



COVID-19 Discussion Papers

Strengthening Food Systems'

Resilience to COVID-19:

Initial Lessons from FOLU

Countries' Responses to

the Global Pandemic

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STRENGTHENING FOOD SYSTEMS' RESILIENCE TO COVID-19: INITIAL LESSONS FROM FOLU COUNTRIES' RESPONSES TO THE GLOBAL PANDEMIC

Caterina Ruggeri Laderchi, Tassilo Bismarck and Nayha Patel

Summary

The impact of COVID-19 has brought new attention to the vulnerabilities of food systems. This paper considers how such vulnerabilities have been addressed around the world by focusing on five FOLU countries. China, Colombia, Ethiopia, India and Indonesia are examined and compared because of their different food systems, economies and vulnerabilities to COVID-19 as well as the wealth of knowledge provided by FOLU country platforms in each of them.

This paper puts forward a simple framework for analysing food systems' resilience, focused on four dimensions: the ability to make food available, the ability to ensure access to food, the ability to support adequate livelihoods and nutritional outcomes, and natural resource resilience. It also suggests that the type of policy responses that governments might have been able to put in place crucially depends on public sector capacity to deliver.

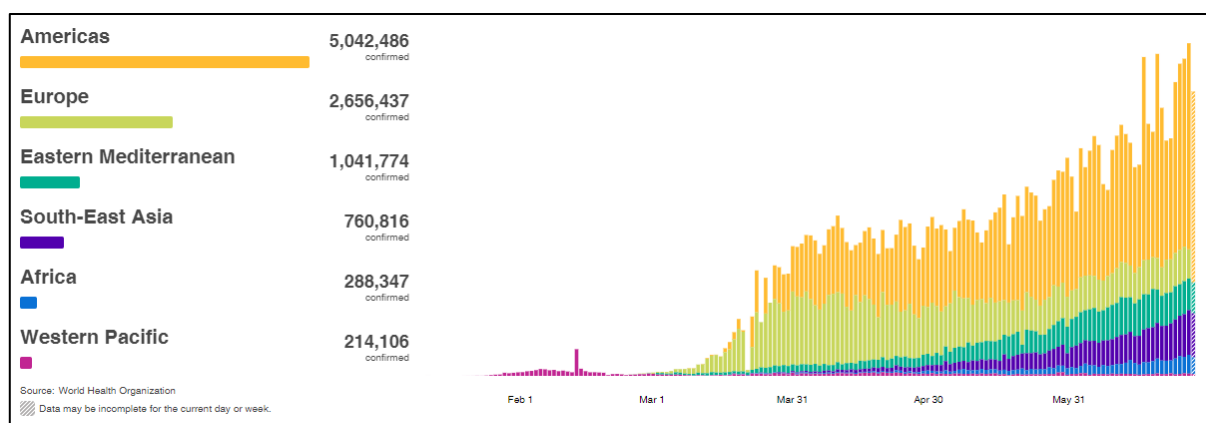
Looking across the experiences of FOLU countries, two aspects of food systems' resilience appear to have been prioritised by governments in their policy responses: the ability to make food available and the ability to support adequate livelihoods. Indeed, countries have tried, first, to address logistical bottlenecks focused on future planting seasons, while addressing more short-term impacts, such as labour for picking crops and ensuring that available produce reaches markets; second, to support incomes through social protection, in the form of social assistance measures, cash transfers, direct food transfers and other social safety nets. Access to food and the quality of food appear to have been relatively neglected, while natural resource resilience has not been addressed at all as part of the COVID-19 response. While this prioritisation might have been unavoidable, as governments directed scarce resources to their most immediate needs, the long-term need to strengthen food system resilience suggests they should commit to avoiding actively undermining that resilience. Donors, who might have long standing commitment in areas such as protecting nature, should also make sure that they do not renege on crucial commitments when natural capital is at its most vulnerable.

Looking ahead, and based on this analysis, four key elements are necessary to strengthen food systems resilience in the response to COVID-19. Those include: 1) Supporting stronger and more local supply chains, particularly for nutritious food. 2) Ensuring comprehensive trade alliances and cooperation. 3) Greater investment in and utilisation of digital technology. 4) Ideally leveraging stimulus and recovery programmes to create and support sustainable, environmentally beneficial food systems that also protect biodiversity.

1. INTRODUCTION

The first cases of what was later determined to be COVID-19 were reported by China to the World Health Organization (WHO) on 31 December 2019. Less than 3 months later, the WHO officially declared COVID-19 a pandemic. By this time, the highly infectious disease had infected at least 124,568 people, claimed 4,588 lives worldwide, brought large swathes of China to a standstill and disrupted global trade.¹ The virus quickly spread from China around the world creating COVID-19 hotspots first in Iran followed by Europe and the USA, with global deaths peaking around mid-April.² Most recently, Latin America and especially Brazil and Mexico have become the new global hotspots. The Americas now account for an outsized majority of all new COVID-19 cases and deaths.³ India is also seeing a rapid increase in cases of the virus, as are other parts of Asia.⁴ Africa meanwhile accounts for relatively few cases, although this too is increasing.⁵ As of 29 June, global confirmed cases of COVID-19 stood at over 10 million, with over 500,000 people having died from the virus (See Figure 1 for regional breakdowns), although the true figures are likely to be far higher because many cases are never confirmed.^{6,7}

Figure 1: COVID-19 Cases by Region



Source: WHO⁸

To understand the impact COVID-19 has had and will continue to have on food systems, this paper brings together early evidence on the impacts of the pandemic and the policy responses adopted in five countries, namely China, Colombia, Ethiopia, India and Indonesia. These are countries where FOLU has established country platforms to deliver a transformation towards inclusive, healthy and sustainable food systems. Focusing on these countries offers the advantage of being able to build onto a wealth of local knowledge through the country platforms, while covering a range of different types of food systems, economies, and vulnerabilities to COVID-19. While their experiences are very diverse, and in some cases compounded by unique vulnerabilities such as a locust plague in Ethiopia, looking across this variety of experiences offers useful pointers on the different sources of vulnerabilities and policy priorities for different types of countries.

Countries have used a range of measures including quarantines, lockdowns, travel bans, school closures, social distancing, test and trace and public information campaigns to name but a few, to control the spread of COVID-19 and to prevent their health systems from being overwhelmed. Most

countries seem to have taken relatively severe preventative and control measures. According to data from Oxford University's Blavatnik School of Government, stay-at-home requirements were one of the most widely used control measures along with others such as restrictions on public gatherings and controls on internal and external movement.⁹ Such measures have proven hard to enforce in countries characterised by high levels of informality and a low history of regulatory enforcement, such as many countries in Latin America.

The pandemic and the policy response are causing an unprecedented synchronised shock globally, with no part of the world exempt from adverse consequences. Global GDP is expected to fall by up to 6 percent in 2020 under a single-hit scenario, and up to 7.6 percent under a double-hit scenario, one of the deepest global recessions in decades.¹⁰ The International Labour Organization (ILO) estimates that working hours equivalent to 195 million full-time workers might be wiped out by the COVID-19 crisis.¹¹ Global trade in the second quarter is expected to see a quarter-on-quarter decline of 27 percent driven by falling demand.¹² The global trade in food has also suffered, partially because of trade restrictions countries put in place to protect their own food security, which in itself is a threat to food security of other countries.¹³ The World Food Programme (WFP) suggests that the number of people suffering from acute hunger could double, pushing it to nearly a quarter of a billion people by the end of 2020, due to the pandemic and reduced access to food.¹⁴ It has also been estimated that COVID-19 could generate 176 million additional poor at a US\$3.20/day poverty line.¹⁵

Certain countries such as Pakistan, India, Brazil and other parts of Latin American are seemingly unable to control the spread of the disease, while in other countries, where infections have been significantly reduced, lockdown measures are gradually being eased.¹⁶ Several of those countries that have recently emerged from lockdown still have a range of COVID-19 related policy measures in place.¹⁷ There is also a risk that lockdown measures might be reinstated in certain areas in the face of a second wave of infections as has happened in parts of China, South Korea and Japan.¹⁸

Stark differences exist across countries on the effectiveness of public health interventions and the impact that those have had on the economy.¹⁹ And while many of these policy responses in Asia and Europe have been effective in mitigating a growing health crisis, they do come at a cost. Their potential impacts on food systems have been a key source of concern, amplifying the direct impacts of the pandemic through reduced access to labour, disruptions in logistics, difficulties in procuring inputs for the planting of new crops and disruptions in the global trade. With over a quarter of the world's population employed in the agricultural sector these factors could have enormous consequences, threatening not only farmers' livelihoods but also future harvests.²⁰ The demand side will be impacted by income shocks caused by reduced jobs opportunities and unemployment posing significant risks for nutrition and access to quality diets. This will be further compounded by barriers to access certain food such as fruit and vegetables, especially for those who rely on street markets and urban transport to buy food.

