

UPDATE ON THE CGIAR RESEARCH RESPONSE TO COVID-19

2 March 2021

The COVID-19 pandemic has caused a global health crisis and massive disruptions to economies and livelihoods. As the global leader in agricultural research, CGIAR immediately took action to analyze and counter the pandemic's potentially devastating impact on food security and nutrition worldwide, particularly in low- and middle-income countries (LMICs), first through the existing research programs, and then with the establishment of a COVID-19 Hub in July to develop additional research and coordinate system-wide efforts. This report details progress in that research response during the first quarter of 2021.

IMPACTS OF COVID-19 AND RESPONSE MEASURES ON POVERTY, FOOD SYSTEMS AND FOOD SECURITY

The effects of the COVID-19 pandemic and efforts to stop its spread are unprecedented and ongoing. Amid the deepest global recession since the 1930s, extreme poverty has risen for the first time in 22 years and unemployment has increased dramatically ([OCHA 2021](#)). In Ethiopia, for example, the economic impacts of lockdown measures caused an estimated additional 10.1 million people to fall below the poverty line ([Aragie et al. 2020](#)). The macro-economic outlook is more promising: stronger-than-expected momentum in the second half of 2020 meant that global gross domestic product contracted by an estimated -3.5 percent, which was less than expected ([IMF 2021](#)). Amid continued and exceptional uncertainty, the global economy is projected to grow 5.5 percent in 2021 (*ibid*).

The pandemic's long-term effects are not yet clear, but we know it has exacerbated existing distributional problems in poverty, nutrition, and education. Many short-term reactions to the pandemic cannot be sustained in the long term. At every level, from household to national, debates continue about how to

prioritize the scarce budgets. Poor households throughout the world have exhausted their reserves and are facing a long recovery period without adequate safety nets. At the end of 2020, the number of acutely food insecure people may have been as high as 270 million, an 82 percent increase over levels before the pandemic ([OCHA 2021](#)).

Overall, food systems, and in particular primary agriculture, have demonstrated a surprising amount of resilience, but economic shocks continue due to the pandemic's effects on incomes. According to the International Labor Organization (ILO), working hour losses in 2020 were approximately four times greater than during the 2009 financial crisis, amounting to an 8.8 percent loss, or 255 million full-time jobs. In lower-middle-income countries, this loss was even greater, at 11.3 percent. While the disruption was global, there was substantial variation between regions, with Latin America and the Caribbean, southern Europe, and southern Asia most affected ([ILO 2021](#)). Women, youth, less-educated workers, and those in the contact-intensive and informal sectors suffered disproportionate livelihood and income losses ([IMF 2021](#)). As lockdowns ease, businesses in the food and agriculture sector will need to adapt to a 'new normal', with changes to both working conditions (physical distancing, infrastructure, flexible working schedules) and consumer demands (shifts to online and takeaway food purchases, greater demand for packaged food) ([FAO 2021](#)). According to [Zhang \(2020\)](#), policies that stimulate domestic demand by targeting consumers, particularly those with low incomes or vulnerable people in rural areas, would indirectly help small- and medium-sized enterprises while also generating broader economic benefits.

Both the direct impacts of the pandemic and responses to it have been very country-specific. Between March and the end of December 2020, a total of 215 countries or territories had planned or implemented 1,414 social protection measures ([Gentilini et al. 2020a](#)), with cash transfers and food aid the most commonly implemented forms ([Fang et al. 2020](#); [Gentilini et al. 2020b](#)). An estimated US\$800 billion was invested in social protection during this period, which was 22 percent higher than during the 2008-2009 recession ([Gentilini et al. 2020a](#)). However, spending in low-income countries amounted to \$6 per capita, which was 87 times lower than in high-income countries (*ibid*).

Some social protection programs have had a clear impact on mitigating the pandemic's effects. In Ethiopia, two-thirds of respondents to an International Food Policy Research Institute (IFPRI) phone survey reported that their incomes had fallen since the start of the pandemic, and almost half reported being less able to satisfy their food needs. However, food insecurity increased by just 2.4 percentage points for households participating in the existing Productive Safety Net Program (PSNP), compared to 11.7 percentage points for non-PSNP households ([Arebay et al. 2020](#)). Globally, the International Monetary Fund is predicting an “incomplete and uneven recovery,” with the strength of each country’s recovery dependent on the severity of the health crisis, the extent of domestic disruptions to activity, exposure to cross-border spillovers, and the effectiveness of policy support to limit persistent damage ([IMF 2021](#)).

CGIAR COVID-19 HUB PROGRESS OF WORK

The CGIAR COVID-19 Hub, launched in July 2020, provides a targeted and coordinated research response to the global pandemic that is affecting health systems, national economies, poverty and food security. In 2020, the Hub launched a number of activities, bringing together a wide range of expertise across the prioritized work areas and implementing an

engagement process with partners in selected countries. To use the limited financial resources of the Hub most effectively, in 2021, it will focus on delivering a set of prioritized research outputs that leverage the broader portfolio of work across CGIAR entities to deliver knowledge and innovations for emergency response, recovery and resilience and proving inputs and lessons learnt to the future One CGIAR research portfolio.

