



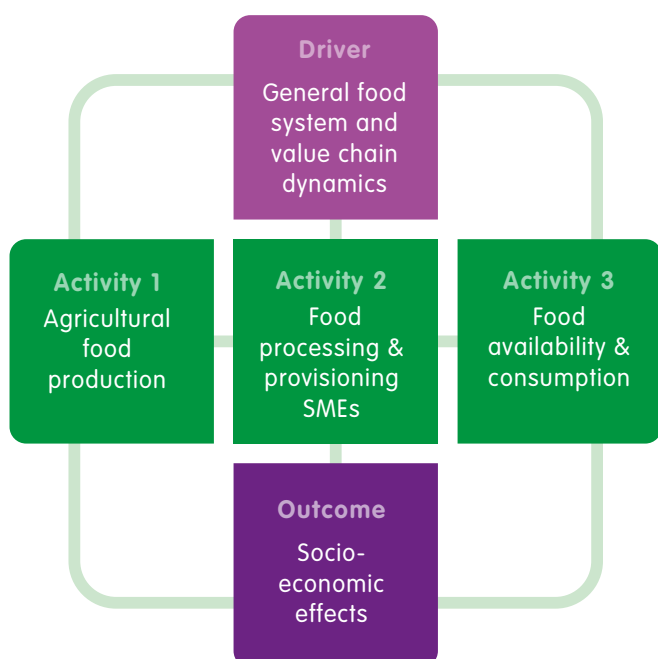
Understanding vulnerabilities and resilience strategies in the context of COVID-19



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This is the third review in a series that provides an overview of literature and other resources covering COVID-19 and its impacts on agriculture in sub-Saharan Africa.

The first and second reviews provided a comprehensive overview of the reported impacts in five main areas (see figure below). This third edition aims to dig deeper into what the COVID-19 crisis reveals about resilience in agricultural value chains, by understanding how actors in the value chain have adapted to the impacts of COVID-related restrictions.



What has COVID-19 taught us so far about the vulnerabilities of supply chains? Which effective coping strategies can be observed in different actor groups? We draw on CGIAR's first global assessment of the impact of COVID-19 on food security as well as IFPRI's recently published Global Food Policy Report 2021. In addition, on-the-ground experiences from SNV's projects are also included.

Key take-aways

- The first retrospective COVID-19 impact assessment on a global scale ([Béné et al. 2021](#)) reveals food accessibility, employment and associated purchasing power have been most negatively impacted by the restrictions.
- The crisis has revealed some key vulnerabilities in food value chains that proved less resilient to the impacts of the COVID-19 response measures.
- Actors in food value chains have responded to these vulnerabilities with short-term coping strategies, such as adapting crops to whatever seeds were available, and forward-looking adaptive responses, such as digitalization.
- Insights into coping strategies from SNV's HortInvest project in Rwanda show mostly short-term immediate coping strategies were applied to mitigate the impacts on the value chain. This also suggests the importance of building long-term resilience among farmers and agri-entrepreneurs, by equipping them with the skills needed to anticipate, plan for, and respond to shocks, as well as to adapt their business models.
- The next review will discuss responses by development practitioners and other key actors that could cater to this need for building resilience.