Given this background, the rest of this paper is structured as follows: the next section offers a simple framework for thinking about the resilience of food systems to COVID-19 and how the needs to bolster such resilience in turn shapes the policy space in which governments can respond. Section 3 describes how FOLU countries have been affected so far and the policy responses they took. Section 4 then tries to make sense of these diverse experiences and seeks to draw lessons of broader application.

2. A SIMPLE FRAMEWORK FOR THINKING ABOUT FOOD SYSTEMS RESILIENCE AND THE POLICY SPACE IN THE FACE OF COVID-19

As discussed in a companion paper (see Annex 1) in the short run COVID-19's main impacts on food systems have been driven by logistical challenges on the supply side, and accessibility challenges for healthy diets on the demand side.²¹ In the longer term, the key effects of the pandemic are those that emerge as limited mobility affects the availability of inputs, labour and credit and therefore jeopardises food supplies, while protracted economic disruptions can affect the long-term nutritional status of large sections of the population.

This narrative is clearly going to play out differently in different contexts with a variety of impacts on numerous elements of food systems, and very heterogenous impacts on a range of segments of the population. A possible way of making sense of this plurality of impacts is to focus on four dimensions of food systems' resilience brought into relief by the pandemic which policy-makers want to strengthen: the ability to make food available, the ability to ensure access to food, the ability to support adequate livelihoods and nutritional outcomes, and natural resource resilience.

These four dimensions of food systems as they cope with COVID-19, together with the specific characteristics of local food systems and the public capacity to deliver, help define the policy space within which policymakers set their policies. Their ability to do so is also shaped by their situation before the crisis hit, as well as the strength of the pandemic²² and a whole host of other stress factors and vulnerabilities which might hinder governments' ability to respond.

2.1. Ability to make food available

Availability of food at times of crisis relates to the nature of the national and international supply chains a country depends on and the intensity of different factors of production in different stages of the supply chains.

Import dependency for cereals, which tend to be the main source of calories in most diets, will be a major factor in determining that vulnerability, particularly for countries relying on a limited set of source countries. In addition, and keeping in mind the broad categories of food systems recently suggested by Haddad, Fanzo et al. (2020),²³ the more "modern" a food system is and integrated in international supply chains, the more trade disruptions of different kinds (whether policy based or based in the challenges of modern logistics at the present time) will matter.

The sources of vulnerability related to national and local supply chains are likely to differ not only by food system but also by product. A plurality of factors will come into play, from reliance on labour

at different stages of production (the production factor most impacted by lockdown measures) to the availability of storage, transport and processing opportunities close to the areas of production:

- Fruits and vegetables, which play a key role in a healthy diet, have emerged as very vulnerable in supply chains in both the global North and the global South. Their vulnerability, due to the high labour intensity and perishability, is likely heightened in less “modern” contexts where local storage and cold chains are likely to be short in supply, and opportunities for local processing such as drying or canning are likely to be less available.
- National meat supply chains, in contrast, have emerged as particularly vulnerable in more modern food systems (those of high income countries such as Canada, Germany and the USA) due to the high concentration at the processing stages in high labour-intensive facilities where distancing measures are hard to implement.

2.2. Ability to ensure access to food and nutritional outcomes

Access to food is driven by the nature of the food environments, while nutritional outcomes depend on accessing healthy diets (in the right quantities). Both sets of factors have been significantly disrupted by COVID-19.

Street markets, for example, which in many countries represent the main regular providers of fresh fruits and vegetables, have often fallen victim to lockdowns, as have forms of public transport that many urban consumers use to reach those markets.

Together with the major livelihood impacts for large groups of the population discussed below, nutritional outcomes for those groups have drawn concerns. By disrupting specific supply chains and changing the nature of demand towards more caloric and longer shelf-life type of foods, the pandemic has affected the composition of diets for millions of people. Closures or changes in specific programmes, such as those that offer school meals to vulnerable children, have further contributed to those changes, particularly when schools had to resort to the provision of less healthy nutritional options to replace the freshly cooked meals they typically provide. The long-term health and developmental impacts of these nutritional deprivations raise concerns that the impacts of COVID-19 might lead to deeper “scarring”. These health and development losses will compound the negative impacts from the business closures and loss of employment opportunities that many expect will be the long-term legacy of this pandemic.

2.3. Ability to support adequate incomes and livelihoods

While initial assessments of the impacts of COVID-19 emphasised how the virus was a great equaliser, with all strata of society facing equal threats, as the pandemic unfolded the opposite became very clear. Some of the most vulnerable groups in the population are the ones that are most exposed, as they work in labour intensive sectors which have been most affected by decreased mobility, or as their jobs cannot be done from the security of lockdown. In some cases, even their ability to ensure the very basic conditions for protecting themselves from the pandemic (such as frequent handwashing or refusing to work in cramped conditions) has been missing.

Globally, those with less secure jobs, especially poorly paid daily labourers and those in the informal sector, are the ones that have been affected the most by the sudden collapse of established patterns of economic activity.²⁴ These groups have also often proven to be the hardest to reach with compensatory measures because of their location, the multiple challenges that beset them or even just the nature of most support programmes (some of which, for example, require beneficiaries to be officially registered in a given area to benefit).

2.4. Natural resource resilience

In times of crisis, poor and marginal communities fall back on natural resources to supplement their diets and make ends meet. There is evidence of increased exploitation of forest resources to meet subsistence, income and dietary shortfalls – and it is expected that this crisis will see increased encroachment into forests and natural habitats as vulnerable populations seek to cope.²⁵ For example, in Cameroon, the 2008–09 global economic crisis led to a decline in environmental indicators, a deterioration that once triggered was difficult to reverse.²⁶ Large increases in the consumption of bush-meat can also be expected, especially as resources for the protection of forests and other natural habitats have been greatly reduced by the fall in tourism revenues and more generally high pressures on fiscal resources in many forest rich countries. Beyond forests, fisheries are another important area likely to see increased exploitation.

Finally, the potential role of natural habitat conversion for the purposes of food security should not be underestimated. As countries try to shore up their own food security by increasing national production, the prospect of converting natural habitats, even those such as peatland which are of limited agricultural value, appear more appealing. This is in spite of possible increases in vulnerability to future disasters (e.g. wildfires) as well as the direct adverse impact on emissions, biodiversity and climate resilience that such actions might lead to.

Despite these different examples of possible negative impacts of further encroaching on nature, the literature suggests that avoiding harm to nature is intrinsic to both public health and food security. The COVID-19 pandemic and the potential for future pandemics are closely tied to environmental decline,²⁷ while deforestation-linked climate change will likely reduce and shift commodity production, resulting in supply and price volatility.^{28,29}

2.5. Public capacity to deliver as a key element shaping the policy response space

In the face of a synchronised shock such as a pandemic, when key elements of the response (from the provision of information to regulation of risky behaviours) are public goods, the ability of public authorities to deliver becomes key.³⁰

Without an attempt at reviewing the extensive literature on effective public governance, a few key “ingredients” of the administrative capacity recipe clearly stand out. One is the capacity and the credibility to make sound and well communicated information available. A second one is the ability to enforce one’s decision with an appropriate level of stringency. A third one is whether the skills and infrastructure (both in terms of programme design and delivery infrastructure – from mobile

apps to welfare offices) are in place to deliver on different government crisis response programmes (such as the so called “green channels” through which priority inputs and supplies reach rural areas or the introduction of large-scale safety nets). Arguably a final key element is having the fiscal resources to be able to deliver on the programmes to manage the pandemic health risk while protecting food systems.

3. THE COVID-19 PANDEMIC IN FOLU COUNTRIES

Based on the background of what governments may wish to ensure in terms of their food systems’ resilience, this section reviews available evidence on how FOLU countries are being impacted by COVID-19, the policy responses which have been put in place and the way local economies and food systems have been affected.

3.1. China

China, where the virus first started, confirmed its 100th case of COVID-19 to the WHO on 22 January.³¹ Since its initial outbreak, 85,204 cases and 4,648 deaths have been reported by China, though it is estimated that the total burden of deaths as a result of COVID-19 might be far higher.³² China has also seen second waves of COVID-19, having initially got the virus under control, resulting in entire cities and regions once again being placed under strict lockdowns.

