

Synthesis of IDRC's COVID and Food Systems Initiative

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About IDRC

As part of Canada's foreign affairs and development efforts, the International Development Research Centre (IDRC) champions and funds research and innovation within and alongside developing regions to drive global change. We invest in high quality-research in developing countries, share knowledge with researchers and policymakers for greater uptake and use, and mobilize our global alliances to build a more sustainable and inclusive world.

About Food Systems Foresight

Food Systems Foresight is a purpose-built consulting firm dedicated to increasing food systems resilience. We collaborate with food systems actors to address urgent and emergent challenges. We equip our clients to think systemically, envision multiple futures, and take strategic action.

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Executive Summary

The COVID-19 pandemic has profoundly altered the world, delivering systemic shock of amplified magnitude due to the unprecedented levels of connectedness in our contemporary global society. While the pandemic is first and foremost a public health crisis, ripples of impact have been felt across all modern human systems, most notably food systems. This synthesis report examines the response of the International Development Research Centre (IDRC) and the role it played in the pandemic response through its **COVID & Food Systems Initiative** and adjacent projects. We do this with the overarching goal of gathering lessons to inform IDRC and its stakeholders seeking to increase resilience to future systemic shocks, which are expected to become more frequent.

This report includes a **synthesis of insights** that emerged from IDRC's research on COVID and food systems, organized into three categories: the first aimed at documenting impacts of the pandemic on food systems; the second focused on analyzing responses to those impacts, including those led by states, aid organizations, local communities, and households; and a third seeking to inform long-term responses to enhance resilience. A **landscape analysis** of the IDRC's positioning among other international responders is also included. The synthesis conducted and the findings presented are informed by the analytic frames of systems thinking and operational resilience, which were used to make sense of the data and draw out lessons for the international development community, including policy makers, funders, and researchers.

The synthesis reveals significant negative impacts on food production, trade, and livelihoods with women and low-income communities. These impacts often stemmed from measures implemented to contain the public health crisis, such as restrictions on movement and economic activity, which carried unintended negative consequences for food systems, particularly the market activity that most people rely on for income and survival, including accessing inputs, and selling and buying food. The unintended consequences of public health measures required policy responses to support citizens in coping with the challenges to maintain livelihoods and food security. These responses were often poorly targeted and failed to support key groups in the food system, including producers, pastoralists, women, low-income groups, and informal traders. Overall, the pandemic and response to it appear to have increased poverty and social inequality, especially in rural communities, women-headed households, and others relying on informal markets. Improving resilience to future shocks will require reconfiguring social protection systems and the way that food systems and supply chains are organized.

The landscape analysis offers a non-exhaustive summary of actions taken by a cross-section of actors, illuminating where food systems attention was directed during the pandemic. It categorizes actions based on the type of response and the part of the food system they addressed, revealing that most attention was directed toward rapid responses supporting farmers and markets, and less to more future-oriented projects contributing to greater systemic resilience. Like the other actors analyzed, IDRC invested much of its attention in rapid data collection on the impacts affecting farmers and markets, but also invested in longer-term projects with systemic resilience aims where its projects are likely adding greater value. In the event of future shocks IDRC may be better positioned to wait and listen for changes occurring

as a result of a shock and the investments being made by other actors and use this information to fill gaps in the international response that have time horizons better suited to its research processes.

Taken as a whole, the synthesis yielded many lessons pertinent to how we understand shock response through the retrospective lens of what was done during the COVID pandemic. This can inform how policy makers, funders, and researchers take action in the future in a way that acknowledges the complexity of the challenge. Governments can do better by implementing more holistic responses to shocks; probing for unintended consequences of decisions, incorporating diverse voices in the policymaking process, targeting support measures based on these diverse perspectives, and packaging interventions for more systems-oriented solutions. IDRC can take a systems-oriented approach by taking time to be clear about its intentions, designing research that is aligned with its own strategic objectives as well as those of its grantees, and by listening for weak signals that may indicate new opportunity space for food system transformation. Funders and researchers as a whole can collaborate more as a matter of course and work to maximize their operational flexibility and adaptiveness in the face of the human impacts of a crisis.

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1. Introduction & Initiative Overview

The World Health Organization declared the novel coronavirus outbreak (COVID-19) a global pandemic on March 11, 2020.¹ Governments and businesses responded with a range of public health measures intended to contain and minimize the outbreak: transport restrictions, school closures, limitations on in-person business transactions, restrictions on the size of gatherings, medical mask mandates, quarantines for infected or potentially infected individuals, and stay-at-home orders.² What started as an acute crisis evolved into a protracted one, as the persistence of the virus and the corresponding mitigation measures which limit economic activity have worsened existing inequalities in many areas of the world.³

The public health impacts of the pandemic should not be understated. At the time of writing in December 2021 the Coronavirus Resource Center of Johns Hopkins University estimated that 264 million cases have been reported worldwide, with 5.2 million having died from the disease.⁴ Many more cases and deaths have surely gone undiagnosed and unreported. However, the full scope of impacts resulting from the pandemic should be viewed in the context of a complex, interconnected, global society confronting numerous challenges, some of which carry catastrophic or existential risks to individuals and civilization as a whole. The Food and Agriculture Organization of the United Nations estimated that between 800-900 million people suffered from hunger in 2020, more than three times the number of COVID cases reported in 2020 and 2021 combined.⁵ During that same timeframe roughly 18 million people will have died from hunger and hunger-related diseases, per UN estimates.⁶ Hunger is a massive challenge for humanity that has yet to be solved, and the interconnections between hunger and COVID have compounded the impacts of the pandemic on vulnerable populations.

COVID, Food Systems Disruptions, and the International Response

By contrast to the numbers reported above on the cases and deaths related to COVID-19, hunger impacts the lives of many more people. This number had been steadily declining over the past several decades but

¹ Ghebreyesus, T.A. 2020. *WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020*. WHO. March 11. Accessed November 2021. <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>.

² Pragyani, D., D. Furceri, J.D. Ostry, and N. Tawk. 2020. "The Effect of Containment Measures on the COVID-19 Pandemic." *IMF*. August 7. Accessed November 2021. <https://www.imf.org/en/Publications/WP/Issues/2020/08/07/The-Effect-of-Containment-Measures-on-the-COVID-19-Pandemic-49572>.

³ Norwegian Red Cross. 2021. *COVID-19: Protracted Crises, Worsening Inequalities - Indirect Negative Health Impacts of the COVID-19 Pandemic in Protracted Crises*. Relief Web. April 8. Accessed November 2021. <https://reliefweb.int/report/world/covid-19-protracted-crises-worsening-inequalities-indirect-negative-health-impacts>

⁴ Johns Hopkins University of Medicine. 2021. Coronavirus Resource Center. <https://coronavirus.jhu.edu/map.html>

⁵ FAO. 2021. *The State of Food Security and Nutrition in the World 2021*. Accessed December 2021. <https://www.fao.org/state-of-food-security-nutrition/en/>

⁶ Holmes, J. 2021. *Losing 25,000 to Hunger Every Day*. UN Chronicle. Accessed December 2021. <https://www.un.org/en/chronicle/article/losing-25000-hunger-every-day>

the COVID-19 crisis, and the lockdown measures deployed to mitigate the public health impacts, have correlated with a spike in the amount of people facing food and nutrition insecurity.

A large majority of people today access food, which is mostly processed, through global, regional and domestic markets.⁷ These markets move food within and across borders through complex supply chains. The high degrees of connectivity and interdependency of our modern approach to food production, processing, and distribution have increased efficiency, but this has come with tradeoffs that are worth consideration. At a global level, our efficient food systems may now be more vulnerable to large-scale disruptions.⁸ While disruptions of modern food markets have occurred in the past, such as the rise in food prices that coincided with the social unrest of the Arab Spring, these events have largely been localized to nations or regions.⁹ By contrast, the COVID-19 pandemic and the lockdowns that followed are the first truly global disruption to our contemporary food systems. This exacerbated existing weaknesses and vulnerabilities, and resulted in a widespread threat to food and nutrition security. Though the extent of the disruptions varies widely between and within regions, it is clear that COVID-19 illuminated many of the structural weaknesses in our contemporary approach to food.¹⁰

In response to the pandemic, development actors shifted attention and resources to supporting COVID-19 response in LMICs. The Organization for Economic Cooperation and Development estimates that its members spent 12 billion in aid for COVID-19 related health measures like personal protective equipment and testing some of which was new spending and some of which was redirected from other programs.¹¹ While food systems remain an important focus of the international community, it is unclear how much support was directed toward strengthening food system resilience in response to COVID-19. However, eighteen months on it is clear that the pandemic threatens to roll back years of development gains on food security.¹²

⁷ Reardon, T. 2015. The hidden middle: the quiet revolution in the midstream of agrifood value chains in developing countries. *Oxford Review of Economic Policy*.

⁸ Martin, R. L. 2019. "The high price of efficiency." *Harvard Business Review*. January-February 2019. <https://hbr.org/2019/01/the-high-price-of-efficiency>

⁹ Lagi, M., Bertrand, K.Z., and Bar-Yam, Y. "The food crises and political instability in North Africa and the Middle East." arXiv:1108.2455. August 10. Accessed November 2021. <https://necsi.edu/the-food-crises-and-political-instability-in-north-africa-and-the-middle-east>

¹⁰ Love, D.C., E.H. Allison, F. Asche, B. Belton, R.S. Cottrell, H.E. Froelich, J.A. Gephart, C.C. Hicks, D.C. Little, E.M., Nussbaumer, P.P. da Silva, F. Poulain, A. Rubio, J.S. Stoll, M.F. Tlusty, A.L. Thorne-Lyman, M. Troell, W. Zhang. file:///media/archive/ScienceDirect_articles_27Oct2021_17-56-04.908.zip/Emerging-COVID-19-impacts-responses--and-lessons-for-buil_2021_Global-Food-.pdf

¹¹ OECD. 2021. COVID-19 spending helped to lift foreign aid to an all-time high in 2020 but more effort needed. <https://www.oecd.org/newsroom/covid-19-spending-helped-to-lift-foreign-aid-to-an-all-time-high-in-2020-but-more-effort-needed.htm>

¹² World Bank. 2021. Food Security and COVID-19, Brief. <https://www.worldbank.org/en/topic/agriculture/brief/food-security-and-covid-19>

IDRC Response to COVID & Food Systems

Like many other actors in the international development and humanitarian response communities, IDRC shifted priorities in response to the pandemic, including food systems research priorities. IDRC's response to the impacts of COVID on food systems began with two primary workstreams initiated by the Agriculture and Food Systems program, while a third emerged under a different initiative.

The first of these workstreams was immediate funding for **Diagnosing Impacts** of COVID-19 on food systems with a goal of filling knowledge gaps that would prevent informed decision making. This workstream provided supplemental funding for 10 projects already underway for existing IDRC grantees. Small supplemental grants supported six months of additional data collection and analysis on how COVID was affecting food systems.

By contrast, the second workstream funded new projects for **Analyzing Responses** to COVID impacts on food systems in LMICs, with an overarching goal of building a knowledge base to inform responses to future shocks. This workstream was initiated through an invitation-only call for proposals which led to the selection of 5 grantees to conduct one-year research projects. The results of this workstream were the impetus for this synthesis exercise, with the goal of looking across the five projects to understand the utility of a wide range adaptive responses that emerged in the wake of pandemic-exacerbated food system disruptions.

