living in effective isolation before it became the norm – particularly older persons – and those without access to full-service grocery stores and online retail.

The crisis is also affecting the quality of diets. People are shifting towards greater consumption of heavily processed items (as a result of panic buying for foods with longer-shelf life, and supply chain disruptions), with fresh fruits and vegetables less available in some conventional supply chains. This could create vicious cycles: diabetes and other diet-related non-communicable diseases are risk factors for COVID-19 mortality; an audit in the UK revealed that 76,5% of critically ill coronavirus patients are overweight. Diet-related diseases correlate closely with poverty.

2. How are food system actors responding to COVID-19? The outlines of a new system, and the stranglehold of the old one

While the current circumstances are exceptional, the vulnerability of food systems to climate and disease-related disruptions was clear long before the COVID-19 crisis. Food systems have in fact been repeatedly destabilized by shocks, from the 1970s oil crisis to the 2007-2008 commodity price spikes, as well as the SARS and Ebola outbreaks.¹ Only a year ago, the disease that alarmed China and upset global commodity markets was African Swine Fever, an epidemic that worked its way across Eastern Europe and Asia. By the end of 2019, China – the world's largest pork producer (accounting for 1/3 of the global market) and biggest importer – had lost up to 37% of its pigs. Market disruption was compounded by US-China trade disputes, and quarantining in the wake of COVID-19, as the two crises intercepted.²

COVID-19 has laid bare the massive vulnerabilities of global food systems to shocks of this nature. It has underlined that food is not a commodity like any other. The paradigm

¹ Quarantines and panic occurred during the Ebola outbreak in Sierra Leone (2014-2016), leading to a spike in hunger and malnutrition. The suffering worsened as restrictions on movement led to labour shortages at harvest time, and prevented farmers from bringing their produce to market. The 2003 SARS epidemic briefly impacted production and markets, but in 2003 China only generated 4% of global GDP, while in 2019 it accounted for 16%.

² Between culling and feed costs, African swine fever began forcing smallholder producers off their land, consolidating holdings and driving consumers to turn to poultry for their protein. Even as Chinese consumers switched from pork to chicken, farmers warned that quarantine rules were preventing them from getting feed to their poultry – meaning further culling.

shift long demanded by many in food systems – from [social movements and indigenous peoples](#) to [small-scale producers](#) and [trade unions](#) – is now more urgent than ever.

A remarkable upsurge of solidarity and grassroots activism has been among the most notable responses to the crisis. From widespread donation of food to the destitute in [India](#) and [Pakistan](#), to the provision of mobile meals to disadvantaged populations in the [US](#) and [Canada](#), communities have come together to plug gaps in the system and help those in need.

Furthermore, the crisis has offered a glimpse of what new and more resilient food systems might look like. Governments at multiple levels have moved quickly to secure worker protections and food entitlements – often working in concert with civil society. In the highly decentralized Indian system, the state of Kerala has led the way in its response to COVID-19, by ensuring food distribution via [free community kitchens run by women's networks](#). Elsewhere, [Portugal](#) has granted temporary citizenship rights to migrant workers; the [French government](#) has worked with farmers' unions to developed tailored hygiene advice to keep farmers' markets and Community Supported Agriculture (CSA) schemes up and running, as well as accelerating plans to relocalize feed production; and the Canadian province of [British Columbia](#) has declared community gardens and farmers' markets as essential services. Meanwhile, [Thailand](#) has taken comprehensive actions to bolster its domestic food system – including seed distribution, the strengthening of online sales and home deliveries, steps to facilitate agricultural migration, and the promotion of fruit consumption. And as the [FAO has documented](#), cities around the world are expanding free meal provision, developing mobile food hubs, and increasing food production in and around the city.

Norms are also shifting – at least temporarily – in privately-governed supply chains. [Unilever](#), for example, is providing early payments and credit to some of its more vulnerable suppliers. [Clif Bar & Company](#), one of the leading US organic food processors, is expanding paid leave benefits and providing additional compensation to its employees during the crisis, in addition to delivering 3.6 million products to food banks, local hospitals, and first responders. [Fair Trade International](#) has increased flexibilities on the use of Fair Trade premiums, allowing farmers to draw on these funds immediately to protect the health and livelihoods of their farmers and food workers during COVID-19.

The crisis has also prompted people to seek new and more direct ways of sourcing their food. Online ordering and home delivery of food and groceries is skyrocketing in many countries with the necessary infrastructure, and could lead to lasting shifts in the way people purchase their food. In some countries (for example, in [France](#), [Poland](#), the [US](#), and [China](#)) demand has soared for CSA schemes, farm shops, and other forms of direct sales. While some of these networks are struggling with the sudden spike in demand and are facing logistical constraints, [CSAs](#) are generally managing to sustain and expand their distribution, thereby providing a valuable alternative for fresh food provisioning.