China’s GDP fell by 6.8 percent in the first quarter,³³ according to the National Bureau of Statistics of China. Over the same period, total employment decreased by 175 million full-time jobs, of which 46 million were in the agriculture and food supply chain sectors, with agri-food processing and services particularly badly hit.³⁴ Many of these jobs will come back as the economy and export demand recovers but certain sectors such as restaurants and other related sectors will be slower to recover.³⁵ Many internal migrants who had returned to their rural communities for the Lunar New Year celebrations were then trapped there following the lockdown and suffered job losses. In April, China announced that it plans to loosen residency rules this year as it aims to move 100 million rural people into urban areas in an effort to ease labour shortages and increase consumption to help boost the slowing economy.³⁶

To combat the pandemic, social distancing, lockdowns, the shutting down of non-essential economic activities, and restrictions on the movement of people and food were imposed on 23 January in Wuhan. According to the OxCGRT tool these measures have been partially relaxed, but remaining restrictions vary markedly by location.³⁷ Specific cities and regions have seen the re-imposition of certain strict lockdown measures following a second wave of outbreaks. These new infection hotspots remain in the news, with the closing down of a major seafood and vegetable market in Beijing being the latest example of determined application of lockdown policies.

These restrictions impacted food supply chains across China. The shuttering of businesses resulted in reduced work for many in both rural and urban communities impacting incomes, with one IFPRI survey indicating that 92 percent of village informants reporting reduced income levels due to disease control measures.³⁸ Research indicates that the price of food was higher in rural areas than

it was in 2019 and that the quality of diets fell.³⁹ Transport restrictions, labour movement limitations and the shutting down of demand-side locations such as restaurants all impacted supply chains. Logistical and demand-side issues for certain produce such as fruit and vegetables resulted in much of it often remaining unpicked in farms. Reduced mobility might have also impacted the supply of inputs and planting of next season's crops potentially resulting in reduced yields.⁴⁰ The outbreak was especially harmful towards food and agriculture SMEs. Downstream enterprises have suffered disproportionately, as they are usually more labour-intensive, and faced declining consumer demand and shortages of raw materials, while not being able to rely on economies of scale.⁴¹

As China's dependence on food trade is limited, at least for cereals for which the country imports an estimated 3 percent of its total consumption,⁴² trade disruptions in food have not been a direct concern, and China did not impose trade restrictions on its exports. In contrast, trade restrictions on exports into China have been eased.⁴³ At the end of 2019, China was estimated to have rice, wheat and maize stocks of around 280 million tons, enough to meet one year of domestic demand.⁴⁴

The policy response to address the supply-side bottlenecks caused by COVID-19 has focused on supporting logistics, the availability of credit, the provision of inputs, regulating labour's mobility and market creation:

- Availability of credit: The Ministry of Agriculture and Rural Affairs (MARA) and the Agricultural Bank of China have signed an agreement to promote financial services in rural areas.⁴⁵ A key area of concern has been livestock production (especially pork)^{46,47} as the sector was already reeling from the impact of African Swine Fever which had affected the country's meat supplies. Support measures have focused on ensuring the availability of inputs and credit. Most large Chinese pork-producing companies are ramping up production levels to meet demand and in response to the government financial assistance programmes.⁴⁸
- Provision of inputs: Provincial governments have sought to guarantee the production and distribution of fertiliser to support the spring/summer harvests where lockdowns had impacted the supply of inputs.⁴⁹ The implementation of "green channels" allowed vehicles carrying these supplies as well as other food and agricultural products to pass through the COVID-19 checkpoints, toll stations and ports. The administration also sped up customs clearance and shortened quarantine and review periods for food imports.⁵⁰
- Regulating labour: China created a regional risk level system regulating labour in the agricultural sector. Regions would be deemed low-risk, medium-risk or high-risk with varying precautionary measures for farmers to resume work. These regions could then be further broken down with local level categorisations of green, yellow and red zones, each of which had differing health and safety requirements.⁵¹
- Market creation: MARA organised the first of 10 video conferences with participants from both production and sales bodies to achieve direct matching and transactions. This first conference enabled the sale of 50,350 tonnes of agricultural products valued at 335.8

million yuan (US\$47.3 million). The Chinese government also worked with e-commerce companies to engage with farmers via the online sale of agricultural products to and from farmers. Those companies simplified registration procedures and mobilised resources in procurement, logistics, operations and marketing to benefit both the farmer and consumers.⁵² Technical services to support farmers' production were provided in the fields as well as online. Training classes were streamed online and WeChat and phones were also used to give advice.⁵³ MARA also developed a big-data information platform called the National Agricultural and Rural Response to Coronavirus Epidemic Data Service Platform. It is designed to help policy-makers make timely decisions and covers a wealth of data including all aspects of market information, spring production information, national and regional coronavirus situation, prevention measures, public opinions and even mobile apps for online grocery shopping.⁵⁴

Measures have also been introduced to support the affordability of food among the dislocation and loss of income brought by the pandemic. China has extended the coverage of the Dibao programme (a minimum income guarantee) and other social protection programmes. The coverage of the Dibao programme was extended and increased, although increases vary depending on location and whether families have been affected by the epidemic. In addition, temporary living allowances for migrant workers in response to COVID-19 were guaranteed.⁵⁵ The provision of food aid has been delegated by the central government to local civil affairs departments to allocate food and other necessities.⁵⁶ Social insurance contributions have been waived for SMEs for five months and halved for large companies for three months.

3.2. Colombia

Colombia reported its first case of COVID-19 on 6 March and its 100th case only nine days later. To date, the country has now reported 88,591 confirmed cases, 2,939 of whom have died from the disease.⁵⁷ Even with a lockdown and other health measures, the pandemic has not yet been brought under control with the number of infections seeming to be on an upward trajectory.⁵⁸

Colombia's central bank warned in early May that due to COVID-19 related disruptions, quarantines and lower oil prices, GDP was expected to contract by between 2 and 7 percent in 2020, with GDP falling by between 10 to 15 percent on a year-on-year basis in the second quarter alone.⁵⁹

South America has been hit by COVID-19 later than other parts of the world, which explains why Colombia's most stringent virus-related government responses were introduced from around mid to late March. The OxCGRT tool currently gives Colombia a stringency index score of 87.04, slightly down from its peak at the end of April of 90.74. The country implemented early emergency response measures and declared a state of emergency, enacting quarantine and closing the country's borders.⁶⁰

The relatively recent arrival of COVID-19 and subsequent government measures makes it hard to estimate the impacts on the country's food systems. Both supply- and demand-side impacts are

expected as lockdowns limit the movement of people and farm activities and a slowdown in the economy impacts incomes. In addition, Colombia has a relatively high cereal import dependency ratio, making it vulnerable to international increases in the price of food.⁶¹ The vulnerability of the 1.8 million Venezuelan migrants fleeing the economic and political crises at home is a major concern both in terms of possible spread of the disease and their ability to access food.⁶² According to the WFP, COVID-19 has put more than half of Venezuelan migrants in Colombia at imminent risk of starvation.⁶³

To facilitate continued agricultural production, the government of Colombia launched a 1.5 billion-peso (US\$30 million) credit scheme – Colombia Agro Produce – to support farmers in the purchase of seeds and other inputs, offering smallholder farmers a preferential interest rate.⁶⁴ The government also lifted custom duties on maize, sorghum and soy to limit the input costs related to livestock feed.⁶⁵ In addition, the Ministry of Agriculture has authorised special measures to facilitate the transportation of inputs required for crop, fish and livestock production in addition to other basic necessities such as food and medicines by giving farmers passes allowing them to move more freely.⁶⁶

To facilitate access to food by poor and vulnerable populations, the existing social protection programmes were extended. The package worth US\$3.7 billion, around 1.5 percent of GDP, included cash transfers to the most vulnerable as well as VAT rebates for the poorest, tax deferral for companies and financing support for SMEs.⁶⁷ Cash payments were made to 2.6 million households that are beneficiaries of the anti-poverty Familias en Accion programme. Cash transfers were also made to the elderly and students. To support informal workers during this time, a new cash transfer programme has been set up – Solidarity Income – and includes the one-off payment of US\$108 to informal workers and their families.⁶⁸

Each of the country's regional government has responded differently and with varying degrees of success. Medellín's successful response, for example, allowed for cash transfers directly to the most vulnerable communities that had no means to buy food. The system implemented for these cash transfers were also used to track and collect data on the spread of COVID-19 helping to control it. Finally, a programme called Colombia Takes Care of Colombia has been launched, that aims to provide vulnerable members of society with food and key medical supplies during the lockdown, often working together with companies and food banks.⁶⁹