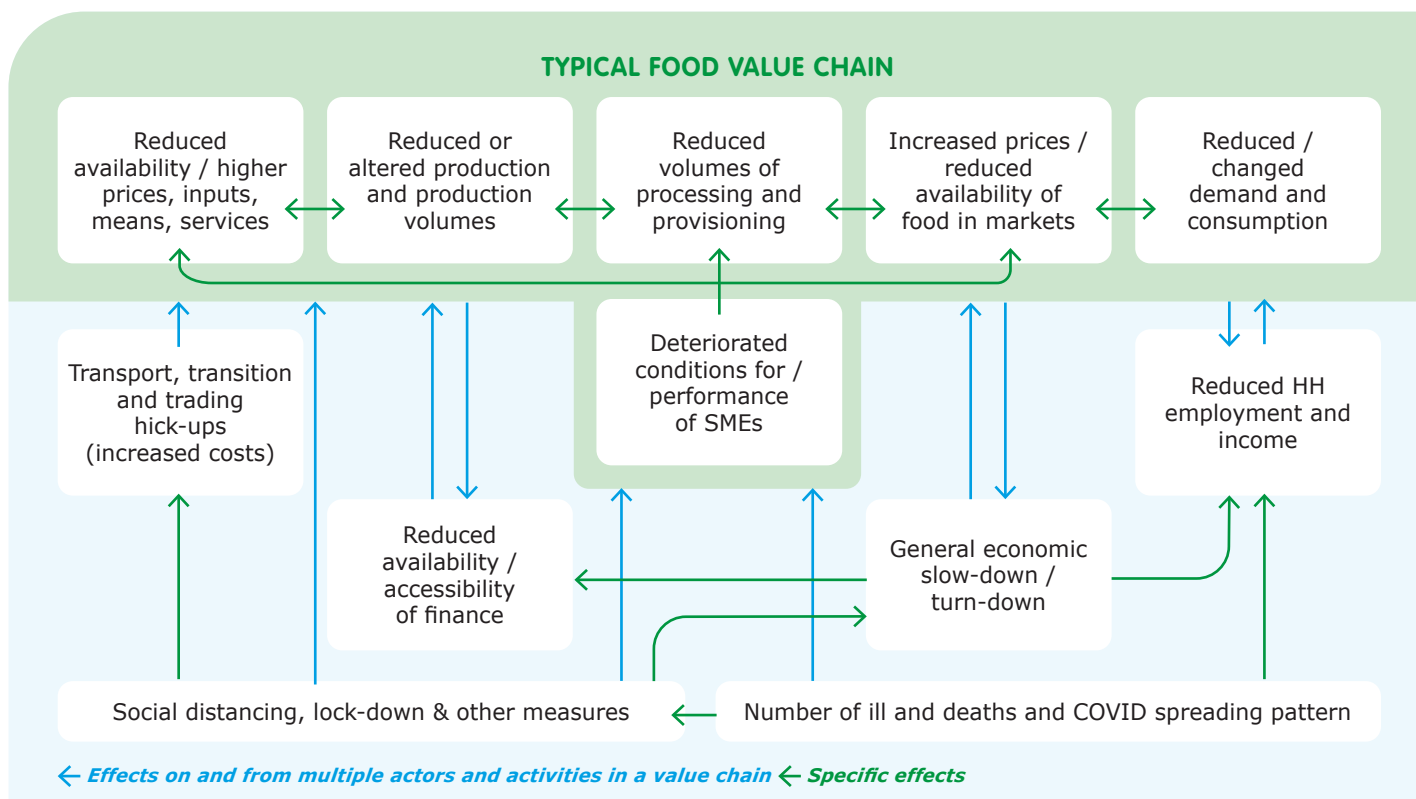


Figure 1 Food value chain vulnerability (and opportunity) areas (source: CORE-Africa 2020). This figure shows some of the vulnerability areas within the primary value chain (the green box) and other vulnerabilities in broader food system dimensions. The arrows indicate the (reinforcing) connections between vulnerabilities.

The big picture: general dynamics

Of all the dimensions of food security, **accessibility** has been most affected by the COVID-19 pandemic. This was revealed in the first retrospective COVID-19 impact assessment at a global scale: Impacts of COVID-19 on People’s Food Security: Foundations for a more Resilient Food System, published by CGIAR in March 2021. The assessment by Béné et al. (2021) is based on 377 documents covering 62 countries from Africa, Asia, Europe, Oceania and the Americas.

Their analysis reveals that both financial affordability and physical access to food have been affected, particularly in urban areas and in low and middle-income countries (LMICs). As a result, proximity and convenience have been reduced due to a degradation in food choice and diversity. There is now consensus that a major direct effect of COVID-19 restrictions **has been its negative impact on employment, income and associated purchasing power**. In Ethiopia for instance, Hirvonen et al. (2021) found that about 60% of the households interviewed in Addis Ababa between May and July 2020 reported a loss of income.