But the crisis is also being used to roll back steps towards healthy and sustainable food systems. The Canadian food industry is rumoured to be requesting a moratorium/delays on new food labelling and regulation, which risks promised measures to curb the marketing of junk food to children and the labelling of unhealthy, highly processed foods. In [Mexico](#), similar attempts have been made to sabotage the adoption of new labelling rules. [European agricultural lobbies](#) are warning that the greener food system envisaged by the European Commission would not match the current system in its ability to absorb shocks and produce enough food. Others are calling for [a re-run of the seed distribution and fertilizer programs](#) rolled out in the wake of the 2007-2008 crisis. Meanwhile, digitalization and automation all along the chain are being touted as a solution to the labour and mobility shortages the pandemic has brought in its wake – despite the potential impact on employment and the risks associated with [further concentration](#) of power in food systems. In other words, industrial food systems are being reinvented as the solution, despite their role in driving poverty and insecurity, climate change, and ecosystem disruption, and thus in making food systems critically vulnerable to pandemics and other shocks.

3. The way forward

As the COVID-19 crisis unfolds, the challenge is to turn the existing seeds of change into the foundations of a new food system, and to call out the short-sightedness of business-as-usual solutions that seek to use the crisis to advance their own interests. The realizations about the vulnerabilities of our food systems on multiple levels must not be forgotten once the crisis abates. The rate of new zoonotic epidemics and pandemics is accelerating. The following steps are therefore crucial in order to build resilience at all levels:

Recommendation #1. Taking immediate action to protect the most vulnerable

Actions must be taken immediately to maintain food access and security in the midst of this public health crisis. Governments must urgently establish or strengthen social protection mechanisms and emergency food assistance programs that protect the most vulnerable, including infants and children, older persons, those living with disabilities, and those living in poverty – many of whom already rely on food aid. Immediate measures already endorsed by the [UN](#) and [FAO](#) include providing cash transfers or individual debt relief to the most vulnerable families, ensuring food banks and community-based meal providers have the means for mobile delivery, or setting up complementary entitlements to offset loss of income and maintain household food security.

It is also essential to take all necessary measures to remove major barriers to food procurement as a result of lockdowns, while ensuring worker and consumer safety. Appropriate action must be taken to ensure that food- and farmworkers – including migrant labourers and those in the informal sector – have access to safe and dignified

working conditions. As urged by [IUF](#), measures include ensuring that food and farmworkers are provided with safe transport to work; access to adequate housing; access to childcare; protective equipment; sufficient space for social distancing; safe sanitation facilities on the job; and healthcare.

For poor households, who have [little to no capacity to bulk-purchase or store food](#), frequent trips to informal market structures are often the only option. Supporting these markets to comply with hygiene measures, and ensuring access to them, is therefore crucial to maintain their essential role in food distribution.

All measures must also be compatible with the wide variety of cultural, socio-economic, or geographic contexts that may affect public health responses. Local strategies have [been identified by researchers](#) as critical in outbreak responses, including the creation of formal or voluntary community systems to identify which households are isolating and need further support to procure food and water, or the establishment or re-purposing of temporary low-cost structures to safely house and provide for vulnerable groups (e.g. the homeless, the sick). Special attention must also be paid to the conditions of the myriad of [informal urban settlements](#) with high population densities and limited infrastructure that house most of those living in poverty, as well as the many rural communities that rely on shared food provisioning across households.

Low-income countries must be able to take these steps without fear of crippling their public finances, and without having to divert resources from other urgent challenges like climate mitigation and adaptation. Debt relief – as advocated by [UNCTAD](#) – and other forms of international solidarity are therefore crucial.

Recommendation #2. Building resilient agroecological food systems

A paradigm shift from [industrial agriculture to diversified agroecological systems](#) is more urgent than ever. Agroecology's unique capacity to reconcile the economic, environmental, and social dimensions of sustainability has been recognized by the [FAO](#), landmark reports from the [IPCC](#) and [IPBES](#), and the World Bank and FAO-led global agriculture assessment (['IAASTD'](#)).

Agroecology builds resilience by combining different plants and animals, and uses natural synergies – not synthetic chemicals – to regenerate soils, fertilize crops, and fight pests. It is thus less dependent on imported inputs like fertilizers and pesticides, thereby reducing vulnerability to trade disruptions and price shocks. Rather than clearing landscapes for uniform farming systems, agroecology is based on 'land sharing'. The territorial approach that is advocated by many agroecologists provides the opportunity for food producers and conservationists to come together to find solutions that allow the production of healthy food while protecting important wildlife habitats. Agroecological systems also increase disease resistance by [relocalizing and decentralizing](#) the breeding of plants and livestock, to harness diversity. Local food cultures and local community

structures – critical in times of vulnerability – have been damaged by industrial agriculture and can be rebuilt through agroecology.

Territorial markets and short supply chains are often a key component of agroecological systems, and can enhance access to fresh food, ensure greater value goes to the farmer, and reduce vulnerability to disruptions on international markets. Short supply chains are not immune to disruptions of their own. In much of the Global South, territorial markets are the reality, and the impact of the crisis on these food chains is still unfolding. For now, the short-term priority remains to protect the key sales outlet of informal markets, and to [support existing small and medium-sized food enterprises](#), in order to avoid the rapid concentration of processing and retail that has occurred in the wake of previous disease outbreaks. For net food-importing countries, the short-term priority is to ensure continued regional and international trade flows, as well adequate regionally-positioned food stocks. However, multi-year strategies should be put in place immediately to gradually shift away from trade-oriented agricultural policies that disadvantage small-scale producers or favour unsustainable agricultural practices.