3.3. Ethiopia

Compared to many other countries, Ethiopia has been hit comparatively mildly by COVID-19, thus far. It reported its 100th case on 19 April, with the number of cases remaining relatively low, at 5,689 confirmed cases and only 98 deaths, although the data might suffer from some underreporting.⁷⁰

Ethiopia, which over the past decade has recorded some of the world's fastest growth rates, will see GDP growth slow to around 3 percent in 2020, down from 9 percent in 2019, largely due to COVID-19.⁷¹ An estimated 1.6 million to 4 million people are expected to lose their jobs and with average family sizes of around five people, this could ultimately affect 20 million people.⁷² Any disruptions in

agricultural production could have outsized effects on the country, as the sector employs around 66 percent of the country's workforce and accounts for roughly 35 percent of GDP.⁷³ It has been estimated that around 15 million rural households will lose US\$9 in income per month for at least the next six months.⁷⁴ The country is also suffering from a locust plague that is estimated to have devastated nearly 1.5 million hectares of land and cost the Ethiopia around US\$43.2 million due to loss of staple crops and livestock.⁷⁵ The combined impact of COVID-19 and the locust plague has resulted in predictions that up to 8 percent of agricultural products could be lost, worsening the country's food security situation and the livelihoods of millions of people.⁷⁶ Furthermore, it is expected that these impacts will see the number of children being treated for severe acute malnutrition increasing by 24 percent to 570,000 in 2020.⁷⁷

Deciding it could not afford a lockdown that would be hard to implement, economically costly and could negatively impact an already poor country, Ethiopia's government decided on a limited set of restrictions. Instead of a full-scale lockdown, it emphasised public messaging around hand washing and social distancing. This is reflected in the OxCGRT tool giving it a current stringency index score of 80.56, a level reached on 8 April and the highest it has been.⁷⁸ Currently it only 'recommends' people to stay-at-home and only quarantines international travellers from high-risk countries.⁷⁹

While a systematic assessment of the impact of COVID-19 on Ethiopia's food systems is not yet available, the pandemic is likely to impact diets of both urban and rural households as well as the livelihoods of farmers, hitting the poorest and most vulnerable farmers and consumers the hardest.⁸⁰ With poverty rates of around 26 percent in rural communities and 15 percent in urban locations, the impact of COVID-19 on Ethiopian food systems could be drastic.⁸¹ According to Ethiopia's Central Statistical Agency, the cost of living increased to 22.6 percent (the highest rate since 2014) following the confirmation of Ethiopia's first case of COVID-19.⁸² The inflation of food prices reached 26.9 percent, jumping from 25.1 percent.⁸³

Ethiopia is a net importer of food, and therefore is vulnerable to trade restrictions by other countries, declines in revenues and remittances and the risk of currency devaluation.⁸⁴ Evidence is already emerging in Addis Ababa of the decline in consumption of fruit, dairy and meat products.⁸⁵ On the supply side, there are early signs of a reduction in inputs use which could affect this year's main planting season, potentially leading to food shortages and price spikes in early 2021, in both urban and rural areas.⁸⁶ This would also result in a drop in income and livelihoods for those employed in agriculture who make up a majority of the country.⁸⁷ The limited availability of cold storage infrastructure is another key source of vulnerability for these supply chains and consumption declines in perishable food products such as fruit and vegetables that require refrigeration during transportation, have already been recorded.⁸⁸

Presented with the challenges of both the desert locust invasions and COVID-19, the Government of Ethiopia has focused on the distribution of farm inputs, including fertilisers, insecticides and machinery.⁸⁹ The Government of Ethiopia and World Food Programme (WFP) have also opened a new hub inside Addis Ababa's Bole International Airport to enable the transportation of COVID-19

supplies, equipment and humanitarian workers by air across Ethiopia and Africa.⁹⁰ On 3 April, the government allocated US\$293 million from a COVID-19 Multi-Sectoral Preparedness and Response Plan to agricultural sector support, nutrition, the protection of vulnerable groups, additional education outlays, logistics, refugees support and site management support.⁹¹ Other COVID-19 responses include the government working with the World Bank in scaling up the Urban Productive Safety Net programme to benefit more people with increased contributions. It will be implemented across 83 urban centres and is expected to benefit an estimated 826,444 people, up from 604,000 people last December.⁹²

Cash transfer support has been focused in urban locations through the Federal Urban Development Safety Net Programme.⁹³ Those have been supplemented by direct food aid programmes, again focused in cities such as Addis Ababa, Bahir Dar and Adama (Oromia).⁹⁴ Community volunteering was encouraged through the Each One, Feed One national challenge launched by the Prime Minister to support vulnerable populations.⁹⁵

3.4. India

India reported its 100th case of COVID-19 on 15 March and has so far had 548,318 confirmed cases and around 16,475 deaths according to the WHO.⁹⁶ Its infection trajectory is increasing rapidly with around 18,000 new cases daily, even after the imposition of an extremely strict lockdown.⁹⁷ COVID-19 hotspots are emerging in location such as Mumbai, Delhi and Ahmedabad. As in many other countries, infection rates and deaths are likely to be very under reported and only around 200,000 tests are carried out each day in a country whose population numbers over 1.3 billion.⁹⁸

Having grown at 6.1 percent in 2018, India's economy is set to slow down, with the World Bank estimating a contraction of 3.2 percent this fiscal year.⁹⁹ COVID-19 has seen an increase in unemployment of over 100 million people compared with the last fiscal year, an unemployment rate of 23.5 percent.¹⁰⁰ Poverty is also set to increase.¹⁰¹

India locked down hard and fast on 24 March, with little to no time for businesses or individuals to prepare. Stories abound of draconian measures being taken by police on those breaking lockdowns. The severity of the lockdown can be seen via the OxCGRT tool which gave the country a stringency score of 100 out of 100 for almost a month followed by a score of 96.30 for around two weeks. This has dropped in stages and now sits at 76.39 as the government tries to prioritise a flagging economy.¹⁰² Stringency measures vary by regions which have been split into green, orange and red zones based on the level of infections.

The most stringent mobility restrictions introduced as part of India's nationwide lockdown coincided with the harvest time for a variety of crops, leading many crops as well as other perishables going to waste. The sudden lockdown resulted in temporary workers losing their jobs and salaries forcing many to return home (often on foot following transportation restrictions) depriving many farms of labourers.¹⁰³ Impacts on any part of the agricultural supply chains are keenly felt as the sector accounts for around 43 percent of the labour force.¹⁰⁴ Food prices fluctuated, with the prices of many staples such as potatoes increasing heavily due to

transportation restrictions, panic buying and hoarding.¹⁰⁵ Consumption of less nutritious processed foods increased, and many processors saw output reduced by a lack of manpower.¹⁰⁶

Following initial concerns surrounding distribution of crops and inputs, the government took steps to facilitate the movement of cargo trains and trucks to enable the transportation of goods through states, ensuring farmers could access inputs and that agricultural produce reached the cities.^{107,108} The government has also extended the benefit of 2 percent Interest Subvention to banks and 3 percent Prompt Repayment incentive to all farmers for crop loans up to 300,000 rupees which were due between 1 March 2020 and 31 May 2020.¹⁰⁹ The government has helped to facilitate online commodity auctions through the launch of new features of the existing e-National Agriculture Market (e-NAM) online trading platform¹¹⁰ and a new farmer-friendly mobile application, Kisan Rath, to enable the trading of agricultural goods to continue.¹¹¹

India has long established programmes to improve access to food for the poor and vulnerable, and those have been very prominent in the government's response to COVID 19. The Public Distribution System has increased ratios in light of the pandemic, providing an additional 5kg of grains per person and 1kg of pulses per family per month free for two months in addition to the pre-existing entitlement of 5kg of rice or wheat. In addition, the Integrated Child Development Services and Mid-day Meals programmes were encouraged to continue to operate and provide meals to recipients at home.^{112,113}

Other social protection responses include increased cash transfers to the 35 million beneficiaries of the National Social Assistance Programme for widows, the elderly and the disabled.¹¹⁴ Other support measures include female account holders of the Pradhan Mantri Jan Dhan Yojana (a social assistance scheme), receiving Rs 500 per month for the next three months.¹¹⁵ In addition, the government has front-loaded the first instalment of the PM KISAN Yojana scheme to April 2020, providing 87 million farmers with Rs 2,000 (US\$26).¹¹⁶

As a result of the lockdown many internal migrant workers were initially left without an income and access to food or shelter. State-run relief/shelter camps were introduced to cater for this group whose livelihoods were suddenly disrupted.¹¹⁷ The One Nation, One Ration Card (ONORC) programme, which aims to make it possible to access benefits from the Public Distribution System irrespective of the location of residence, has been delayed (from 1 June to most likely March 2021). Such a programme would have helped provide support to migrants and their families, currently hindered by the PDS eligibility criteria based on official residence.^{118,119}

India has also deployed digital payments to deliver emergency cash transfer programmes. Around 200 million account holders of the Pradhan Mantri Jan Yojana programme, were able to receive the cash transfer as an immediate response.¹²⁰

3.5. Indonesia

The WHO reports that 54,010 cases of COVID-19 have so far been confirmed in Indonesia, which have resulted in the death of 2,754 people.¹²¹ On 15 March the 100th case of the virus was reported with the number of new cases increasing. The most recent data shows roughly over 1,000 new cases are

reported daily.¹²² Jakarta, the country's capital, and home to around 10 million people is one of the early outbreak hotspots.