Food supply chains, though relatively resilient, were disrupted by **labour restrictions** and **declining demand**. Food services were especially affected and many poor people lost jobs in urban areas, particularly in the tourism and restaurant sectors. However, IFPRI’s Global Food Policy Report 2021 also demonstrates how ‘traditional’ food systems, with few linkages beyond the farm, were less affected by restrictions. Food systems transitioning from traditional to modern, which are characterized by longer supply chains and still-fragmented mid-stream services (storage, transportation), were more vulnerable. In many countries, **mobility restrictions** reduced the availability of hired labour for harvesting and other farm activities, and disrupted transport. In Ethiopia, for example, restrictions on mobility constrained the labour supply to rice farmers, about 75 percent of whom rely on hired day-laborers.

At the same time, World Bank data shows that **agriculture continues to be the main source of livelihood of smallholder households in Sub-Saharan Africa**, with the share of households involved in agriculture increasing since the start of the pandemic. This includes urban households that are moving into agriculture as a response strategy to food security and employment challenges in urban areas. Overall, this provides evidence that the agriculture sector is serving as a buffer for low-income households in the region, similar to the role it played during the global food crisis of 2008.



Value chain vulnerabilities

1. Food production

For primary producers, the main issues reported in the literature are:

- Disruptions in upstream input supply chains such as fertilizers, seed supply, or spare machinery parts,
- Decline in business profitability and associated revenues, as a result of reductions in demand,
- Reduction in labourer availability due to mobility restrictions or health and safety concerns,
- Loss of or reduced connectivity with their established business partners or consumers.

2. Food processing and provisioning/SMEs

SMEs have been much affected by **safety or sanitary decrees and regulations**. In addition, they have been impacted by a range of disruptions across the upstream part of the supply chain as well as subsequent effects of **market disruptions**, such as price shocks.

As the impacts on mid-stream actors have not been well-documented so far, more research is needed to better understand their specific vulnerabilities in the face of COVID-19 or other shocks. For example in Ethiopia, [Hirvonen et al. \(2020\)](#) observed changes and disruptions in business practices of traders during the immediate effects of the initial lockdowns, including:

- increased costs of transport (reported by 93% of the wholesalers interviewed),
- decreased downstream demand (reported by 83% of wholesalers and 82% of retailers), and
- subsequent losses in business (76% of the wholesalers and 62% of the retailers).

SNV project examples

TIDE II in Uganda: COVID-19 comes after a ban in Kenya on imported milk from Uganda, further increasing stress on processors and the dairy sector as a whole. This is reflected in reduced prices and production volumes this past year, but COVID-19 is just a contributing factor; the trade issue with Kenya being the main one.

As a response to the disturbances in the upstream part of food value chains, the **CRAFT project** in Uganda, Kenya and Tanzania is currently looking at the range of Service Delivery Models it supports for climate smart inputs, finance, training and technologies seeking to draw lessons on the vulnerabilities/sturdiness of different models and overall ways to further strengthen resilience.

The **HortInvest project** in Rwanda reported a decrease in households implementing good agricultural practices including harvesting and post-harvest handling, use of quality seeds, soil testing and more.



“In low-income food deficit countries, such as Ethiopia, public health interventions reduced household incomes, which translated into reduced expenditures on nutrient dense foods that, if sustained, could lead to malnutrition”

Hirvonen, K., Abate, G.T. & De Brauw, A. (ed IFPRI) (2020)

3. Food accessibility and consumption

Consumers’ **access** to food was most directly impacted by COVID-19 restrictions. This includes degradation in choice and/or diversity of food items available, and most importantly, disruptions in accessing food. This is directly linked to **affordability** problems as a result of decreased incomes. Other conventional dimensions of food security such as availability, quality and safety were not impacted as such.

IFPRI’s Global Food Policy Report 2021 notes how perishable products were most affected. In Senegal, for example, small fresh fruit and vegetable enterprises were hampered by the closure of traditional markets and social-distancing requirements, leading to food spoilage and lost income.

SNV project examples

HortInvest project: due to COVID-19 containment measures, the borders between Rwanda and DRC was closed, and this affected market access of horticulture produce from bordering districts.

To facilitate and reopen trade, traders, including cooperatives, in Rubavu and Rusizi districts were organized in cross-border platforms that collect and export fresh produce to Goma and Bukavu respectively.

The **BRIDGE project** is promoting probiotic yoghurt as an affordable, more nutritious, and longer-lasting alternative to fermented milk, aimed at urban poor market segments. Currently, the market channel consists of 50-60 small scale processors using the probiotic culture to produce the yoghurt. They collectively sell about 15,000-20,000 liter a week through 70 milk shops in Addis Ababa and beyond.