A final workstream emerged under the COVID-19 Responses for Equity Initiative (CORE). CORE is funding 21 projects in 42 countries oriented toward understanding the socio-economic impacts of COVID and policies to address these. CORE selected projects through a closed call which invited prospective grantees to outline a research project focused on three themes: Macro-economic policies for support & recovery; supporting essential economic activity; and promoting democratic governance. Four projects have components focused on food systems.

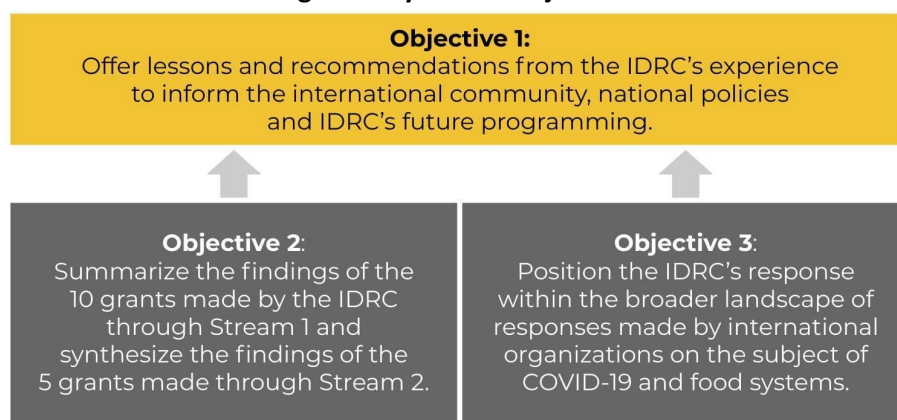
Together, these two workstreams and the four CORE projects with components on food systems created an investment portfolio of 19 projects whereby the IDRC is contributing to the advancement of knowledge at the intersection of COVID-19 pandemic and food systems. A summary of this portfolio is included in Annex 1.

The 10 projects conducted under the Diagnosing Impacts workstream concluded in April 2021, and a synthesis report was developed for those activities. That report informed this study. The five projects conducted under the Analyzing Responses workstream are approaching completion and findings are emerging from that research, which forms the basis for the majority of this synthesis. The 4 CORE projects with food systems components are in their first year, though where possible lessons emerging from this workstream feed into this synthesis exercise.

2. Approach

With the conclusion of two prominent pieces of the IDRC's COVID responses this report summarizes the findings and lessons of IDRC's efforts to diagnose the impacts of COVID on food systems, assess the efficiency and effectiveness of responses to COVID-related impacts on food systems, and shares preliminary findings on long-term responses required to improve the resilience of food systems. It also gathers lessons capable of informing how the international community supports resilience in response to future systemic shocks, which are expected to become more frequent over time. To do this, this synthesis explored the IDRC's response to COVID's impacts on food systems with three interlinked objectives in mind.

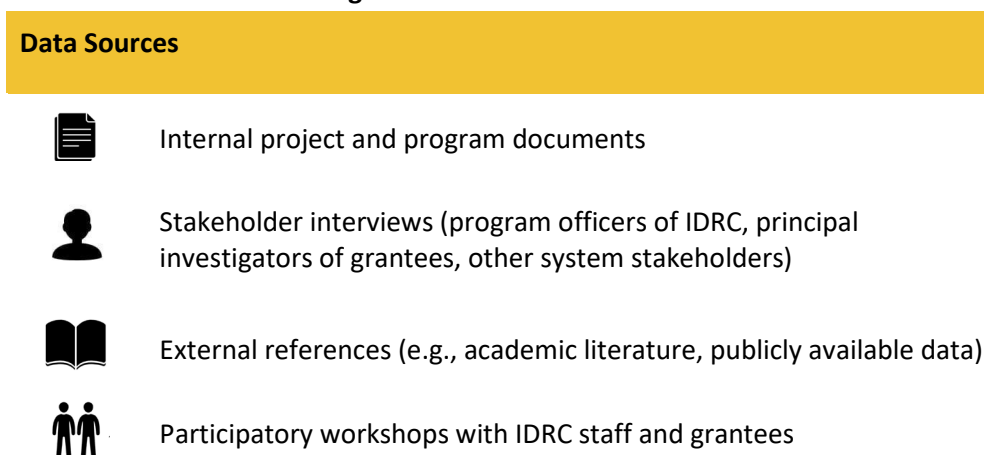
Figure 1. Synthesis Objectives



Data Sources

To further our understanding of how the IDRC's COVID response contributed to systemic resilience of food systems in the face of the COVID shock [and COVID's intersection with other stressors (e.g., inequality, hunger)] this synthesis has drawn on data from four primary sources, which are outlined in Figure 2 below. More detailed information on documents reviewed and stakeholders engaged through interviews and workshops can be found in Annex 2-4.



Figure 2. Data Sources



Analytic Methods and Frames

This report has three interlinked objectives, but Objectives 2 and 3 are the primary veins of analysis, while the higher order Objective 1 is best understood as an interpretation of findings as depicted in Figure 1. We used qualitative methods to explore Objectives 2 and 3. Thematic analysis is used to categorize data, make sense of the content, and derive meaning from it. We used it to review the findings of the work that has been conducted under the IDRC’s COVID & Food Systems Initiatives. Content analysis is used to evaluate patterns in a qualitative data set. This approach helped us position the IDRC’s response within the broader landscape of responses made by international organizations to COVID and food systems.

Table 1. Objectives, Methods, and Sources

Objective	Analytic Method	Data Sources
Summarize the findings of the 10 grants made by the IDRC through the Diagnosing Impact workstream and synthesize the findings of the 5 grants made through the Analyzing Responses workstream.	Thematic analysis	
Position the IDRC’s response within the broader landscape of responses made by international organizations on the subject of COVID and food systems.	Content analysis	

To make sense of the findings and offer lessons and recommendations from the IDRC’s experience to inform the international community, three frames were applied to elucidate deeper understanding of the systemic disruption of COVID-19 and the corresponding impact on food systems: systems thinking, operational resilience, and IFPRI’s agrifood value chain segment framing.

As a discipline, systems thinking helps make sense of the world by looking at phenomena through a holistic lens, rather than as discrete parts or components. Many definitions for a system exist but perhaps the simplest comes from Donella Meadows, one of the founders of the discipline. She described a system as “a set of things—people, cells, molecules, or whatever—interconnected in such a way that they produce their own pattern of behavior over time.”¹³

While this definition may appear simple on its surface it points to foundational principles that can support deep investigations into complex problems that occur in the world, and that are the focus of investments made by development organizations. Breaking out we can see that the components of a system include the following:

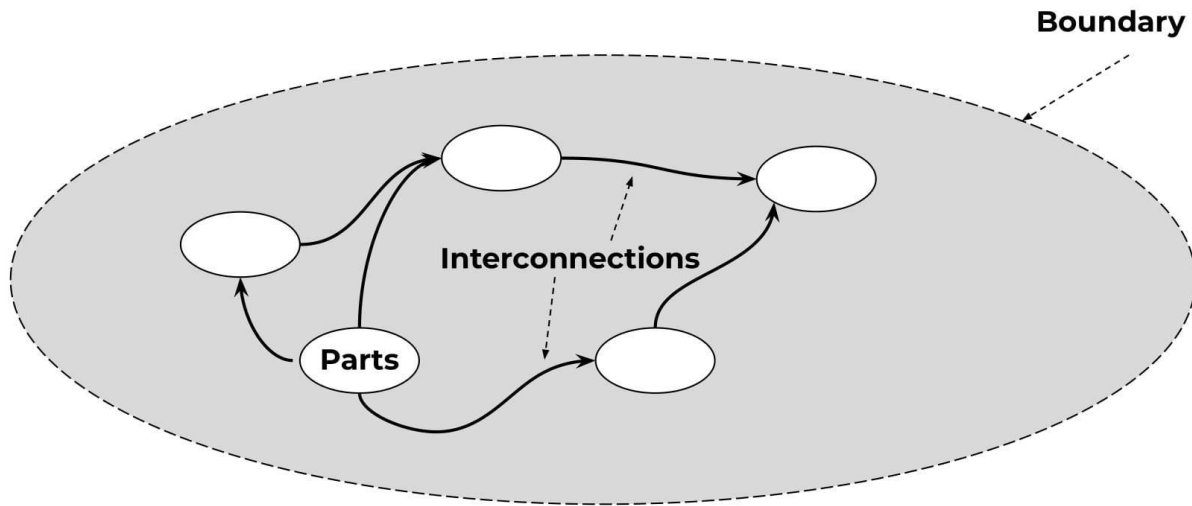
- **“Boundary:** There is a set of things. This implies there are things outside of this set.
- **Parts:** People, cells, molecules, whatever. Parts make up a system.

¹³ Meadows, D. 2008. Thinking in Systems: A Primer. Sustainability Institute.

- **Interconnections:** The parts are connected. These connections are what makes the system a system.”

Together, these parts can be used to help visualize systems, as demonstrated in Figure 3.

Figure 3. Components of a System¹⁴



This synthesis report aims to apply systems thinking in a way that elucidates greater understanding of the impacts of the systemic shock of COVID-19 on socio-ecological systems, namely, food systems. In this case, operational resilience is a secondary frame that can help apply the theory of systems thinking to the context this report is interested in.¹⁵

Table 2. Operational Resilience Frames

Resilience Frame	Systems Interpretation
Of what?	What are the boundaries of the system of interest (which social, cultural, technical, economic, political, or ecological factors are included)?
To what?	Which disturbances or disruptions should be included in the analysis?
For whom?	Who should benefit? Which features of the system need to be preserved, which can change, and what constitutes desirable change (improvement) from <i>their</i> perspective?

¹⁴ Adapted from McDermott, T., M. Nadoloski, L. Shepherd. 2015. “The Use of Systemigrams to identify emergence in complex adaptive systems.” *2015 Annual IEEE Systems Conference (SysCon) Proceedings*. p. 778-784.

¹⁵ Adapted from Helfgott, A. 2017. Operationalising systemic resilience. *European Journal of Operational Research*.

Finally, the report draws on the International Food Policy Research Institute’s (IFPRI) work framing agrifood value chain segments to define the boundaries of the system of interest, which in turn helps to identify the function, parts, interconnections, and conditions that comprise that system.¹⁶ It segments food supply chains into the upstream, midstream, and downstream, which are defined as:

- **Upstream** includes all aspects of production—the physical act of farming as well as the procurement of inputs and equipment.
- **Midstream** is when produce crosses the farm-gate, which involves a variety of business-to-business (B2B) transactions of food trading, sometimes as a raw product (e.g., processors, packagers), others as an intermediary (e.g., wholesalers, distributors).
- **Downstream** is the point at which a person purchases the food for consumption in a business-to-consumer (B2C) transaction, such as those that happen at shops and restaurants.