The International Monetary Fund (IMF) predicts that Indonesia's GDP will fall from 5 percent in 2019 to 0.5 percent in 2020.¹²³ Concerns have been raised that the COVID-19 induced contraction of the economy has already erased the gains made in reducing poverty achieved over the past decade.¹²⁴ It is estimated that employment losses could range between 3 and 5 million, although the country did have relatively low unemployment levels (4 percent) before the crisis.^{125,126}

Indonesia did not introduce a national lockdown but did enforce social distancing rules and partial lockdowns in certain regions such as Jakarta.¹²⁷ Foreign arrivals were suspended, public events were cancelled and schools and workplaces were shut for two weeks in the capital. The OxCGR tool gave the country a stringency score of 80 at its peak, which lasted for around 10 days before it was relaxed. The score now sits at 68.06. The government's response was complicated by Ramadan, and the celebration of Eid-al-Fitr at its conclusion, which usually sees around 33 million people travelling to their families. The mass migration known as Mudik, was banned on 21 April but several thousand people had already departed and many more simply ignored the government and travelled anyway.¹²⁸

Food systems are expected to be significantly affected by a drop in access to food, due to a large contraction in the labour force, an estimated 40 percent of which works informally.¹²⁹ To date most food prices have remained stable since the COVID-19 pandemic started, though certain staples such as onions, garlic and sugar saw rapid increases in price.¹³⁰

Rice production in the first half of 2020 is estimated to be 13 percent lower than in the same period last year but food prices for most major commodities have not yet been affected as production still exceeded demand by 6.4 million tons by the end of June; there has also been reduced demand from social distancing measures, limits on movement and reduced consumer purchasing power.¹³¹ Indonesia's high levels of dependency on imported rice at 6.2 percent makes it vulnerable to the export restrictions introduced by some countries in South East Asia, which have been eased since April.¹³² Despite a surplus of rice supply at the beginning of the year, concerns exist about the supplies towards the end of the year and early next year due to variations in seasonal production, hence the fear around export restrictions.¹³³

As a result of Indonesia's import dependency on rice, the government has responded through the development of a longer-term food security strategy including the scoping of 164,000 hectares of existing peatland in central Kalimantan for rice cultivation.^{134,135} The plan, which is still under consideration, has been criticised as converted peatlands are not good agricultural land, while their conversion is potentially a source of increased vulnerability to wildfires and a source of emissions.

To facilitate access to food, existing social protection programmes have been scaled up. This includes the Keluarga Harapan Programme which has been expanded to cover a further 800,000 million families reaching a total of 10 million (15 percent of the population); the benefit level has

been doubled through to June 2020. New cash transfer schemes have been developed in response to COVID-19 to support residents outside of the Greater Jakarta region and village residents through the BLT Dana Desa scheme; and a total of 20–21 million households have been covered through these schemes. To support 2.4 million farmers categorised as “poor” for the next planting season, the government will distribute IDR 600,000 in cash (equivalent to US\$42.46).¹³⁶ The food assistance programme, Sembako, has been expanded to support 20 million low-income households, bringing the coverage of the programme to just short of 30 percent of the population.¹³⁷ There has also been collaboration between the government and state postal service PT Pos Indonesia to facilitate the organised distribution of staple food packages for people in Jakarta, Bogor, Depok, Tangerang and Bekasi.¹³⁸ To mitigate food shortages in regions with limited rice production, the National Logistics Agency (Bulog) has announced it will distribute 6.3 million tons of rice to those areas.¹³⁹

4. WHAT CAN BE LEARNT FROM THE POLICY RESPONSE TO COVID-19 IN FOLU COUNTRIES

FOLU countries represent a variety of food systems,¹⁴⁰ and their experiences reflect many of the policy challenges that other low- or middle-income countries would face. Examining their experiences, it seems that the policy measures adopted by these countries are a mix of those measures China had experimented with first. Those have been two-pronged: addressing logistical bottle necks and supporting incomes.

Addressing logistical bottlenecks has focused mostly on future planting seasons, while addressing more short-term impacts, such as picking crops already in the fields and ensuring that available produce reaches markets, were activities that were more difficult to organise when the epidemic first hit. Uncertainties on the vectors of the pandemic also clouded initial reactions, with concerns about the role poultry might play, for example, blocking the sale of poultry (and leading to large-scale destruction of chickens and hatchlings) and more recently triggering a salmon boycott in China.¹⁴¹

Efforts to support livelihoods have been heavily tilted towards social protection. Without the furlough schemes and business support measures prevalent in high income countries, many people have lost their jobs or have had to disregard social distancing measures, especially for those in the informal service sector (the majority of urban dwellers in all countries other than China). Examples exist of special programmes being introduced for target groups, such as informal sector workers in Colombia or migrants in both India and China. In India, their plight has been addressed through ad hoc social assistance measures. Ethiopia has been quite exceptional in the Sub-Saharan African context in being able to rely on a well-established urban safety net. Interestingly, India and to a much lesser extent Ethiopia, continue to provide direct food transfers (in the case of Ethiopia as part of humanitarian response or through minor programmes run by private foundations) as opposed to solely relying on cash transfers.

While emphasis has been placed on food availability and sustaining incomes, far less weight has been put on supporting nutritional outcomes of vulnerable groups or ensuring access to nutritious

food such as fruits and vegetables. Making urban markets safe (other than by closing them, as happened in some parts of Colombia and most famously as it happened to Chinese wet markets to address the spread of zoonotic diseases) has also received less attention, not least as it is not easy to do.¹⁴²

The long-term resilience that comes from protecting nature has not been part of the policy response to date – quite the contrary. Plans such as the one considered by Indonesia to convert peatland to rice production, illustrate the difficulties of integrated risk considerations (for example, on heightened risks from natural disasters) into the analysis of solutions for important concerns such as food security.

The prioritisation of government actions towards addressing challenges of food production and income support might have been unavoidable in these unprecedented times, as governments directed scarce resources to their most immediate needs. Nevertheless, the long-term need to strengthen food system resilience suggests governments should commit to avoiding actively undermining that resilience by weighting the full economic costs of further encroachment on nature. Donors, who might have long standing commitment in areas such as protecting nature, should also make sure that they do not renege on crucial commitments when natural capital is at its most vulnerable.

Finally, it is worth underscoring how the experience of the FOLU countries highlights the importance of the public sector's capacity to deliver on its priorities. Given the need for a rapid response, most of the tools adopted to deal with the pandemics were tools that were available and well established before the crisis hit.

The existence of well-established safety nets that could be scaled up in terms of coverage and adequacy has already been referred to – but the experience of running them, particularly those focused on cash transfers, has clearly propelled the creation of new programmes to address new vulnerabilities caused by the pandemics in most of the FOLU countries. Colombia was able to introduce new programmes as well as scaling up existing ones as it has long honed the capacity to deliver cash transfers. India, which is trying to modernise its extensive but often disjointed safety net systems, for example not having an online programme that delivers benefits to individuals irrespective of their area of residence, had to address the challenges of stranded migrants due to the lockdown.

The spread of digital technology, key to gather real-time data for risk assessments, the delivery of social assistance programmes and interventions that would replace physical markets in facilitating the meeting of demand and supply, has most probably been the primary determinant of the “policy space” available to policy-makers. Looking, for example, at the challenges of ensuring that inputs reached farmers, it is remarkable that China could couple some “old economy feature” such as directing public producers of fertiliser towards certain customers (a policy also adopted by Ethiopia's government) and sophisticated digital technologies to ensure the movement of goods through “green channels”. Digital auctions to allow farmers to meet customers despite the

vanishing of physical markets were also used in China as well as India. Interestingly, on a smaller local scale, in the Colombian city of Medellín, people used similar online auctions to connect with local producers and create new, shorter supply chains. One such initiative was *Compra Local* (local purchase), which connects producers to farmers' markets online, selling 8.2 tons of food from local producers in its first three days.¹⁴³ The sophisticated ways of regulating labour mobility adopted by China and India reflect not just the intensity of the lockdown measures but also the ability to identify risk at a spatially disaggregated level, based on data availability.