Casual workers (including car mechanics) make up a considerable part of the consumer base. The project is currently exploring scaling options by further unlocking the demand for probiotic yoghurt in specific urban poor consumer segments.



From vulnerabilities to effective coping strategies

Over the past year, the impacts of the COVID-19 crisis have laid bare some of the vulnerabilities in food value chains. In the early months of the crisis, there were grave concerns over the impacts of the restrictions on the food system, particularly in low- and middle-income countries. However, as we have seen in this [previous review](#), some of these impacts proved not as serious as expected. Food supply, availability, prices and trade were affected and, in some cases, pretty significant, but overall the situation has not become very serious in terms of restricted food availability or even hunger. In general, governments recognised the critical importance of food supply, and response measures were adapted accordingly with a clear priority for keeping food supply moving.

Some of the resilience shown is due directly to the effective coping strategies actors in the value chain have applied to mitigate the impacts of the restrictions on their activities and livelihoods.

SNV project example

CRAFT in Uganda and Kenya: SMEs that work under/implement a business case under CRAFT have faced reduced access to finance as banks have become more risk averse during the pandemic. With diminishing cash reserves, they are challenged to maintain vital links to smallholders. Under the Climate Innovation and Investment Facility CRAFT facilitates the investment in making their supply chain more climate resilient, for example investing in climate smart inputs as well as providing a market for the farmers. During the pandemic the project has intensified its support to SMEs to incorporate digital solutions in order to remain viable, farmers at a distance and supporting a variety of hygiene and response measures. CRAFT has also strengthened its attention to post-harvest storage as a resilience measure.

These coping strategies can be categorized into **short-term coping strategies** and **forward-looking adaptive responses** (Love et al., 2020). Short-term coping strategies are aimed at early absorption to shocks, whereas forward-looking responses adapt to expected changes or impacts (and anticipating future shocks).

Examples

- On household level, short-term coping strategies in the face of COVID-19 can be seen through [data from Burkina Faso, Ethiopia and Uganda](#), which shows the share of households involved in agriculture has increased since the start of the pandemic, with the percentage of households going into livestock production being higher than those going into crop farming. This can be explained through the seasonal nature of crop production rather than livestock. The data also shows more urban than rural households moving into agriculture. This may be the consequence of food security and employment challenges emanating from the negative impact of the pandemic, which is higher in urban than in rural areas.
- On sector level, one example of a forward-looking adaptive response is found in the way [extension services have innovated](#) to respond to the changing environment brought by COVID-19. Extension services have switched to radio and online platforms to deliver their services, or moved to Whatsapp to facilitate group communication. These changes are expected to have lasting effects on the way these services operate.

Insight into these short-term coping strategies and more forward-looking responses is key to deliberately build towards increased resilience and making use of the lessons and innovations that this pandemic provided. After all, it is not just the shock that makes the impact of a crisis visible, but the combination of the responses to these shocks and the ways they (re-) shape the existing system.



A range of coping strategies along the value chain – a case from Rwanda

SNV and its partners are active in Rwanda implementing the HortInvest Project, which focuses on increasing the horticulture sector's contribution to the Rwandan economy as well as improving the food and nutrition security of poor households. The COVID-19 measures have had significant impacts on the activities of the programme. A study into the responses of the programme's value chain actors reveal valuable on-the-ground information about coping strategies. In total 685 farmers were surveyed.¹

The coping strategies seen in relation to this project reveal that most if not all actors applied (several) short-term strategies to mitigate the immediate impacts of the crisis, changing production activities or borrowing money from relatives. Amongst others, the increased uptake of digital technologies – if lasting – can be considered an effective adaptive strategy that could lead to sectoral transformation in the longer run.