These three analytic frames, along with participatory data collection, informed sensemaking to clarify learning from the experience of IDRC and its grantees while investigating the impact of COVID as the event was taking place. The hope is that these lessons can better inform future courses of action for the IDRC, policy makers in partner governments, and the international community writ large.

¹⁶ Reardon, T. 2015. The hidden middle: the quiet revolution in the midstream of agrifood value chains in developing countries. *Oxford Review of Economic Policy*.

Reardon, T., Bellemare, M. F., Zilberman, D. 2020. “How COVID-19 may disrupt food supply chains in developing countries.” IFPRI. April 2. Accessed November 2021. <https://www.ifpri.org/blog/how-covid-19-may-disrupt-food-supply-chains-developing-countries>.

3. Findings from the COVID & Food Systems Initiative

Impact of COVID and Containment Measures on Food Systems

In response to COVID-19, countries across the globe implemented a variety of measures to contain the virus. These included restricting community gatherings, closing food markets, closing roads, and creating police-controlled checkpoints to limit travel between countries, states, districts, and even between urban and rural areas. Of the 19 projects, 16 of them sought to understand the impact of the measures implemented by governments in Sub-Saharan Africa on African food systems, while two focus on Latin America and the Caribbean and one on Pakistan. They found these responses had significant impacts on food systems, spanning upstream, midstream, and downstream aspects of the food chain, with impacts more acute for women. Each of these themes is discussed below.

Food production and access to agricultural inputs

The theme on food production and access to agricultural inputs examines findings related to the impact of COVID and associated containment measures on these areas. Across the 19 projects important similarities emerged regarding disrupted access to material inputs for production, labor, and access to land and fishing grounds.

Table 3. Food Production and Access to Agricultural Inputs Summary

Top-level Takeaways: Food production and access to agricultural inputs		
Supply shocks affected access to agricultural inputs, such as fertilizers and seeds.	Labor shortages and restrictions reduced harvests and put jobs and livelihoods at risk.	Restrictions on movement negatively impacted producers' ability to access land parcels and fishing grounds.

Supply shocks affected access to agricultural inputs, such as fertilizers and seeds, in sixteen countries studied. These shocks wrought impacts on agricultural, horticultural, livestock and fishery value chains. Findings indicated disruptions to transport decreased the supply and increased cost of inputs, as well as producers' ability to reach markets. In Nigeria, difficulty accessing markets impacted 40 per cent of farmers and 60 per cent of farmers were unable to purchase sufficient inputs due to a significant increase in price. In both cases, women farmers were more impacted—particularly by the price increase. In Burkina Faso, a majority of farmers were affected by inability to access markets to purchase inputs as well as by price increases. For instance, one farmer recounted a doubling of the price of fertilizer. Four studies reported that farmers resorted to sourcing inputs from intermediaries but that this increased costs. The same studies reported that the main barrier to accessing inputs was lack of money or access to credit which was exacerbated by increased prices. In Senegal, up to 30% of surveyed households managed challenges accessing inputs by adjusting and diversifying production. Generally limited access to inputs led to decreased use by producers and effects on the quantity and quality of harvests. For example, in Nigeria 40% of producers of which a majority were women, reported poor access to seeds and inputs which had grave impacts on food production. Four of the studies highlighted that this resulted in reduced

incomes for producers as well as for actors engaged in non-production activities in the mid- and downstream segments of the food market.

Labor shortages and restrictions reduced harvests and put jobs and livelihoods at risk. This impact was noted across 16 countries in Sub-Saharan Africa and across nearly all value chains including agriculture, livestock, and fishery. Labor shortages were found to have a greater negative impact on larger production operations. Conversely, in Kenya and Uganda studies found that households had increased labor availability but lacked access to credit and inputs to benefit from it. In the Niger Delta of Nigeria, 86 per cent of farmers reported difficulty accessing labor. Two studies in Senegal respectively reported 63 and 78 per cent of farmers experienced difficulty accessing labor due to curfew limiting working hours as well as movement restriction preventing access to their parcels. Two studies in Burkina Faso, found farmers struggled to access labor though to a lesser degree with 34 per cent of farmers citing curfew as the cause and 47 per cent citing border closures. In Malawi, a study found that restrictions on the number of people on fishing teams decreased employment in the sector by 50 per cent bringing negative impacts to both livelihoods and production volumes.

Restrictions on movement negatively impacted producers’ ability to access land parcels and fishing grounds. A study across 8 West and Central African countries found that restrictions prevented pastoralists from crossing borders to access summer pastures and disruption to their production cycle, this impact was felt across countries though with some variation. For example, pastoralists in Cameroon generally crossed borders less than those in other countries in the Sahel. A study in Senegal found that farmers living on border zones experienced difficulty accessing some or all of their land parcels due to closures. In Malawi, restricted access to fishing sites were the primary challenge for fisherfolk, with 34 per cent of men and 11 per cent of women surveyed reporting they stopped fishing.

Value chains and value chain actors

The theme on value chains and value chain actors examines findings related to the impact of COVID and associated containment measures on these areas. Across the 19 projects important similarities emerged regarding negative impacts of movement restrictions, knock-on effects from the upstream, and shifting competitiveness between local and global supply chains.

Table 4. Value Chains and Value Chain Actors Summary

Top-level Takeaways: Value chains and value chain actors		
Curfews and restrictions to internal movement interrupted constraining the marketing opportunities for food processors and complicating logistics related to food handling and distribution.	Processors were impacted by decreased production upstream which decreased activity and increased competition for employment.	COVID containment measures altered competitiveness between locally oriented and globally oriented supply chains differently across countries.

Curfews and restrictions to internal movement interrupted constraining the marketing opportunities for food processors and complicating logistics related to food handling and distribution. A majority of the studies found that disruptions to movement caused ripple effects across the systems from producers to consumers. These disruptions caused increased costs of transport thus increasing cost of business for producers, processors, and vendors as well as end-stage consumers. In addition, disruptions led to delays or inability to transport goods causing producers, particularly those with perishable goods, to resort to selling off their product or to suffer significant post-harvest losses and thus decreased income.

Processors were impacted by decreased production upstream which decreased activity and increased competition for employment. Studies in Senegal and Burkina Faso note restriction measures shut down or slowed down the activities of processors including mills. Studies in Malawi, Senegal, South Africa, and Tanzania highlight negative impacts in the fisheries sector resulting from decreased volumes of primary materials and increased competition from new entrants to the processing sector. In Malawi, 35 per cent of fish processors surveyed reported difficulties accessing primary materials for production. In Senegal this figure was 68 per cent. In South Africa and Senegal, studies found that the decreased access to fish led to a power imbalance between fisherfolk and processors as fisherfolk had higher purchasing power. A study in Tanzania, also noted this power imbalance and its impact on women processors who were forced to engage in sexual transactions with fishermen to access fish. Other sectors were also impacted, for example in Senegal a study reported 91 per cent of processors cited difficulty accessing raw horticultural materials.

COVID containment measures altered competitiveness between locally oriented and globally oriented supply chains differently across countries. In some countries, studies found that market, border closures, and other pandemic containment measures resulted in reduced competitiveness of local supply chains. For example, in Senegal the Niayes zone struggled with marketing and sale of products and vendors in Dakar found it more costly and less favorable to sell products originating from this zone. Conversely, two other studies found that in regions that produced food primarily for export or large-scale industry, including Tanzania, the loss of export markets and tourism lowered the cost of locally produced food which benefitted low-income consumers. This was often coupled with a higher cost of food coming from outside the region or country which made local-oriented supply chains more competitive. In an effort to keep food markets functioning, governments implemented new standards around things like food safety and licensing procedures, which further benefitted formal sectors of the food market. Researchers noted a trend that formal actors were able to cope with changing standards better as they had access to technology, were able to maintain safety standards, and were able to maintain access to transport. Informal actors were less able to cope with these challenges.

Downstream markets and livelihoods

The theme on downstream markets and livelihoods examines findings related to the impact of COVID and associated containment measures on these areas. Again, similarities emerged regarding negative impacts of market closures and movement restrictions on livelihoods and food security.

Table 5. Downstream Markets and Livelihoods Summary

Top-level Takeaways: Downstream markets and livelihoods		
Market closures negatively affected food vendors and consumers, particularly those in the informal sector.	Measures including lockdowns, limiting movement, border closures, shutting down business and offices led to economic recessions which negatively impacted job security and livelihoods.	Containment worsened poverty and food insecurity levels.

Market closures negatively affected food vendors and consumers, particularly those in the informal sector. A study across West African countries found market closures negatively impacted consumers and highlighted that in Burkina Faso, this measure affected the greatest number of people at 83 per cent. Another study in Burkina Faso and Senegal noted 69 per cent of people surveyed experienced difficulty accessing food due to market closures. Three of the studies highlighted that informal market vendors were more severely negatively impacted by restriction measures, with women and youth facing greater impacts within this group. A study in South Africa highlighted that the government did not designate informal traders as ‘essential good providers’, thus prohibiting them from doing business. While there were pathways to continuing business these processes were not well understood or accessible to the least formal. As many consumers rely on informal traders this impacted their ability to access food, especially vulnerable groups.

Measures including lockdowns, limiting movement, border closures, shutting down business and offices led to economic recessions which negatively impacted job security and livelihoods. One study found that across 5 countries in Sub-Saharan Africa, income loss reached over 10 per cent of GDP. Livelihoods were significantly impacted by COVID as restrictions on economic activity limited the ability of individuals involved in food markets to conduct their normal business dealings. A study in Senegal found that 100 per cent of vegetable and fish vendors and 85 per cent of poultry vendors suffered loss of income. A study in Dakar reported that average household income decreased by 35 per cent. In Kenya, a study reported that the income of over 70 per cent of agri-dealers and stockists decreased due to difficulty accessing markets. Similar effects were seen in study in Zimbabwe where 85 per cent of farmers lost income resulting from inability to sell produce both at market and on their farms. In studies across Southern Africa, Latin America and the Caribbean, and Pakistan greater negative impacts were seen in women-headed, and informal economy-dependent households with some studies noting that women were more likely to work in the informal economy. This loss of income was in part due to decreased consumer purchasing, particularly among the most vulnerable supplied by informal actors, however movement restrictions and closure of markets also played a role.

Containment worsened poverty and food insecurity levels. Reduced incomes, increases in extreme poverty, and disruptions to the informal economy had direct impacts on food security. Lockdowns and resulting supply chain disruptions have led to price inflations of food products. This coupled with decreased income resulted in worsening diets as households opted for cheaper processed and packaged

foods over animal protein and fresh produce. Several studies found that consumers experienced an increased food prices and other costs of living. Two of the studies highlighted those markets were less supplied, and consumers stated that they had difficulty accessing certain food goods. In Latin America, one of the studies found high levels of informality have accelerated depressed incomes and increased food insecurity.

Women and gender relations

The theme on women and gender relations examines findings related to the differential impact of COVID and associated containment measures on women and changes to dynamics between people of different genders (i.e., power relations between men and women). Across the 19 projects some important similarities were observed, pointing toward conclusions that can be drawn about the gendered experiences of people in food systems in the study areas.

Table 6. Women and Gender Relations Summary

Top-level Takeaways: Women and gender relations	
The COVID-19 lockdowns reinforced and exacerbated gender inequities in the home in many instances, though not always.	Men staying home also had a negative impact on levels of domestic violence.