These considerations suggest that, as it is typically the case, being prepared helps in dealing with a crisis. While the shape, form and scale of crises such as the present one are clearly unknown, there appears to be scope for identifying “no regret” investments that will help strengthen resilience.

Obvious no regret investments include investing in safety nets and universal basic services, and renewing efforts to protect nature, which have broader systemic implications beyond food systems.

In addition, at least four sets of interventions would strengthen food systems' structural features:

1. Supporting stronger and more local supply chains, particularly for the nutritious fruit, vegetables and proteins that are key to a healthy diet. Online platforms connecting to local growers, local planning and urban agriculture, and cultured food all have a role to play here.¹⁴⁴
2. Comprehensive trade alliances or cooperation structures to ensure that resources are pooled to address food security concerns at times of crises also fall in the category of no regret investments. More systematic learning from the experience of East Asia regional cooperation around rice, put in place after the 2008 food crisis, could be a good first step.
3. Investments in digital technology must also be a key plank of this approach, given that it can help deliver services (particularly schooling) remotely, mediate for the lack of physical markets and facilitate the mobility of goods by enhancing traceability. It also enhances diversification and economic opportunities in rural areas, shortens supply chains and provides the infrastructure for data gathering among many other valuable roles.
4. Protecting nature by ensuring at least that no further encroachment and degradation takes place also remains an important priority at times of crisis. In addition to this “do no harm” approach, policy-makers should take advantage of the opportunity offered by stimulus programmes to ensure that they create and support sustainable, environmentally beneficial food systems that also protect biodiversity.¹⁴⁵ Nature-positive incentives, natural capital accounting, corporate disclosure, pricing environmental externalities, R&D spending and subsidy reform are all areas that must be considered.¹⁴⁶

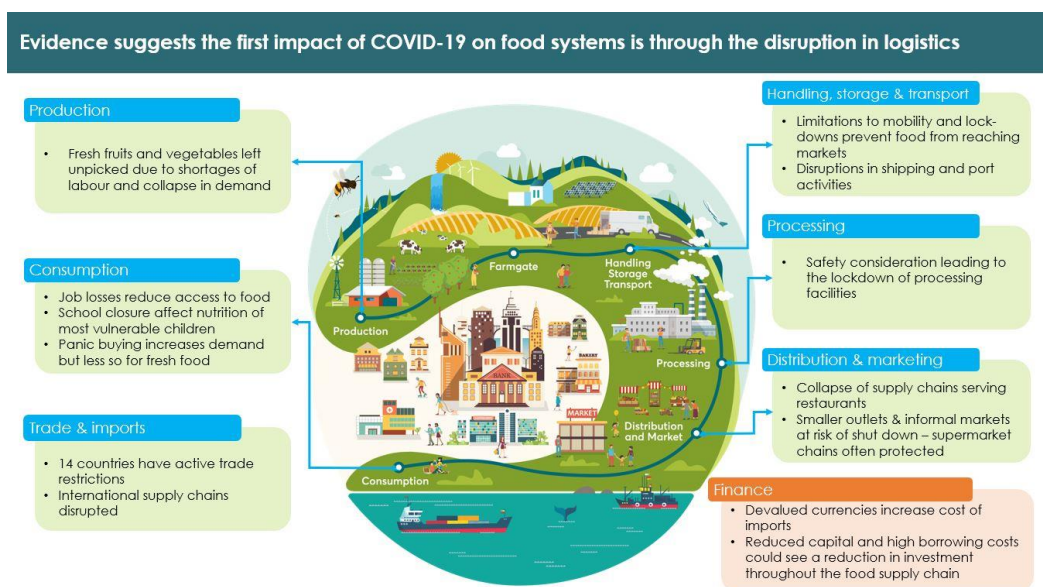
Undeniably, however, and underlying all these interventions, is the provision of the most important public good of all: a commitment to long-term thinking based in science and clear-eyed risk assessments. Through clear priorities and coherent incentives, governments could play a key role

in aligning incentives across the private and the public sector, in support of the transformation of the economy and food systems towards greater resilience.

ANNEX 1

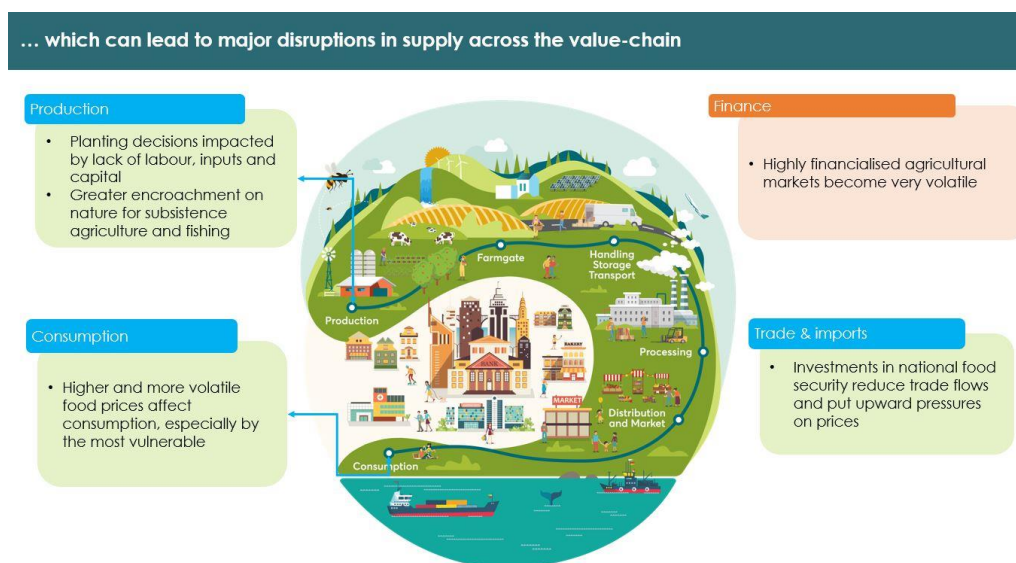
As discussed in a companion note, from which this Annex borrows, in the short run COVID-19 is mostly a crisis of logistics on the supply side, where bottlenecks caused by restrictions on movement impact supply chains, particularly those where producers rely on hired-in labour or seasonal migrants. On the demand side, reductions in income through job losses caused by lockdowns negatively impact consumers' ability to afford the necessary quantity and quality of food they require, while the closure of schools also impacts children that rely on them for meals.

Exhibit 1:



As Exhibit 2 shows, as the pandemic continues to spread and the measures that reduce mobility continue to be implemented, food systems' logistical challenges are likely to turn into a food crisis, driven by lower production. The unavailability of inputs and labour, higher and more volatile food prices and persistent lack of income are key challenges for access to food by the most poor and vulnerable. These impacts will be further heightened if trade restrictions continue to be imposed, proving especially damaging to import dependent countries.

Exhibit 2:



REFERENCES

¹ [WHO – Coronavirus Disease Dashboard](#)

² [WHO – Coronavirus Disease Dashboard](#)

³ [WHO – Coronavirus Disease Dashboard](#)

⁴ [WHO – Coronavirus Disease Dashboard](#)

⁵ [WHO – Coronavirus Disease Dashboard](#)

⁶ All confirmed cases and deaths of COVID-19 in this paper are as of 29 June 2020, as stated by the WHO

⁷ [WHO – Coronavirus Disease Dashboard](#)

⁸ [WHO – Coronavirus Disease Dashboard](#)

⁹ [Blavatnik – Coronavirus Government Response Tracker](#)

¹⁰ [OECD – The global outlook is highly uncertain](#)

¹¹ [ILO – COVID-19 causes devastating losses in working hours and employment](#)

¹² [UNCTAD – COVID-19 trigger marked decline in global trade](#)

¹³ As of 29 June 2020, seven countries have export restrictions in place: [IFPRI – COVID-19 Food Trade Policy Tracker](#)

¹⁴ [WFP – Covid-19 will double number of people facing food crises unless swift action is taken](#)

¹⁵ [World Bank – Projected poverty impacts of COVID-19](#)

¹⁶ India did implement a strict lockdown but seemingly ended it while infection rates were still growing: [WHO – Coronavirus Disease Dashboard](#). (Using data downloaded on 29 June 2020) [Washington Post – the largest lockdown in the world is ending](#)

¹⁷ Max Roser, Hannah Ritchie, Esteban Ortiz-Ospina and Joe Hasell (2020). "Coronavirus Pandemic". Published online at: [OurWorldInData.org](#).