Examples

- The **lack of availability of inputs** (mainly fertilizer and seeds) was dealt with in several ways. Some went on with production without fertilizer, resulting in lower crop yield, whereas others adapted their crops to what seeds were available or to the produce with higher market value. Some decided to wait until they could get more inputs, or paid more for the same products.
- Several **digital technologies** that were either newly deployed in response to the crisis, or that saw increased usage during this period emerged as coping strategies, such as e-commerce, virtual meetings, cashless economy, agro-tech platforms and the establishment of new online businesses. For example, e-commerce platforms were used for distribution of inputs and by agro-processors to source supplies directly from farmers and cooperatives.
- Financially, some respondents indicated **increasing their savings amount** to prepare for another lockdown. Of the farmers surveyed, 35% indicated selling an asset during lockdown, mainly small livestock. There was also an increase in the number of farmers borrowing from relatives and neighbours, whereas the number of farmers borrowing from commercial banks decreased. Input suppliers indicated looking into mechanisms to keep their clients and sustain businesses such as paying for inputs in instalments and providing loans on products.

Some examples of coping strategies by specific mid/downstream actors in the value chain:

Market vendors

Some reported selling products at home or varying the produce they sold depending on what could be purchased from farmers. Also, working in shifts was applied to reduce the number of sellers in the market.

Small local transporters

Since home delivery became more frequent during the restrictions, small transporters indicated acquiring new business partners and working more with digital platforms.

Exporters

Products were sorted by those ripening and prone to perish earlier than others to prevent produce from perishing in anticipation of products needing to go through extended quarantine.

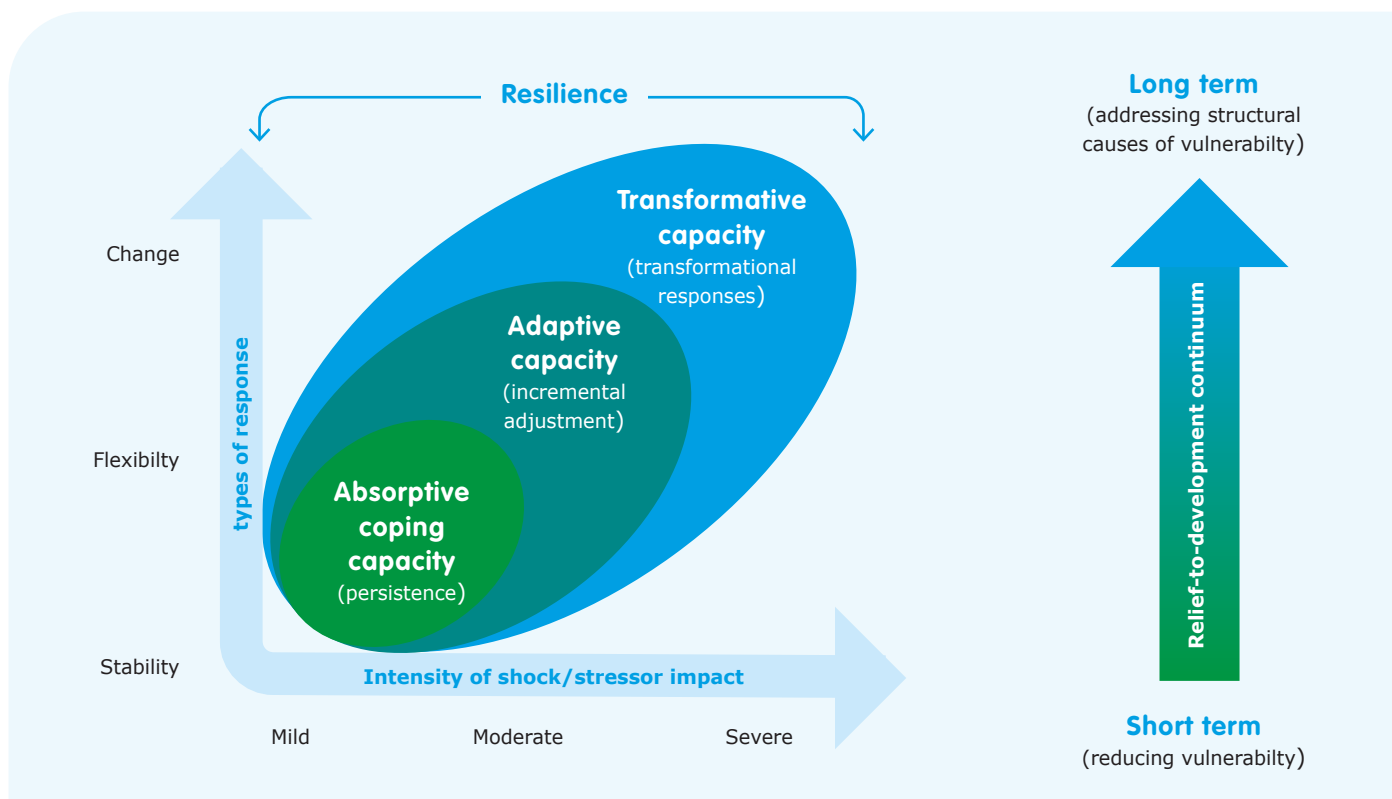


Figure 2 Food system resilience interventions (source: Béné et al. (2018))