The COVID-19 lockdowns reinforced and exacerbated gender inequities in the home in many instances, though not always. Globally, studies showed that women took on more responsibility for their household’s economic well-being. In Kenya and Uganda, more men stayed home under lockdown instead of going to work and women became the primary generators of household income. One multi-country study noted that in Ghana and Senegal, women became more autonomous, having more say in household spending decisions resulting from their new role as the primary generator of household income. Results on changing gender roles and household labor burdens are mixed. Three of the studies highlighted more equal division of traditionally gendered household labor. Other studies found men contributed slightly more, but that household division of labor remained unbalanced. One study in Ghana, Tanzania, and South Africa looked for but did not find evidence of changing labor burden, thus it is difficult to draw out overall trends.

Men staying home also had a negative impact on levels of domestic violence. Five of the studies highlighted an increase in violence, citing confinement, loss of employment and/or income, and lack of food as issues which sparked violence. A study in Burkina Faso and Senegal reports found on average 30 per cent of women experienced verbal or physical abuse. There were also reports of men’s demand for sexual activity increasing but not that of their wives, whose workload increased, which caused friction. Studies also noted conflicts arising from husbands claiming ownership of their wives’ income, potentially due to women’s changing role as the primary earner in the household but men traditionally holding responsibility for economic decision making. In addition to domestic violence, women experienced increased levels of violence in the value chain as noted above.

Efficacy of Responses to Mitigate Food Systems Disruptions

The 19 projects produced findings on the responses undertaken to manage the effect of the systemic disruptions caused by COVID on food security and livelihoods. Some focused on household or community dynamics, while others looked at policy responses of national governments or international aid organizations. Their results revealed three key themes for considering the different vectors of COVID response: Response measures (state, aid, local, household), markets and mobility, and gender. Each of these themes is discussed below.

Varied response measures and effects

The theme on response measures examines findings related to the response measures adopted by state, and external aid actors as well as local communities and households to respond to the changing context of the pandemic to maintain food security and/or livelihoods. This included both identifying what measures were taken and, where possible, identifying their effects. Important similarities were observed across the 19 projects. The table below summarizes these similarities which generally speak to lack of targeted specific actor groups and the measures taken by households.

Table 7. Responses Measures Summary

Top-level Takeaways: Response measures			
The response measures of governments were not well targeted toward the needs of vulnerable and marginalized groups.	Producers and formal food system actors benefited from response to a greater degree than informal actors in mid- and downstream market segments.	Producers employed strategies including shifting production, relying on family labor, and receiving support from cooperatives and networks to cope with impacts.	The restrictions put in place to contain the pandemic forced households to adapt to reduce spending and find new sources of money.

Government response measures were not well targeted to the needs of vulnerable and marginalized groups. Five studies focused on analyzing responses to mitigate impacts on food systems in Sub-Saharan Africa found that the “one size fits all” response measures often failed to address the needs of vulnerable groups. The pandemic impacted food system actors and demographic groups differently, and broad policies and activities failed to account for these differences. For example, studies noted that informal food systems actors were often most impacted by containment measures and least able to access assistance measures. Informal vendors were particularly heavily impacted. Agro-pastoralists emerged as another group who were not well-supported by government response measures, a factor which was attributed to a lack of input in formulating and implementing these measures. Studies across five Latin American countries and Pakistan noted that existing weak social protections systems broadly failed to mitigate the risks faced by vulnerable households, though there were discrete instances of success. In Pakistan, a study found that SMEs, which were largely informal, were not adequately supported by containment and response measures, which resulted in layoffs of which a majority were women.

Emergency food distribution measures were effective at preventing consumers from adopting extreme measures, though targeting of recipients was exclusionary. Three studies examined the distribution of emergency food aid by government, NGOs, and other actors and found that it was not a highly effective response measure. A study in Senegal found that targeting excluded 40 per cent of the households who should have received aid. One study found that emergency food aid was distributed through existing networks to households experiencing food insecurity prior to the pandemic, however this left out households who became food insecure during the pandemic. This resulted in the traditionally more vulnerable households showing more resilience to the impacts of COVID-19 than those who became newly vulnerable due to the shock. Another multi-country study found that distribution of emergency food aid had a neutral effect in three of the countries under study and a slightly positive effect in the fourth as only 10 per cent of the subjects surveyed noted it as having a positive effect. Another study found that while food aid from the government prevented households from adopting extreme measures to combat food insecurity, it had a negative impact on the diversity of food consumed by beneficiary households as the primary component of “kits” were oil and simple carbohydrates including rice, pasta, and sugar.

Producers and formal food system actors benefited more than informal actors in mid- and downstream market segments. Two of the studies reported the response measures were more impactful or effective for producers. One of the studies attributed this to a bias in response measures towards production. That study also noted a formality bias in the mitigation measures, noting that they often had unintended consequences of concentrating economic power among more formal and corporate actors. Examples of this included a growth in funding of genetically modified seeds, chemical fertilizers, highly processed foods, and supermarkets. The study on agro-pastoralists, who were subsistence pastoralists or reliant on pastoralism for their primary income, noted this group was not a priority area in response measures, which speaks to the lack of focus on less formal actors. In a similar vein, some response measures targeted at consumers, such as food parcels and vouchers, had the unintended effect of redirecting expenditure away from local food systems towards larger formalized systems.

Producers coped with impacts by shifting production, relying on family labor, and receiving support from cooperatives and networks. Agro-pastoralists in West and Central Africa altered their practices opting to decrease herd size, rely on fodder for animals, and to increase surface area of vegetables they cultivated. Vegetable cultivation is used for subsistence, and they augmented cultivation to cope with difficulties generating income selling animals and animal products. In Ghana, a study found that migrant labor shortages prompted producers to use family labor. Cooperatives emerged as an important actor to help producers to cope with shocks. To cope with disrupted value chains, cooperatives in Côte d’Ivoire, Ghana, and Senegal assisted farmers to access inputs and sell their products. A final less favorable strategy reported by studies across Africa found that producers resorted to selling off their products.

Pandemic restrictions forced households to adapt, reduce spending and find new sources of money. Several studies reported there was a reallocation of expenditure at the household level which could include reducing health expenditure and removing children from school. It also included families resorting to only having two meals a day, or in severe cases only one. It also impacted the diets of households with

studies in Kenya and Senegal reporting decreased consumption of meat and dairy. With the slowdown of the economy and loss of other income generating activities some families resorted to other methods to access money, such as tapping into household savings, selling off household items, livestock, and other assets, and in drastic cases begging or migration. Women notably took on new economic activities which are detailed in the following section. Studies in West and Central Africa found that in prior crises families relied on remittances to cope with difficulties, but that this strategy failed under COVID likely due to the global impact of the pandemic.

Implications for markets and mobility

The theme on markets and mobility examines findings related to adaptation measures taken by food systems actors to adapt to impacts from COVID-19 and associated containment measures on mobility of goods, services, and labor across market segments and borders of different geographic scales. It also examines findings on the measures taken to adapt to market closures and inaccessibility of markets across segments, including for inputs, wholesalers, and downstream consumers. As markets and mobility were two of the most visibly impacted areas of food systems, commonalities emerged across all projects.

Table 8. Markets and Mobility Summary

Top-level Takeaways: Markets and Mobility		
Closure of local food markets and movement restrictions had negative impacts on food security, forcing businesses and consumers to adapt.	Overall closing borders did not stop movement but increased its cost and danger.	Actors found ways around disruptions and restrictions on internal movement, though usually incurred higher costs to do so.

Local food market closures and movement restrictions had negative impacts on food security, forcing businesses and consumers to adapt. Several studies reported that consumers experienced increased costs of living, including food prices, and that markets were less supplied both in volume and diversity of goods. A trend emerged that market closures were not accompanied by other measures to mitigate impacts, and that closures tended to impact informal, less easily controlled markets more than formal ones. Two of the studies reported that businesses adapted their models through a shift to online trading and marketing. One study underlined that this strategy was not only adopted by well-established actors through websites and credit card payments, but also by less established vendors through platforms like WhatsApp and delivery by motorbike.

Overall closing borders did not stop movement but increased its cost and danger. A study noted that it merely increased the cost of movement and transportation across the border through things like bribes for customs officers or finding intermediaries to conduct their cross-border business. Formal and larger actors were more able to work around these difficulties, for instance a study in East Africa found that some trucking proprietors recruited teams on either side of borders to allow for continued movement of goods without a need for people to cross the border. Smaller and informal vendors were also negatively impacted and increased costs cut into vendors’ income, with a study in Senegal and Burkina Faso finding

that 88 per cent of women surveyed were negatively affected. That same study found that it increased the dangers of movement as people resorted to crossing illegally, using paths unknown to police traversing forests and rivers. Often women were the ones to undertake these illegal crossing and reported suffering from violence including from confrontations with customs officers. The level of violence experienced remains to be systematically documented. The same study noted that 16 per cent of women selling products across borders resorted to using motorcycle-taxi drivers as intermediaries to transport and sell their wares.

Actors found ways around disruptions and restrictions on internal movement, though usually incurred higher costs to do so. For example, in Dakar, informal wholesalers typically trade at night to allow them to sell at market during the day. Curfews prevented them from doing so and necessitated hiring intermediaries to trade, thus increasing their business costs. Similar effects were seen in Kenya and Uganda where sourcing directly from producers decreased by 5 per cent and sourcing from intermediaries increased by 5 per cent.

Women and gender relations

The theme on gender examines findings related to the differential impact of response measures to mitigate impacts on food systems on different gender groups or changes to dynamics between people of different genders (i.e., power relations between men and women). Some important similarities were observed, highlighting the gendered experiences of people in food systems.

Table 9. Gender Summary

Top-level Takeaways: Gender		
Measures undertaken by governments were poorly targeted toward women and as a result gender-neutral policies had gender biased impacts.	Women took more responsibility for the resilience of the household and adjusted their decisions and behaviors accordingly.	Gender-sensitive research can play a role in empowering women as they navigate the complex and dynamic conditions of a crisis.

Governments did not adequately target women in their response measures, which in turn meant that gender-neutral policies had gender biased impacts. These measures included providing aid to consumers (i.e., food parcels, vouchers, cash), providing financial relief for businesses (i.e., decreased tax, access to lines of credit, subsidies). Four studies focused on examining government response measures to pandemic-related impacts on food systems shared findings that these measures did not target vulnerable groups, including women, in their design. This is worth noting as a majority of studies reported greater negative impacts on women, raising questions about the equity of responses. In Niger and Senegal studies showed that women were more negatively affected by government responses than men. In South Africa, policies that were targeted toward formal food businesses, such as input vouchers and subsidies, bypassed low-income women engaged in production and informal trading, which increased their vulnerability relative to others in the system. For broadly targeted response measures, multiple studies in South Africa found that cash transfers were found to be more effective at shoring up consumer purchasing

power; and the capacity of women in the informal sector to withstand price fluctuations. However, it is worth noting that other studies in West Africa found emergency food distribution was favored by households, though did not examine the preference of women. It is important to note that this finding did not appear across the board. For example, a study in Senegal did not note differences in impact related to gender.