¹⁸ [NYT – After New Coronavirus Outbreak, China Imposes Wuhan-Style Lockdown](#)

[Guardian – South Korea re-imposes some coronavirus restrictions after spike in new cases](#)

[Telegraph – Japanese island suffering second wave of coronavirus after lifting lockdown too early](#)

¹⁹ Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., Fuller, G. Woelm, F., (2020). Sustainable Development Report 2020. Cambridge: Cambridge University Press (Unpublished)

²⁰ [World Bank IBRD](#)

²¹ These challenges are clearly intertwined with the shifts in the quantity and quality of demand compounding the challenges producers face in ensuring that the food demanded becomes available. Notable examples linked to the large demand shift from food retail outlets (such as restaurants and bakeries) to domestic consumption include: the difficulties livestock producers face as domestic consumers overwhelmingly chose cheaper cuts than those that restaurants would buy; or the problems in making flour available in sizes that appeal to domestic consumers, given that packing equipment is mostly designed to produce the larger bags that commercial customers would typically buy. The inability of supply to readily adjust to new types of demand causes inefficiencies and waste, thereby reducing the effective availability of food as well as producers' profits.

²² While the strength of the pandemic can hardly be seen as exogenous, as initial government responses play a role in determining it, other factors such as the age composition of the population might play a role in determining the severity of the pandemic. Having pandemic responses in place as was the case of several East Asian countries due to previous exposure to SARS, or in many SSA countries due to the exposure to Ebola, is arguably exogenous.

²³ No classification can do full justice to the complexities of food systems, yet it is possible to identify broad categories based on common patterns in food supply chains and food environments that exist across countries. A recent effort in this direction has identified five broad categories of countries identified in terms of their "modernity", which include: "rural and traditional", "informal and expanding", "emerging and diversifying", "modernising and formalising", and "industrialised and consolidated". More in-depth descriptions and definitions of these five categories can be found on the [Food Systems Dashboard](#).

²⁴ Interestingly, while less "modern" food systems might have been less able to deliver food to urban areas, as discussed above, farmers more reliant on local demand might have been affected less by the downward pressures on farm gate prices brought about by the breakdown in logistics. Which of these two effects might have been more important is an empirical question which might well have varied by context and product.

²⁵ [FAO – The impacts of COVID-19 on the forest sector: How to respond?](#)

- ²⁶ [International Forestry Review – Global financial crisis impacts forest conservation in Cameroon](#)
- ²⁷ WWF – Beyond boundaries: Insights into emerging zoonotic diseases, nature, and human well-being. (Unpublished internal science brief)
- ²⁸ For example, [Caetano et al. \(2018\)](#) estimate that over 70 percent of the Brazilian territory could lose environmental suitability for soybean cultivation under future climate change scenarios, with significant impacts for global supply. Soybean production could be highly threatened in the future, with significant impacts for global supply
- ²⁹ [Seymour, F and Busch, J. 2016. Why Forests? Why Now? The Science, Economics, and Politics of Tropical Forests and Climate Change. Washington DC: Center for Global Development.](#)
- ³⁰ Note that this framing is kept broader than the ability of health systems to react both because many of the economic and social impacts of the pandemic go well beyond their health impacts, and because countries' health systems preparedness has been difficult to assess correctly. As highlighted by [Sachs et al. \(2020\)](#), countries that were ranked at the top of a health preparedness index released in 2019 such as the US and the UK have experienced some of the highest rates of infection globally.
- ³¹ [WHO – Coronavirus Disease Dashboard](#)
- ³² [WHO – Coronavirus Disease Dashboard](#)
- [BBC – Coronavirus: Europe 'wary of confronting China over deaths'](#)
- ³³ [National Bureau of Statistics of China](#)
- ³⁴ Zhang et al. in Shenggen Fan, (forthcoming in "Review of Agrarian Studies") – Agriculture, Food and Nutrition Security Under Covid-19: Lessons from China
- ³⁵ Shenggen Fan, (forthcoming in 'Review of Agrarian Studies') – Agriculture, Food and Nutrition Security Under Covid-19: Lessons from China
- ³⁶ [Reuters – China to ease internal migration curbs this year to lift virus-hit economy](#)
- ³⁷ [Blavatnik – Coronavirus Government Response Tracker](#)
- ³⁸ [IFPRI – Lockdowns are protecting China's rural families from COVID-19, but the economic burden is heavy](#)
- ³⁹ [IFPRI – Lockdowns are protecting China's rural families from COVID-19, but the economic burden is heavy](#)
- ⁴⁰ [FAO – Local food systems and COVID-19: A look at China's Responses](#)
- ⁴¹ Shenggen Fan, (forthcoming in "Review of Agrarian Studies") – Agriculture, Food and Nutrition Security Under Covid-19: Lessons from China
- ⁴² [IFPRI – COVID-19 Food Trade Policy Tracker](#)
- Cereal import dependency ration 2012, 3-year average (cereal imports minus imports as a percent of total domestic supply)
- [Food Systems Dashboard](#)
- ⁴³ Shenggen Fan, (forthcoming in "Review of Agrarian Studies") – Agriculture, Food and Nutrition Security Under Covid-19: Lessons from China
- ⁴⁴ Zhang et al. in Shenggen Fan, (forthcoming in "Review of Agrarian Studies") – Agriculture, Food and Nutrition Security Under Covid-19: Lessons from China
- ⁴⁵ [IFPRI – COVID-19 Policy Response Portal](#)
- ⁴⁶ [Ministry of Agriculture and Rural Affairs – China steps up resumption of livestock, poultry farming](#)
- ⁴⁷ [Ministry of Agriculture and Rural Affairs Press Release](#)
- ⁴⁸ [The Pig Site – Genesis Global Market Report: China, May 2020](#)
- [Xinhua – China pledges financial support for pork production](#)
- ⁴⁹ [FAO – Local food systems and COVID-19: A look into China's responses.](#)
- ⁵⁰ [FAO – Local food systems and COVID-19: A look into China's responses](#)
- Shenggen Fan, (forthcoming in 'Review of Agrarian Studies') – Agriculture, Food and Nutrition Security Under Covid-19: Lessons from China
- ⁵¹ [FAO – Local food systems and COVID-19: A look into China's responses](#)
- ⁵² [FAO – Local food systems and COVID-19: A look into China's responses](#)
- ⁵³ [FAO – Local food systems and COVID-19: A look into China's responses](#)
- ⁵⁴ [FAO – Local food systems and COVID-19: A look into China's responses](#)
- ⁵⁵ [Gentilini et al \(2020\). Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures.](#)