[A range of actions](#) have been identified to spark a shift towards resilient agroecological food systems, including redirecting agricultural subsidies and research investments to agroecology. Immediate steps will be needed to ensure that local chains are able to function and flourish, including strengthening capacity to meet food safety regulations and the removal of market regulations that present barriers to local selling. Barriers to diversity must also be urgently rethought. Intellectual property arrangements governing agricultural genetic resources, such as crop and livestock, must not inhibit the full and free use and exchange of agricultural varieties and breeds among peasants, their communities, or public breeders. Seed saving and exchange are vital practices underpinning the farmer seed systems prevalent in the Global South. Over the longer term, agrarian reform will also be needed to reduce major inequalities in access to land, particularly for the millions of small farmers cultivating under 2 hectares across Southern Asia and Sub-Saharan Africa.

Recommendation #3. Rebalancing economic power for the public good: a new pact between state and society

The urgent need for a new pact between state and civil society has been highlighted by what is a health crisis, but also an economic crisis and a food crisis. Major governance gaps have emerged, first and foremost in regard to insufficient investment in public health, but also in food security. While extraordinary steps have been taken by some public authorities to secure food provisioning, the crisis has also seen many people left wholly reliant on the charity and solidarity of their neighbours – who cannot be expected to provide for their basic needs.

Nonetheless, COVID-19 has shown that governments can act in the name of wellbeing, and act most effectively when they ensure basic centralized functions alongside well-

resourced and coordinated action at the regional and local levels – where needs are well-understood and a range of tools can be deployed in concert with civil society. Organized civil society – particularly community-based organizations, farmers’ groups, and cooperatives – has proven to be an effective buffer against crisis impacts, underlining its importance in taking on climate change and other looming challenges.

What has started as crisis response must be transposed into the new foundations of public governance. The political and economic systems that grow out of this crisis must be rooted in multi-level governance, in governance *with* civil society, in social and economic inclusion, in redressing poverty-creating processes, and in the long-term, systemic thinking that would allow us to weather new crises when they arise. [Food sovereignty](#), which emphasizes democratic decision-making in the food system, and access to land and food producing resources, must be a guiding principle.

Billions of dollars are now being injected into the economy through bailouts, stimulus packages, and quantitative easing. The opportunity cannot be missed to use this money to transform the economy, not simply bail it out. Already, ambitious policy reforms are being devised in the EU and the US to spark the shift towards sustainable food and agricultural systems. These reform packages are now more relevant than ever, and should be the vehicle for delivering resilience.

Regulatory approaches must be a part of this. The crisis has shown that governments can and must intervene to correct market failures and realign economic activities for the public good. It is now imperative to ensure that food businesses internalize the negative socio-economic and environmental costs they engender. It is also essential to prevent monopolistic practices. Given supply chain uncertainties and an unpredictable future, many smaller and middle-sized agri-food companies may be on the edge of bankruptcy or under considerable shareholder pressure to act. The biggest companies in the sector, taking advantage of low interest rates, are poised to expand by either taking them over or watching them die. Merger and Acquisition activity should therefore be subject to particularly close scrutiny for the duration of the crisis.

Recommendation #4. Reforming international food systems governance

The current crisis opens up an opportunity to complete the global governance reforms initiated in the wake of the 2007-2008 food price crisis, and to put in place the tools to accelerate food system transformation. With guaranteed organizing spaces and participation for civil society and the private sector, the UN Committee on World Food Security (CFS) – reformed and revived in 2009 – has become a unique forum providing a coordinated global response to food system issues, debating with governments, and holding them to account. It is at the CFS that communities have pushed back against the reckless expansion of land grabs and biofuels. Indeed, the reform process has faltered in recent years, as a handful of governments, private sector, and philanthropic foundations with vested interests in industrial food systems have pushed back, in turn, to weaken the

CFS and prevent it from fulfilling its mandate. It is therefore at the CFS that these efforts must be faced down, democratic governance reasserted, and the path to resilient food systems traced out in the wake of COVID-19. Discussions on trade and food security at this year's CFS become doubly important.

The crisis also provides the perfect opportunity to [rethink the 2021 Food Systems Summit](#) and refocus it on resilience and agroecology, building on democratic debate at the CFS. Discussions along the road to the main event – including proposals for a new Digital Council for Agriculture and reform of global ag-research centres (the 'CGIAR') – should be opened up to broad participation, rather than used to shape consensus among closed groups. The UN Climate Change and Biodiversity Conventions have been moving towards crucial conferences at the end of 2020, with agriculture in the spotlight. In light of postponements and de-prioritization of these summits, civil society vigilance becomes essential in order to prevent backroom deals being forced through - and to initiate positive steps. Now more than ever, fragmentation and governance capture must be avoided.

The International Panel of Experts on Sustainable Food Systems