As the effects of the pandemic and the associated restrictions set in, women took on more responsibility for the overall resilience of the household. Analyzing Responses research reported that women took on additional responsibilities, often stepping into new roles as providers with their husbands at home. Studies in Burkina Faso and Senegal found that women adapted to border closures by illegally crossing borders using routes unfamiliar to law enforcement to ensure continued trade and therefore income generation. A study in East Africa presented similar findings that women, as well as youth, in the informal sector were more likely to take on or continue commercial activity illegally risking confiscation of merchandises and sexual violence. Other studies noted women took on new ways of generating income, including entering new sectors or by selling products door-to-door or at a distance, often legally, but not always. In Dakar, women took initiative and began selling detergents. In Tanzania, women who were crowded out of fish processing by men re-focused on horticultural production to support their households. In addition to income generation, women experienced increased time burdens for social-reproductive work. School closures and the containment of the whole family at home also led to increased burdens for household chores including cleaning, cooking, and fetching water.

Given the lack of gender-sensitive policy, gender-sensitive research initiatives focused under this program found that participatory **research can play an important role in empowering women as they navigate the complex and dynamic conditions of a crisis.** In particular, a project in Burkina Faso and Senegal found that the West African women who partook in the participatory methods of research viewed their participation in workshops equally as a training and a research study. Participatory gatherings like these can be useful in creating the spaces that are needed to collaboratively solve problems, especially in situations where traditional places for engaging in this kind of activities are not accessible.

Preparing for Future Food Systems Shocks

The research revealed several ways food systems can be better positioned to respond to future shocks, which are expected to increase in frequency due to climate change. Findings offer insights and options for longer-term actions that can be taken to support more effective shock responses in the future.

Table 10. Longer-term Responses Summary

Top-level Takeaways: Longer-term responses		
Existing social protection systems are weak and need strengthening.	Resilient food systems require reconfiguring supply chains to be more diverse and shorter, and to have better infrastructure.	Networks and orgs that connect affected actors create support systems and can serve as channels to deliver information and aid.

Existing social protection systems are weak and need strengthening. While structural inequalities often limit the extent to which the most vulnerable are reached, improvements can be made. Regularly updating registers of people and households that are food insecure or vulnerable (e.g., women or youth) could help governments be better prepared to roll out effectively targeted shock response programs. Coordination with community groups and local food aid organizations could help here, as could advance planning for a large-scale shock or disruption. Proactive design and implementation of social protection measures is especially compelling as the research indicates that measures in place before COVID-19 were more effective than those developed in direct response.

Resilient food systems require reconfiguring supply chains to be more diverse, shorter, and to have better infrastructure. Upstream production of high value niche-items, like those produced for consumption by tourists and in restaurants, led to large amounts of food loss and waste when trade and travel were halted, suggesting that diversified production is key. In the midstream storage and cold chain infrastructure, which are generally more prevalent in longer, global supply chains, allow for agricultural products to last longer after harvest and should be expanded for greater access in local food systems. Overall shorter supply chains were found to be more robust and less risky for low-income food system actors to participate in, while reliance on imports via global supply chains was correlated with less resilience. To maintain supply chains restrictions on the movement of people and goods should be avoided to the extent feasible, especially those related to agricultural production, and when restrictions are put in place, they should be communicated clearly to reduce panic and confusion.

Organizations and networks that connect affected actors create better support systems and can serve as channels to deliver information and aid. Networks that connect people to one another allow them to learn from each other's experiences and share information. When people develop endogenous responses to the impacts that COVID on their lives and livelihoods, networks allow them to share these with others. Sadly, during the crisis some organizations and networks went un- or under-utilized or were hampered by restrictions. Shock responses can take the amplifying power of organizations and networks into account, supporting them during non-crisis times and seeing them as a critical player in shock response. Women's organizations, and the role that they play in improving access to finance and other productive resources, including land, are especially important.

4. IDRC’s Position in Food & Pandemic Response Landscape

In addition to synthesizing the findings of the research to glean lessons, we positioned IDRC’s response within the broader landscape of responses made by international organizations on the subject of COVID and food systems.

To support this objective a rapid landscaping exercise was conducted looking at the investments made by three different types of development organizations--Bilateral Donors, Multilaterals, and Foundations. The investments on COVID and food systems made by a subset of actors from each of these categories were reviewed based on their interest to IDRC and are listed in the table below. The findings of this rapid research were validated to the extent feasible during informational interviews with stakeholders from those organizations and then analyzed using content analysis of key patterns. This content analysis examined and categorized the findings of the research along two key dimensions: (1) **response type** and (2) the **agrifood value chain segment**.

Table 11. Food Systems Projects Summary Table

Bilateral Donors	Multilaterals	Foundations
ACIAR FCDO CIRAD	IFPRI FAO	Rockefeller Foundation IKEA Foundation

Regarding **response type**, we recognized that IDRC made three distinct types of investments through its work. Work on ‘Diagnosing Impacts’ aimed to provide knowledge on immediate impacts of the pandemic. Work on ‘Analyzing Responses’ aimed to inform more strategic decision making. There were also longer-term projects focused on unpacking how shifts brought on by COVID can feed into broader goals of systemic resilience. Based on this understanding of IDRC’s response, a three-part typology was developed to categorize the responses of other actors and allow for more apt comparison.

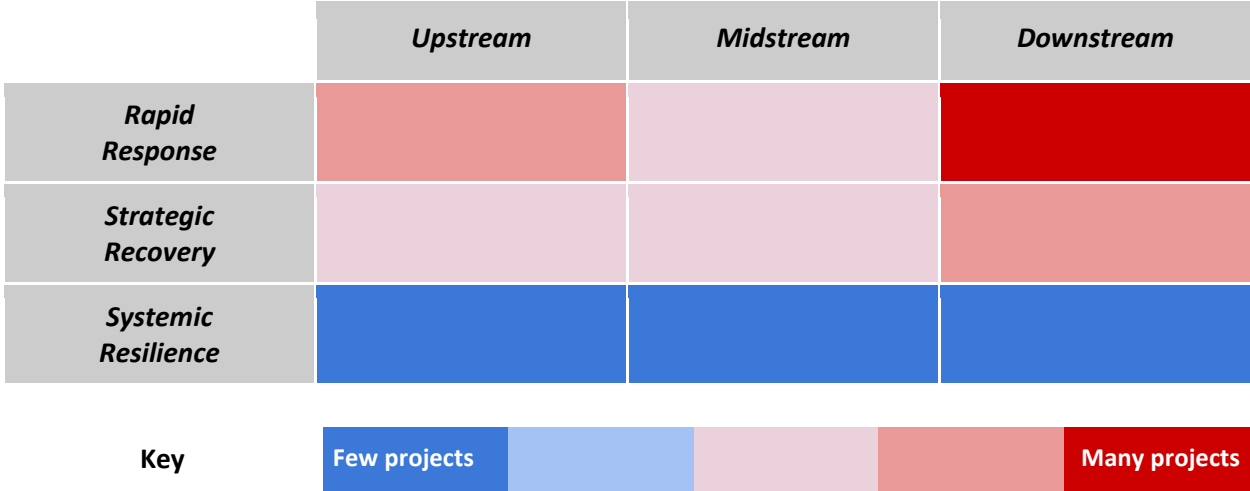
- **Rapid responses** are projects aimed at addressing immediate needs in the short-term (e.g., data gaps on the impact of the pandemic on food systems). Descriptions of responses reference addressing acute needs in a timely manner.
- **Strategic recovery** responses are projects with a medium- to long-term time frame that focus on mitigating the negative impacts of the shock (e.g., research into the efficacy of various interventions to maintain food security). Descriptions of responses reference use of knowledge and evidence to inform decision-making now and for future shocks.
- **Systemic resilience** responses are explicit mechanisms for continuous learning and adaptation to shifts occurring in the system, including listening and feedback loops. Description of responses reference their approach to transformation and interacting with dynamic systems.

The second dimension used to develop this landscape relates to the **agrifood value chain segment** framing introduced in the approach. It distinguishes the segments of upstream, midstream, and downstream, providing insight related to investment targets along the value chain.

Based on these two dimensions 48 projects were categorized to create a heat map of projects on COVID and food systems undertaken by development actors. A wide range of projects were included in this analysis, with the smallest project representing a USD 136,000 investment and the largest accounting for roughly USD 500M. Projects targeted Sub-Saharan Africa, South and Southeast Asia, the Indo-Pacific, low-income communities in the United States, and some projects had a global focus.

The heatmap analysis offers preliminary findings about trends in investment and the focus of the development communities’ attention since the start of the pandemic. The heatmap represents a count of the number of projects for each response type in each market system segment and does not indicate the financial size of investments. Areas with a high project count, such as Rapid Response investments into Downstream activity such as food markets and grocery, are indicated in vibrant red. Areas with a low count, such as the full value chain as it relates to Systemic Response, are indicated in vibrant blue.

Figure 4. Heat Map, response count by type and market system segment



As Figure 4 shows, the greatest number of projects reviewed in this landscape were directed toward the downstream segment of food markets, especially in response to the immediate impacts of the pandemic on food systems. Rapid responses targeted toward the upstream segment and strategic recovery projects focused on downstream were also a high priority for the development community. This result could suggest that much of the development community recognized and reacted to the clear and urgent needs in food systems that came from the restrictions on markets and movement, and devised responses that sought to understand and correct these effects, such as by getting food to people that needed it most.

In terms of gaps in the international response, less attention was directed toward the midstream where off-takers, processors, distributors, wholesalers, and other businesses help to move food from upstream farms to downstream markets. However, the travel and trade restrictions put in effect to contain the

pandemic had impacts across all three segments, as demonstrated through the Diagnosing Impacts workstream.

Another gap observed was that there were comparatively few systemic resilience investments across all segments of the food supply chain. At the start of the pandemic there was a clear need to fill immediate knowledge gaps about the impact and provide emergency support. In this context devising and funding projects that met the criteria used for the category of systemic resilience (which included explicit references to listening, feedback loops, or an explanation of their systems approach rather than simple mentions of systems or transformation) may have been more difficult to do. However, as the pandemic evolved from an acute crisis into a prolonged one, and many actors began to invest in strategic recovery initiatives, this gap suggests that fewer organizations sought to leverage the crisis as an opportunity to advance projects designed with systemic resilience in mind.

Patterns also emerged when trends in the international response were disaggregated by actor type. Foundations directed their responses towards downstream rapid response. Bilateral organization's efforts focused on rapid response across segments, as well as strategic recovery with more focus on upstream and downstream. Multilaterals' responses clustered in strategic recovery across segments. Stakeholder interviews suggest that organizations of all types devised their COVID responses based on two primary considerations, the most accessible channels available to deploy the work (including existing relationships and adjacent programs) and the desires of key stakeholders within their decision-making processes (e.g., board members, political actors).

IDRC's response mirrored many of the findings of this landscaping exercise, especially the focus of bilateral institutions. IDRC projects primarily focused on rapid and strategic responses focused on all three segments of the supply chain. However, based on the stated aspirations of its longer-term investments, IDRC has plans for more COVID-inspired systemic resilience projects than other actors in the landscape, with a new program on climate resilient food systems to further institutionalize this work.