- ⁵⁶ [IFPRI – COVID-19 Policy Response \(CPR\) Portal](#)
- ⁵⁷ [WHO – Coronavirus Disease Dashboard](#)
- ⁵⁸ [WHO – Coronavirus Disease Dashboard](#)
- ⁵⁹ [Reuters – UPDATE 1-Colombia’s economy to contract up to 7% in 2020 – central bank](#)
- ⁶⁰ [World Bank – Colombia overview](#)
- ⁶¹ [Cereal import dependency ration 2012, 3-year average \(cereal imports minus imports as a percent of total domestic supply\) Food Systems Dashboard](#)
- ⁶² [OCHA Reliefweb – Covid-19 – Colombia@ Venezuelan refugees live again in stability](#)
- ⁶³ [OCHA Reliefweb – Covid-19 – Colombia@ Venezuelan refugees live again in stability](#)
- ⁶⁴ [Ministry of Agriculture and Rural Development – Government launches “Colombia Agro Produce” credit line for \\$1.5 billion to guarantee liquidity for agricultural producers.](#)
- ⁶⁵ [Ministry of Agriculture and Rural Development – Ministry of Agriculture announces suspension of tariffs on corn ,sorghum and soybeans to reduce production costs in the agricultural sector](#)
- ⁶⁶ [Ministry of Agriculture and Rural Development – Colombians will not be short of food. Government guarantees production, mobilization, and supply of food](#)
- [Cirad – Covid-19 and food security In Colombia](#)
- ⁶⁷ [KPMG – Colombia: Government and institution measures in response to COVID-19](#)
- ⁶⁸ [Gentilini et al \(2020\). Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures](#)
- ⁶⁹ [Colombia cuida a Colombia](#)
- ⁷⁰ [WHO – Coronavirus Disease Dashboard](#)
- ⁷¹ [Fitch Ratings – Locusts Create Additional Downside Risk for East African Sovereigns](#)
- ⁷² [UNICEF – In Ethiopia, protecting vulnerable families becomes more urgent as COVID-19 takes it economic toll](#)
- ⁷³ [World Bank IBRD](#)
- [Fitch Ratings – Locusts Create Additional Downside Risk for East African Sovereigns](#)
- ⁷⁴ [Jobs Creation Commission Ethiopia](#)
- ⁷⁵ [World Bank – WB Provides Emergency Support to Help Ethiopia Manage the Threat Posed by the Desert Locust](#)
- [Fitch Ratings – Locusts Create Additional Downside Risk for East African Sovereigns](#)
- ⁷⁶ [Borekena – Desert Locust wreaking havoc to Ethiopia’s agricultural productivity](#)
- ⁷⁷ [UNICEF – Mounting worries that COVID-19 could lead to increase in child malnutrition](#)
- ⁷⁸ [Blavatnik – Coronavirus Government Response Tracker](#)
- ⁷⁹ <https://ourworldindata.org/policy-responses-covid>
- ⁸⁰ [IFPRI Impacts of the Covid-19 crisis on vegetable value chains in Ethiopia](#)
- ⁸¹ [World Bank – Ethiopia Poverty Assessment](#)
- ⁸² [Further Africa – Urban Agriculture in Addis Ababa to ease COVID-19 impact](#)
- ⁸³ [Further Africa – Urban Agriculture in Addis Ababa to ease COVID-19 impact](#)
- ⁸⁴ [NYT – After the Pandemic, a Global Hunger Crisis](#)
- ⁸⁵ [IFPRI – Survey suggests rising risk of food and nutrition insecurity in Addis Ababa Ethiopia. As COVID-19 restriction continue](#)
- ⁸⁶ [World Bank – Ethiopia Poverty Assessment: What can it tell us about likely effects of the coronavirus](#)
- [IFPRI Impacts of the Covid-19 crisis on vegetable value chains in Ethiopia](#)
- ⁸⁷ [World Bank IBRD](#)
- ⁸⁸ [IFPRI Impacts of the Covid-19 crisis on vegetable value chains in Ethiopia](#)
- ⁸⁹ [IFPRI – COVID 19 Policy Response Portal](#)
- ⁹⁰ [CNBC Africa – Coronavirus – Ethiopia: World Food Programme \(WFP\) launches Ethiopian Government-supported Air Hub for COVID-19 response](#)
- ⁹¹ [UNCDF – Ethiopian Government on the Forefront of COVID-19](#)
- ⁹² [Addis Fortune – Ethiopia Scales up Urban Productive Safety Net Project](#)
- ⁹³ [IFPRI – COVID 19 Policy Response Portal](#)
- ⁹⁴ [Gentilini et al \(2020\) Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures](#)

- ⁹⁵ [IFPRI – COVID 19 Policy Response Portal](#)
- ⁹⁶ [WHO – Coronavirus Disease Dashboard](#)
- ⁹⁷ [WHO – Coronavirus Disease Dashboard](#)
- ⁹⁸ [Our World In Data – India Coronavirus Pandemic](#)
[World Bank IBRD](#)
- ⁹⁹ [Bloomberg – World Bank Says Indian Economy to Contract 3.2% in FY21](#)
- ¹⁰⁰ [Centre for Monitoring Indian Economy](#)
- ¹⁰¹ [World Bank – The Impact of Covid-19 on global poverty](#)
- ¹⁰² [Blavatnik – Coronavirus Government Response Tracker](#)
- ¹⁰³ [FAO Local food systems and COVID-19: A glimpse on India's response](#)
- ¹⁰⁴ [Food Systems Dashboard](#)
- ¹⁰⁵ [IFPRI – Food Security Portal](#)
[FAO Local food systems and COVID-19: A glimpse on India's response](#)
- ¹⁰⁶ [FAO Local food systems and COVID-19: A glimpse on India's response](#)
- ¹⁰⁷ [Ministry of Home Affairs – Press Release](#)
- ¹⁰⁸ [Ministry of Railways – Press Release](#)
- ¹⁰⁹ [IFPRI – COVID 19 Policy Response Portal](#)
- ¹¹⁰ [Ministry of Agriculture and Farmers Welfare – Union Agriculture Minister launches new features of e-NAM platform](#)
- ¹¹¹ [Ministry of Agriculture and Farmers Welfare – Agriculture Minister Shri Narendra Singh Tomar Launches 'Kisan Rath' Mobile App to facilitate transportation of food grains and perishables during lockdown](#)
- ¹¹² [Gentilini et al – Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures](#)
- ¹¹³ <https://indianexpress.com/article/india/economic-relief-package-break-up-five-tranches-6414076/>
- ¹¹⁴ [Gentilini et al – Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures](#)
- ¹¹⁵ [Government of India – Press Information Bureau](#)
- ¹¹⁶ [Government of India – Press Information Bureau](#)
- ¹¹⁷ [Ministry of Home Affairs – SOPs for Movement of stranded migrants, with states/UTs where they are currently located, in wake of COVID-19 pandemic](#)
- ¹¹⁸ [IFPRI – Editorial: One Nation one ration card](#)
- ¹¹⁹ [Indian Express – What is the 'One Nation, One Ration Card' system?](#)
- ¹²⁰ [Gentilini et al \(2020\) Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures](#)
- ¹²¹ [WHO – Coronavirus Disease Dashboard](#)
- ¹²² [WHO – Coronavirus Disease Dashboard](#)
- ¹²³ [IMF Data Mapper](#)
- ¹²⁴ [World Food Programme – Indonesia – Covid-19: Economic and food security implication](#)
- ¹²⁵ [World Bank IBRD](#)
- ¹²⁶ [The high risk of falling into poverty that characterised the country before the crisis hit, are highlighted by the World Bank's estimates that out of 267 million people 25 million people \(9.4 percent\) lived below the poverty line with a further 21 percent vulnerable to falling into poverty. World Bank – The World Bank in Indonesia](#)
- ¹²⁷ [Bloomberg – Indonesia weighs easing lockdown from June to save economy](#)
- ¹²⁸ [Economist – As Covid-19 spreads, Indonesia's president has an unhappy Eid](#)
- ¹²⁹ [OCHA Reliefweb – Indonesia: COVID-19 Economic and food security Implications](#)
- ¹³⁰ [OCHA Reliefweb – Indonesia: COVID-19 Economic and food security Implications](#)
- ¹³¹ [World Food Programme – Indonesia – Covid-19: Economic and food security implication](#)
- ¹³² [World Food Programme – Indonesia – Covid-19: Economic and food security implication](#)
- ¹³³ [World Food Programme – Indonesia – Covid-19: Economic and food security implication](#)
- ¹³⁴ [World Food Programme – Indonesia – Covid-19: Economic and food security implication](#)
- ¹³⁵ [Cabinet Secretariat of the Republic of Indonesia](#)
- ¹³⁶ [Cabinet Secretariat of the Republic of Indonesia](#)

¹³⁷ [Gentilini et al \(2020\) Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures](#)

¹³⁸ [Cabinet Secretariat of the Republic of Indonesia](#)

¹³⁹ [Cabinet Secretariat of the Republic of Indonesia](#)

¹⁴⁰ In terms of the [Haddad, Fanzo et al. \(2020\)](#) food system classification, Ethiopia and India are defined as having “rural and traditional” food systems, Indonesia to have food systems which are “informal and expanding”, Colombia’s food systems are defined as “modernising and formalising” and finally China is defined as “emerging and diversifying”.

¹⁴¹ [Global Times – China’s coronavirus-triggered salmon boycott could lead to industrial losses of \\$100million](#)

¹⁴² The ongoing debate in Indonesia about increasing the physical distance between sellers by staggering stall openings on alternate days, which verges on the unsustainable nature of an “open every second day” business model, points to the difficulties of meeting efficiency and safety in these contexts. Alternating days of operation would result in large amounts of produce going to waste.

¹⁴³ [FAO – City Region food systems in Medellin, Colombia](#)

¹⁴⁴ This is an area where governments can build strategic alliances with the private sector, both in deploying digital solutions but also in understanding and addressing supply chain issues.

¹⁴⁵ For further reading on environmental conditionality and placing Sustainable Development Goals at the heart of the COVID-19 recovery, please see: Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., Fuller, G. Woelm, F, (2020): *Sustainable Development Report 2020*. Cambridge: Cambridge University Press (Unpublished)

¹⁴⁶ World Economic Forum (forthcoming) *Future of Nature and Business Policy Companion: Recommendations for Policy-makers to Reset towards a New Nature Economy*