Reflections on resilience and COVID-19

The vulnerabilities reported in the first part of this review and coping strategies such as the Rwanda case above, demonstrate the relevance of considering ways to build long-term resilience among farmers and agri-entrepreneurs. This requires equipping them with the skills and means needed to anticipate, plan for, and respond to shocks, adapting their practices and possibly even their business models. Figure 2 visualizes the range from short-term interventions (addressing existing vulnerabilities) to forward-looking adaptation and long-term transformation.

A report from the OECD² on the resilience of agricultural value chains points to the development of three core capacities: the capacity to absorb the impact of an adverse event, the capacity to adapt in response to risk, and the capacity to transform the system as to diminish or avoid shocks in the future. There is a range of measures and actions that farmers and agri-entrepreneurs can take to build these capacities. The capacity of the agricultural sector **to absorb risk** can be enhanced through measures and strategies that either reduce the initial impact of a shock or else shorten the time taken to recover from it. The capacity of the agricultural sector **to adapt** can be enhanced by measures that address information gaps that prevent actors (input providers, farmers, processors, traders, vendors etc.) from making optimal decisions in the face of a changing risk environment and by facilitating networks for both vertical and horizontal knowledge

exchange and risk management. The capacity of the agricultural sector **to transform** in response to a changing risk environment can be enhanced by many of the same measures that build the sector's capacity to adapt. However, it also requires stakeholders to engage in more long-term thinking towards potential vulnerabilities. This is likely to require additional emphasis on collaboratively planning and providing incentives for joint transformation towards such medium/long-term resilience needs and ambitions.

Based on the literature used for this COVID-19 and Agriculture review, some questions still up for detailed exploration and practical answers are:

- 1) What is the role of diversification of markets, products and clients for improving the resilience capacity of food value chains?
- 2) What can be done to improve the adaptive capacity of SMEs?
- 3) What is the role of connectivity in adaptive and transformative responses and what influences the joint capacity for adaptation and transformation? The general picture of the crisis shows that at least some relationships have been strengthened, for example between farmers and cooperatives, farmers and certain off-takers, vendors, and consumers, with the government, etc. But when and how does this happen? What makes joint adaptive and transformative capacity emerge and become effective?



Next review: how are external parties responding with intervention strategies that focus on resilience?

This review has focused mainly on the short-term and some forward-looking responses by actors operating in the value chain, and the initial insights these provide for perspectives on strengthening future resilience. In the next review, we will further interrogate external responses to the COVID-19 crisis and restrictions, including interventions by governments, donors and development organisations like SNV:

- In light of the growing understanding of vulnerabilities of actors and activities in supply chains – what do we learn about resilience and the need to strengthen it?
- What external intervention strategies and activities regarding COVID-19 (and beyond) do we see? What has been the role of development organisations and programmes? What role has government policy played?
- What strategic and policy implications emerge? How does this complement existing practice and thinking on food system resilience?

Resource collection:

From our continuous review of resources, 20 new resources were identified as particularly informative or insightful for the CORE lead projects. In the selection, specific attention was paid to region (West-/East-/sub-Saharan Africa or Africa in general) and sectors (of which horticulture and livestock featured most often).

The overview provides summaries of the key areas in these sources, as well as an indication of the key resources or websites to consult.

For an overview of all relevant resources per area see spreadsheet – tab '[COVID-19 and Agriculture Review](#)'. For an overview of the websites with aggregated resources consulted for this review, see spreadsheet – tab '[aggregated resources](#)'.

Colophon

This review is published by the [COVID Response and Resilience Initiative \(CORE - Africa\)](#) SNV Netherlands Development Organisation in cooperation with Wageningen University & Research

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