The highest order finding of this landscape is that when shocks hit food systems, actors respond by redirecting investment and attention to where they see tangible, urgent need (e.g., rapid-downstream). This attention transitioned to some further-looking investments eventually, but overall, it is not obvious that actions were well considered within the context of broader systemic objectives (e.g., systemic resilience). The activity and the gaps revealed by this rapid landscaping exercise can be viewed as weak signals - indications of potential for disruptive change - and may be indicative of the beat of a system overly focused on short term goals.¹⁷

In addition to this, in the course of interviews many stakeholders shared that in the immediate shock of the pandemic there was a sense that "we had to do something". In their efforts to mobilize quickly, few, if any, stopped to listen for signals emerging about what others in the system were doing. This approach

¹⁷ Policy Horizons Canada. 2016. Horizons Foresight Method. Accessed December 2021.
<https://horizons.gc.ca/en/our-work/learning-materials/foresight-training-manual-module-3-scanning/2/>

likely led to missed opportunities for partnerships or other synergies between organizations to leverage resources more effectively and contribute to a more robust pandemic response. This sentiment was shared by the IDRC colleagues interviewed, who expressed concerns that the dynamics and the pace were not well-suited to IDRC's model but that the organization felt obliged--ethically and politically--to engage. As one interviewee stated, with research conducted in a rapidly shifting context "by the time you get answers the questions you asked may no longer be relevant."

Moving forward, there could be opportunities to design research initiatives in midstream segments, especially for rapid response oriented interventions. For strategic interventions it may be more effective to actively listen for the types of disruptions occurring, like changes in consumer and producer behavior, to leverage these as opportunities to design more targeted investigations. These could be linked to broader vectors of change that IDRC is interested in, such as agroecology as an alternative production approach. Systems, and systemic change, are characterized by time delays, so it is likely that the full impacts of the pandemic will continue to emerge and there will be opportunities to do this with future projects. On this point IDRC's CORE projects, which appear to be filling a much-needed gap in the pandemic response landscape, could be positioned to investigate ongoing disruptions, as bullwhip effects of the COVID shock reverberate through food systems in response to changing consumer behavior.

5. Reflections on the COVID & Food Systems Initiative

Using the frames of systems thinking and operational resilience introduced in Section 2, we can examine response to COVID-related impacts on food systems to draw out lessons from the **findings** of the research, the **approach** of IDRC in relation to other international actors, and the **experiences** of IDRC and its grantees implementing research programs amid a pandemic. Each of these categories offers insights into how actors like governments, development organizations, and research institutions can respond in the event of future shocks.

Lessons from the Findings

The findings point to patterns in how COVID-related impacts on food systems manifested and how governments and other actors responded. Viewing the findings holistically through the lenses of systems thinking and operational resilience can help to better articulate key parameters to consider when developing policies to mitigate the impacts of a systemic shock on food systems.

As described in the introduction, while the pandemic was first and foremost a public health shock, the complexity of modern society led this shock to quickly move into other avenues of disruption, including food systems. As governments scrambled to react to the public health crisis using incomplete information they did not or were unable to fully consider the unintended consequences of those decisions. The actions they took to limit the spread of the virus, such as movement restrictions and market closures, altered the conditions that govern food systems' behavior. This change in conditions led to significant disruptions in the functioning of these systems. Using the operational resilience frames presented in the methods, Table 12 synthesizes the findings of the research.

Table 12. Operational Resilience Findings

Of what?	To what?	For whom?	Resilience Implications
Food production	Restrictions on movement that disrupted the supply of key inputs and restrict access to important resources, including materials and labor	Farmers, pastoralists, and fishers who need to access critical resources for food production, like seeds, grazing lands, and fishing sites	<p>Production decreased among the crops and commodities analyzed. Studies in Burkina Faso and Senegal found that 83% of farmers reported decreased production.</p> <p>Producer livelihoods declined. Studies in Burkina Faso, Senegal, and Tanzania which had widely varying lockdown measures reported declines affecting over 80% of farmers. Pastoralist livelihoods also declined across 8 countries in West and Central Africa.</p> <p>Studies reported that social protection measures were insufficient or ineffective for farmers. For example, across 8 countries in West and Central Africa, only</p>

			26% of agro-pastoralists were able to access support measures.
Value chain operations	Restrictions on movement that complicate logistics and disrupted the flow of goods domestically and internationally	Food traders that off-take goods from farm and those that transport them to market, potentially crossing borders in the process	<p>Studies in Burkina Faso, Ghana, and Senegal found that mid-stream processors experienced decreased business due to difficulty accessing raw materials and bringing products to market.</p> <p>Studies in Senegal and South Africa found the cost of doing business increased for up- and downstream actors, suggesting costs for value chain actors, notably transport, were passed on to other segments.</p>
Informal food markets	Restrictions on in-person gatherings and business activity that forced markets to close and disrupted common modes of food trade, especially for low-income and other vulnerable communities	Informal traders and low-income consumers who buy and sell goods at informal markets and cannot easily adapt to increased requirements or the increased costs to trade in formal markets	<p>Informal traders' livelihoods declined. Studies in Ghana and South Africa found lockdown measures severely impacted traders and that mitigation responses ignored them. In South Africa, studies found that some traders absorbed the cost, decreasing profit margins.</p> <p>Studies in Senegal and South Africa pointed to unconditional cash transfers as the most effective measure of social protection, particularly for households reliant on informal food markets. Findings across 5 West African countries found divergent levels of effectiveness of emergency food aid, likely linked to targeting.</p> <p>Studies in Burkina Faso and Mali observed increases in food costs among low-income consumers, coupled with decreased purchasing power.</p>
Gender equity within households	Restrictions on in-person gatherings and business activity that forced men and women to stay home and led to unexpected changes in gender roles / dynamics, including new and different household responsibilities	Women and men who need to adapt to changing roles to strengthen the resilience of their household's livelihoods and food security	<p>In Burkina Faso, Ghana, Senegal, and South Africa studies found that the women's burden of work increased and division of labor within households remained unequal, though men participated more.</p> <p>Studies in Burkina Faso, Cameroon, Chad, Guinea Bissau, Mali, Niger, Nigeria, and Senegal found that women took on more responsibility for the economic livelihood of the household.</p>

Based on the research conducted through the Diagnosing Impacts workstream, food systems disruptions resulting from the pandemic can be interpreted as a disruption to the interconnection between important parts of the system observed publicly (e.g., farmers with reduced access to inputs, informal traders unable to sell at markets) and privately (e.g., gender relations in quarantined households).¹⁸ The compounding effects of these disruptions in system dynamics tested the resilience of many communities, who were forced to find new ways of achieving desired outcomes related to livelihoods and food security, such as rationing food, accessing household savings, and in some instances conducting business through now illegal channels (e.g. bribing customs officers or selling food through black market channels).

Together, these findings point to policy making and response approaches that could yield better results in the event of future shocks.

First, the global response was rapid, with a largely singular intent to stop the spread of the virus; preparation for the systemic consequences was minimal. Containment measures had far reaching impacts on food security and livelihoods which have been documented in the form of higher food prices, income losses, and household-scale adaptation like rationing and selling off assets. These impacts are more significant for poor and vulnerable communities, whose livelihoods often depend on direct goods and service provision. In food systems this is crystalized as a bias toward more formalized, global businesses and supply chain actors and further marginalizes informal traders and small farmers. When considering responses in the event of a systemic shock more attention needs to be paid to the possible unintended consequences of an intervention. In food systems this can be done by appraising the potential impacts on different actors, including farmers, fishers, pastoralists, value chain actors, informal traders, and women, youth, or other vulnerable communities. Unintended consequences can also be considered by looking across the different segments of supply chains and food markets to consider how an intervention in the up-, mid-, or downstream might spill over into other segments. Once interventions are decided upon and undertaken, they should be adapted as more information comes to light about both the positive and negative effects that it has.

Second, shocks demand differentiated responses targeted toward specific food systems actors or groups. As Table 12 shows the impacts of the pandemic on the food system, which primarily stemmed from restrictions on movement and trade, varied in different segments of the supply chain. For food production this showed up as difficulty accessing resources, while for informal traders in downstream markets this showed up as an inability to trade with their customer base. As IFPRI's Food Supply Chain Framework introduced, there is also variation in the impacts within each segment of the supply chain. In the upstream segment of the supply chain small-scale farmers struggled to access inputs and resources needed for food production large farms struggled to access labor. Despite this nuance and variation, the responses that were deployed by states and foreign aid organizations were often non-differentiated or 'blanket' interventions. Because these interventions were not well targeted, the support they offered was

¹⁸ Consortium pour la Recherche Economique et Sociale (CRES). 2021. "Synthèse des résultats issus des travaux des équipes de recherche et de l'atelier régional d'apprentissage et d'échanges."

often biased toward certain actor types, like formalized supermarkets over small, informal traders. Targeted responses to a systemic shock should be developed in an inclusive manner that lifts the voices of the people that a policy is intended to offer support to.

Finally, policies and responses should be considered as interdependent rather than discrete interventions. Research on the negative impacts of containment measures and the mitigating effects of various social protection measures instituted by governments shows that these two categories were developed independently and reactively. Further, social protection measures were often conceived in the broadest sense and not well targeted to different segments of the population or segments of the economy. Governments should take note of the foundational role that food systems play in a functional society and ensure that they are not ignored when developing policies in the wake of systemic shocks. A holistic response would have considered the consequences of the containment measures on food systems as well as other important domestic systems and explored the varied needs of different actor groups to ensure they maintained their most critical functions of feeding people. Considering policy responses as a package rather than discrete interventions would have helped to articulate how interventions work in concert to alleviate the stress on the system caused by all manner of disruptions, including public health and lockdown-related disruptions. Instead, what resulted was a patchwork of ineffective policies ill-suited to solving the problems caused by the containment measures, which in the end placed the burden of navigating the impacts of the pandemic at the feet of the low-income groups and vulnerable populations being worst affected.

Lessons from IDRC's Contribution

IDRC added distinctive value when investing in systemic research with proximate researchers. Less value was added when the landscape became crowded, and research meant to be rapid became drawn out.

The landscape exercise presented in Section 4 shows a concentration of rapid and strategic response in up- and downstream segments of the food value chains. Within this context, IDRC's response largely overlaps with the contributions of other actors, especially the Diagnosing Impacts work. While the landscape analysis did not differentiate investments geographically, which is essential to understanding if individual investments were redundant, the analysis nonetheless offers lessons on where the IDRC's approach can be improved, and where it is valuable.

A first consideration on the value of the IDRC's approach is whether the timeliness of rapid research positions it to effectively feed into decision making processes. The primary intent of the Diagnosing Impacts work was to inform decision-making during the initial wave of the pandemic. While the research was rolled out as quickly as possible by the time it was published in April 2021 the most restrictive measures damaging to food systems were already being lifted in many parts of the world. The findings may have future relevance, especially as new variants and further 'waves' of the pandemic may solicit further consideration of lockdowns. Further, the overall finding of the unintended impacts of rushed

interventions is an important lesson for decision makers to keep in mind in future shocks. Still the immediate utility of the research on impacts may have been limited.

By contrast longer-term work did not seek to provide any rapid insights for pandemic response. This work was developed to influence policy making processes for recovery, resilience, and further shocks, and is feeding into relevant processes within the countries and regions of interest. As the landscape analysis showed there are comparatively fewer actors seeking to influence policy related to COVID and food systems in this more forward-looking fashion. Moving forward it is important to consider how to maximize the usefulness of data being collected and analyzed, and the role that IDRC can play to lift the most telling information out to feed it into relevant decisions. Given that systemic shocks unfold rapidly, and development research modalities have longer time frames to deliver results, IDRC may be better suited to a focus on the systemic transformation opportunities revealed by a shock, allowing others to provide rapid assessment to the impacts of the shock itself.

IDRC adds clear value through its commitment to collaborating with proximate research institutions and networks. This capacity was critical to funding effective research during the crisis due to the scale of disruption and restrictions on movement. One of the external stakeholders interviewed during this analysis shared that their research operations were inhibited by the pandemic, as they were unable to conduct any data gathering in their countries of interest. This forced the organization to pivot to make more investments in the capacity of partner organizations in-country. By contrast, the IDRC's approach is rooted in capacity-building investment in partners in developing contexts, so when the pandemic started, IDRC could simply tailor funding to partners already delivering ongoing research.

Finally, IDRC has an important opportunity to enhance systemic shock response by building internal capacity to scan for and listen to weak signals emerging from systems experiencing shock and stress. This will aid in informed and strategic decision-making about where IDRC's investments will add the greatest value. While it is unclear if individual investments were redundant, the data collected during this synthesis suggests that there was not a substantial effort made to understand what other actors were doing to react to COVID-related impacts on food systems during the design and roll out of the Diagnosing Impacts and Analyzing Responses workstreams. While this is understandable given the high degree of uncertainty and disruption experienced at that time and the desire to do something in support of the pandemic response, it is also likely that the lack of listening led to missed opportunities. The Government of Canada has been forward looking with its policy foresight, and some of the methods endorsed by the government (e.g., horizon scanning) could have been beneficial at the outset of the pandemic to better inform the IDRC approach to COVID and food systems' response.¹⁹

Lessons from IDRC and its grantees experience

During this analysis 34 stakeholders representing the IDRC, and its grantees provided input in the form of stakeholder interviews, participatory workshops, and feedback surveys. This qualitative data was analyzed

¹⁹ Policy Horizons Canada. 2016. Horizons Foresight Method. Accessed December 2021.
<https://horizons.gc.ca/en/our-work/learning-materials/foresight-training-manual-module-3-scanning/2/>

to draw lessons about how the IDRC, and its grantees responded to the systemic shock of COVID-19 as they attempted to conduct research in this same context of systemic uncertainty. Analyzing this data offered insights into what worked well and what could be improved in the selection and design of research projects, and the management of implementation of those projects, which are described in the table below.

Table 13. Lessons from the IDRC and grantee experience

Lessons on selection, design, management, and grantee, by actor type		
Characteristic	Lessons for funders	Lessons for researchers
Flexibility in the face of disruptions	Flexible mechanisms for funding, grant management, and the delivery of research were important to balance timeliness and rigor. Supplemental grants were useful to get funds out quickly and efficiently to diagnose impacts. Other parts of the initiative were delayed by administrative processes. The reporting processes and capacity to absorb changes to the research context (esp. delays) were better in some cases than in others.	Adaptive design and delivery of research, especially as it applies to data collection in the field. In many instances mobility was restricted and required workarounds to collect data in a timely manner, especially techniques for remote data collection. Other administrative hurdles like obtaining research clearance created bigger obstacles. The most effective organizations at research delivery during the pandemic were deeply embedded in the contexts they researched.
Acknowledging the human element of our work	Surge capacity within the staff to provide more hands-on support is key to avoid overworking staff and ensure that funders listen to grantees to understand the changing conditions affecting the research context, and to help them manage these changes.	Networked teams are more resilient in the face of the human impacts of a shock like COVID-19 (which many teams had members contract) rather than teams where great amounts of responsibility / capacity are vested in one individual or one location.
Considering research through a holistic lens to better feed into decision-making and policy	Treat research investments as a single response rather than a portfolio of discrete projects. This supports more cohesive knowledge sharing and co-learning among teams, and communication of policy recommendations to decision-making bodies.	Identify the ultimate channels of advocacy during research design and incorporate stakeholders into the research process at key moments. This approach supports a more cohesive communications strategy to feed recommendations into decision-making processes.

The lessons outlined above offer insights into how funders and researchers can learn from IDRC and its grantees experiences to better participate in response to the next systemic shock. However, an overarching lesson for the international community is that the global food systems research architecture should be considered as a system itself, rather than a set of individual institutions working on problems.

The system as a whole, including the infrastructure, networks, and partnerships, needs to be resilient and responsive to the dynamic conditions of our rapidly changing world. While redundancy is not necessarily a problem as it can contribute to resilience, siloed work efforts can lead to missed opportunities for collective learning essential for a cohesive and comprehensive response. Even within IDRC's portfolio there is overlap between some of the research projects, such as the work being done by CORAF and CECI, both of which are investigating gender relations in West Africa and communicating these findings to regional bodies, in this instance ECOWAS. Grantees participated enthusiastically in the opportunities that arose to share findings and learn from one another, however the lack of funding allocated for these collaborations and the rapid timeframe for the research limited these possibilities. Moving forward research initiatives can be better designed to create opportunities for co-learning between members of a research cohort. This would help to identify potential redundancies or synergies earlier on in the process and encourage the sharing of knowledge and experiences between research teams could help them to learn from the challenges one another faced and be more resilient with their own efforts.

On a global level more systems-oriented thinking is becoming mainstream, as evidenced by the strategic intentions of institutions like IDRC and myriad global fora seeking to spark conversation on food systems transformation. However, systems awareness has yet to take hold in all national and regional bodies. This is not a challenge for any one institution to solve, but rather an overarching need for better coordination and partnership on these topics.

Limitations and Areas for Further Investigation

This synthesis was conducted first and foremost as a learning activity and not as an evaluation. While it offers many important insights into the findings, process, and added value of the research funded by IDRC on COVID and food systems, the findings should be viewed through a formative lens and not as an assessment of shock response, which would require a different kind of study.

This is a high-level synthesis across key themes in the research. It does not provide detailed assessment of particular projects. For more information, please refer to the reports authored by the research teams referenced in Annex 2.

The landscaping included in this synthesis was done rapidly and for a subset of development actors of interest to the IDRC. It does not offer a comprehensive picture of the investments made on COVID-19 and food systems by the development community but rather is a scan for weak signals of interest. Further investigation into the full scope and scale of investments in COVID and food systems would serve international discourse on pandemic response and recovery.

The lessons offered in this synthesis were developed using the frames of systems thinking and operational resilience. However, these are not the results of a rigorous systems analysis, and no mapping exercise was done to identify leverage points. While this would be possible it would require a different study design and/or participatory mapping approach.

6. Conclusion

The IDRC's response to the impacts of COVID-19 on food systems included nineteen projects. CRFS commissioned this report to synthesize the findings generated, to understand how these investments compared to other actors in the international landscape, and to unpack the lessons learned from the course of delivering this work. All of this was done with the goal of informing how the CRFS and its partners respond in the event of future shocks.

Regarding the findings, the research offered insights on how COVID and the containment measures put in place negatively impacted food production, value chains, informal markets and trading, and gender relations. The research found that the blanket measures deployed to ease the burden caused by the lockdowns did not provide adequately targeted support for key food systems stakeholders including producers, pastoralists, women, and low-income consumers. The preliminary findings related to work with longer term, potentially systemic aspirations suggest that containment measures increased poverty and inequality, with higher impacts seen among women-headed households and those relying on informal markets to access food.

A rapid landscaping exercise shed light on where a subset of actors directed their attention and resources in response to the pandemic. This landscape revealed that most attention was directed toward rapid responses in the upstream and downstream segments of the food supply chain. Comparatively less investment was made in the midstream and on more forward-looking projects with systemic resilience objectives across the up-, mid-, and downstream. These insights offer indications as to how IDRC might maximize the added value of its investments in future shocks.

The lessons learned in the course of the research suggest that there are important opportunities for large institutions to improve how they respond to shocks. The research funded by IDRC points to ways governments can lessen the burden created by unintended consequences of lockdown measures and provide more targeted support through more inclusive, holistic policy making processes. The landscaping exercise suggests IDRC may be well suited to focus on the systemic transformation opportunities revealed by a shock, allowing others to provide rapid assessment to the impacts of the shock itself. The process of selecting, designing, managing, and implementing research experienced by the IDRC and its grantees offers insight into how funders and researchers can be more adaptive and flexible in the face of systemic shocks and resultant disruptions to better inform and influence decision-making. Overall, there is a need for greater coordination at all levels to maximize the value of research and its ability to inform and influence key policy decisions in a timely manner that will benefit food systems stakeholders.

7. Annexes

Annex 1. Summary of IDRC’s COVID and Food Systems Initiatives

Table 14. Summary of IDRC’s COVID and Food Systems Initiative Grantees and Project Titles

Diagnosing Impacts		Analyzing Responses	CORE (w/food systems focus)
SOCODEVI: Documenting the food systems of households in seven areas of West Africa in the context of the COVID-19 pandemic and the distancing measures put in place by the authorities	CPED: Documenting the impact of COVID-19 on local food production and informal food markets in Nigeria with the Niger Delta region as a case study	IPAR: Responses to COVID-19 through social protection and the strengthening of local food systems: Case of the Niayes in Senegal	Rimisp: Impact of COVID-19 on family farming and food security in Latin America: Evidence-based public policy responses
USIU: Assessing gender-sensitive policy implications of COVID-19 on youth agri-preneurship resilience in the poultry, horticulture, and fish agribusiness value chains	KALRO: Assessing the effects of coronavirus response measures on food and nutrition security in semi-arid Kenya	CORAF: Impacts of Government’s COVID-19 responses on food systems and livelihoods in the Sahel	SDPI: Supporting small and medium enterprises, food security, and evolving social protection mechanisms to deal with COVID-19 in Pakistan
NARO: Analyzing the impacts of the COVID-19 pandemic on food production and supply systems in Kenya and Uganda	WITS: Food security in urban Johannesburg during the COVID-19 lockdown: food parcels, social grants, and local food economies	APESS: Support Project in Response to the Effects of COVID-19 in the Livestock Sector in West and Central Africa	GRADE: Addressing the socioeconomic impacts of COVID-19 with a gender lens: food systems, labor markets, and social protection in Latin America
University of Malawi: Assessing the resilience of the fish value chain to the COVID-19 pandemic in Malawi	ESRF: Documenting the Impact of COVID-19 on Food Systems and Trade between Tanzania and the East African Community (EAC) Partner States	University of Western Cape: The Impacts of COVID-19 Responses on the Political Economy of African Food Systems	AERC: The impact of the COVID-19 pandemic on livelihoods in Africa
Trustees of Columbia University: Understanding the cascading impacts of COVID-19 and how it is reshaping staple food value chains in Zimbabwe	CRES: Generating evidence on the effects of COVID-19 and drawing lessons on the resilience of the informal food economy in the greater Dakar metropolitan area	CECI: COVID 19, food security and opportunities for reconfiguring unequal gender relations in Burkina Faso and Senegal	

Annex 2. Lists of Documents Reviewed

Table 15. Stream 1 Documents and Materials

Document Title	Primary Organization Author
Call for Research Activities in the Context of IDRC's Rapid Response Initiative: Documenting the Impact of COVID-19 on Food Systems	IDRC
Brief: Food systems and food security in the time of lockdowns: Insights from sub-Saharan Africa	
Webpage: Documenting COVID-19's impact on food systems in sub-Saharan Africa	
Webpage: Drawing lessons from the COVID-19's impact on food systems to inform future responses to shocks and pandemics	
Food System Response to COVID synthesis workshop agenda	CRES; IDRC
Synthèse des résultats issus des travaux des équipes de recherche et de l'atelier régional d'apprentissage et d'échanges	CRES
Impacts of the COVID-19 pandemic on livelihoods in southern Zimbabwe	Trustees of Columbia University
Report: The Impact of Covid-19 on local food production and informal food markets in Nigeria with Niger Delta region as case study	CPED
Report: Documenting the Impact of COVID-19 on Food Systems and Trade between Tanzania and East African Community (EAC) Partner States	ESRF
Report: Analyzing the impacts of COVID-19 pandemic on food systems in Kenya and Uganda	NARO
Report: Food security in urban Johannesburg during the Covid-19 lockdown: food parcels, social grants, and local food economies	WITS
Rapport: La résilience de l'économie informelle de l'alimentation à l'épreuve de la COVID-19 : Quels enseignements de l'expérience de la grande métropole dakaroise	CRES
Report: Assessing the resilience of the fish value chain to the COVID-19 pandemic in Malawi	University of Malawi
Rapport: Documenter l'effet de la COVID-19 sur les systèmes alimentaires des ménages en Afrique de l'Ouest	SOCODEVI
Report: Assessing the Effects of Coronavirus Response Measures on Food and Nutrition Security in Semi-arid Kenya	KALRO
Report: Gender Sensitive Policy Implications of COVID-19 on Youth Agri-preneurship Resilience	USIU-Africa

Table 16. Stream 2 Documents

Document Title	Primary Organization Author
Call for Research Proposals in the Context of IDRC’s Rapid Response Initiative: COVID-19 and Food Systems: Assessing the Responses	IDRC
Webpage: Informing future responses to shocks and pandemics by drawing lessons from COVID-19’s impact on food systems	
Final Technical Report: The Impacts of COVID-19 Responses on the Political Economy of African Food Systems	PLAAS
Proposal: The Impacts of Covid-19 Responses on the Political Economy of African Food Systems	
Progress Report: The Impacts of COVID-19 Responses on the Political Economy of African Food Systems (3-6 Months Progress Report)	
Communications Strategy - Project: The Impacts of COVID-19 Responses on the Political Economy of African Food Systems	
Workshop 3 Report: The Impacts of COVID-19 Responses on the Political Economy of African Food Systems	
Rapport technique finale : Effets de la crise COVID-19 sur la Sécurité Alimentaire au Burkina Faso et au Sénégal: Une opportunité de reconfiguration des rapports inégalitaires de genre	CECI
Proposal: Crise COVID 19 et impact sur les piliers de la Sécurité Alimentaire (SA) et les opportunités de reconfiguration des rapports inégalitaires de genre, au Burkina Faso et au Sénégal : Projet de recherche	
Rapport sur l’état d’avancement : Effets de la crise COVID-19 sur la Sécurité Alimentaire (SA) au Burkina Faso et au Sénégal: Une opportunité de reconfiguration des rapports inégalitaires de genre (Rapport sur l’état d’avancement du projet – Mai 2021)	
Rapport pré final : Les effets de la COVID 19 dans le secteur de l’élevage	APESS
Proposal: Projet d’appui à la définition et la mise en place des mesures pertinentes et durables en réponse aux effets de la COVID-19 dans le secteur de l’élevage en Afrique de l’Ouest et du Centre (AOC)	
Troisième Rapport Technique : Projet d’appui à la définition et la mise en place des mesures pertinentes et durables en réponse aux effets de la COVID-19 dans le secteur de l’élevage en Afrique de l’Ouest et du Centre (AOC)	
Annexe Synthèse Documentaire : Projet d’appui à la définition et la mise en place des mesures pertinentes et durables en réponse aux effets de la COVID-19 dans le secteur de l’élevage en Afrique de l’Ouest et du Centre	

(AOC)	
Note Methodologique: Projet d'appui à la définition et la mise en place des mesures pertinentes et durables en réponse aux effets de la COVID-19 dans le secteur de l'élevage en Afrique de l'Ouest et du Centre (AOC)	
Rapport technique finale CRD I: « Riposte à la COVID-19 par la protection sociale et le renforcement des systèmes alimentaires locaux : Le cas des Niayes au Sénégal » (COPSA)	IPAR
Proposal: Response to COVID-19 through social protection and the strengthening of local food systems: The case of the Niayes in Senegal	
Rapport sur l'état d'avancement: Riposte à la COVID-19 par la protection sociale et le renforcement des systèmes alimentaires locaux : Le cas des Niayes au Sénégal (COPSA) (Rapport sur l'état d'avancement de projets aux trois et six mois)	
Rapport finale : Étude sur "effets des réponses du gouvernement à la COVID-19 sur les systèmes alimentaires et les moyens de subsistance au sahel"	CORAF
Proposal: Impacts of Government's COVID-19 responses on food systems and livelihoods in the Sahel	
Progress Report: The impacts of Governments' Covid-19 responses on food systems and livelihoods - Progress Report	

Table 17. COVID CORE Initiative Documents

Document Title	Organization Author
Research for Policy and Practice Report Covid Response for Equity (CORE) The impact of Covid-19 on livelihoods and food security	IDRC; IISD
Proposal: Building back better: Using a disruptive crisis to achieve sustainable and gender inclusive improvements in food security, labor markets and social protection	GRADE
Proposal: Impact of Covid-19 on family farming and food security in Latin America. Evidence-based public policy responses.	Rimisp
Proposal: Saving Lives and Livelihoods by supporting Food Security, Small and Medium Enterprises and Universal Social Protection Mechanisms to cope with COVID 19 Impacts in Pakistan	SDPI

Annex 3. Lists of Interviewees

Table 18. List of Program Officer and Grantee Research Team Interview Subjects

Name	Organization	COVID and Food Systems Initiative Role
Sandra Gagnon	IDRC	Program Officer: “Documenting the food systems of households in seven areas of West Africa in the context of the COVID-19 pandemic and the distancing measures put in place by the authorities” Program Officer: “COVID 19, food security and opportunities for reconfiguring unequal gender relations in Burkina Faso and Senegal” Program Officer: “Impact of COVID-19 on family farming and food security in Latin America: Evidence-based public policy responses”
Michele Leone	IDRC	Program Officer: “Impacts of Government’s COVID-19 responses on food systems and livelihoods in the Sahel” project Program Officer: “Responses to COVID-19 through social protection and the strengthening of local food systems: Case of the Niayes in Senegal” project and
Marwan Owaygen	IDRC	Program Officer: “Support Project in Response to the Effects of COVID-19 in the Livestock Sector in West and Central Africa” project
Annie Wesley	IDRC	Program Officer: “The Impacts of COVID-19 Responses on the Political Economy of African Food Systems” project
Natacha Lecours	IDRC	Program Officer: “Food security in urban Johannesburg during the COVID-19 lockdown: food parcels, social grants, and local food economies” project Program Officer: “Generating evidence on the effects of COVID-19 and drawing lessons on the resilience of the informal food economy in the greater Dakar metropolitan area” project
Renaud de Plaen	IDRC	Senior Program Specialist, Climate Resilient Food Systems
Isabelle Vandeplass	CECI	Principal Investigator: “COVID 19, food security and opportunities for reconfiguring unequal gender relations in Burkina Faso and Senegal”
Mariame Maiga	CORAF	Principal Investigator: “Impacts of Government’s COVID-19 responses on food systems and livelihoods in the Sahel” project
Mwasilwa Ambali	CORAF	Project Coordinator: “Impacts of Government’s COVID-19 responses on food systems and livelihoods in the Sahel” project
Laure Tall	IPAR	Principal Investigator: “Responses to COVID-19 through social protection and the strengthening of local food systems: Case of the Niayes in Senegal” project
Awa Diouf	IPAR	Research Team Member: “Responses to COVID-19 through social protection and the strengthening of local food systems: Case of the Niayes in Senegal” project

Adama Traore	APESS	Principal Investigator: “Support Project in Response to the Effects of COVID-19 in the Livestock Sector in West and Central Africa”
Ruth Hall	PLAAS	Principal Investigator: “The Impacts of COVID-19 Responses on the Political Economy of African Food Systems”

Table 19. List of landscape interview subjects

Name	Organization	Role
Julianne Biddle	ACIAR	Director, Multilateral Engagement
Rachel Lambert	FCDO	Senior Livelihoods Advisor
Nadine Zakhia-Rozis	CIRAD	Directrice générale adjointe Recherche et Stratégie
Anika Reinbott **	GIZ	Policy Advisor
James Thurlow *	IFPRI	Senior Research Fellow
Alexander Jones *	FAO	Director, Resource Mobilization and Private Sector Partnerships - Partnerships and Outreach
Nico Janssen	IKEA Foundation	Programme Manager, Agricultural Livelihoods
Andrew Sweet *	Rockefeller Foundation	Managing Director, COVID-19 Response and Recovery, Health Initiative

* denotes subject was unresponsive

** denotes subject declined interview

Annex 4. Lists of Workshop Attendees

Table 20. COVID and Food Systems Stream 2 Projects Synthesis Workshop Tentative Attendees

Name	Organization
Sandra Gagnon	IDRC
Michele Leone	
Marwan Owaygen	
Annie Wesley	
Madiha Ahmed	
Renaud de Plaen	
Isabelle Vandeplas	CECI
Katim Toure	ENSA
Safiétou Sanfo	CÈDRES
Mariame Maiga	CORAF
Hippolyte Affognon	
Mwasilwa Ambali	
Laure Tall	IPAR
Oumoul Khairy Coulibaly	
Cheikh Faye	
Adama Traore	APESS
Amadou Hindatou	
Souleymane Ouédraogo	
Ruth Hall	PLAAS, University of Western Cape
Akosua Darkwah	University of Ghana
Luitfred Kissoly	Ardhi University

Table 21. COVID and Shock Response Sensemaking Workshop Tentative Attendees

Name	Organization
Edidah Lubega	IDRC
Michele Leone	
Sandra Gagnon	
Marwan Owaygen	
Annie Wesley	
Renaud de Plaen	
Madiha Ahmed	
Carolyn Z. Mutter *	Trustees of Columbia University
Job Eronmhonsele *	CPED
Patrick Tuni Kihenzile	ESRF
Abdoulaye Diagne *	CRES
Adama Traore	APESS
Ruth Hall	PLAAS
Miguel Albacete *	Rimisp
Abid Qaiyum Suleri *	SDPI

* denotes absence