Work Area 1: Value Chain Fractures

Much of the initial research on COVID-19 impacts by CGIAR related to value chain fractures and challenges around the food supply. These initial efforts, which will be completed in the first quarter of 2021, are to provide an assessment framework for value chains and COVID-19 impacts and then use it to design further analysis. The first set of analyses draws upon an inventory of CGIAR and external studies on food and related value chains to synthesize lessons on how COVID-19 and immediate government responses to the pandemic affected value chains, as well as how countervailing policies or innovations may have mitigated such impacts. A second set of studies will focus on how value chains and the actors within them have pivoted, through organizational, institutional, technological or other types of innovations. Those studies will also examine how those innovations performed, in order to develop recommendations about their longer-term use within value chains.

Work Area 2: One Health

COVID-19 has highlighted the importance of interactions between human, animal and environmental health, and thus the need to take a One Health approach to food systems.

One critical issue is the role of food systems in crossover events, where zoonotic infections start to be transmitted from human to human. The Hub is preparing a review of the crossover of diseases, using a novel typology of situations in which new pathogens cross from animals to humans. Also, and in response to

evidence that food processing plants can act as hotspots of transmission, the Hub has initiated epidemiological studies of such settings in Vietnam and Kenya. Most recently, the Chair of this working group, Hung Nguyen-Viet, joined the WHO mission to Wuhan, China, as part of the ‘animals and environment’ team studying the origins of SARS-CoV-2. [His report](#) describes the experience of his participation in the mission and reflects on the One Health agenda of One CGIAR.

A One Health approach is also needed to manage the health and economic impacts of the pandemic. Consideration must be given not only to the impacts of the epidemic itself, but also those of lockdown measures imposed in order to suppress transmission. These measures can lead to significant poverty, nutrition, and food security impacts, and countries are currently trying to find the right balance between the need to limit transmission, on the one hand, and the need to minimize the economic impact of lockdowns on the poorest households, on the other. Economists and epidemiologists have long been aware that poor health and poverty are interlinked, but these interactions have, until now, not been incorporated in the conventional models used by economists and epidemiologists to predict economic and epidemiological impact. COVID-19 has forcefully demonstrated the urgent need to bridge this gap. In this work area, IFPRI and London School of Hygiene & Tropical Medicine are working together on integrated modeling of health and economics.

Work Area 3: Support Country COVID-19 Responses

The CGIAR COVID-19 Hub is engaging with governments and other national partners, through cross-CGIAR efforts, to co-design and co-deliver research interventions targeted to the priorities and needs in each Hub focus country. CGIAR country teams established under the Hub play a facilitating role in this process, first to understand and then to carefully link country demand for COVID-19-relevant research with

the available supply of CGIAR data, knowledge, evidence, innovations and capacity development.

In September 2020, the CGIAR country teams in two pilot countries – **Bangladesh and Ethiopia** – initiated the country engagement process to scope demand, supply, and feasibility for CGIAR COVID-19 work to identify research that would respond to national COVID-19 priorities. This included important steps in diagnostics (gathering key government and other actors’ strategies, priorities and actions on COVID-19 responses; identifying entry points and focal persons; and mapping the ongoing CGIAR work and capacities relevant to each country) and dialogue to agree on research activities to develop. In partnership with national stakeholders, the country teams have compiled draft action plans to be implemented during 2021.

In **Bangladesh**, research activities were identified based on mapping of CGIAR capacities to the Ministry of Agriculture’s COVID-19 action plan. The plan focuses on recovery and resilience building in agriculture as a response to market and agricultural production disruptions caused by the pandemic. Cross-CGIAR activities with national partners including the Department of Agricultural Extension and other organizations such as the Food and Agriculture Organization of the United Nations (FAO) include:

- Digital disease monitor and hotspot locator. A database for uploading disease incidents (plant, fish and livestock) detected in different geographical locations using digital data collection software.
- Nutrient-secure homestead app. An app to collect and analyze food consumption at the household level and suggest a mix of plants and fish (if ponds are available) that can be grown in the homestead to meet the nutrient requirement gap.
- Food system monitoring dashboard. A comprehensive monitoring and decision-support

digital system for supporting agricultural resilience and recovery, with real-time and action-oriented (at district, sub-district or regional levels) data and high spatial resolution.

- Digital markets for women. A feasibility study of a digital system to help women market their produce will be conducted.

In **Ethiopia**, the action plan was designed to respond to the following priorities established by the government: (i) Agricultural services business continuity, (ii) Safe and timely distribution of inputs, (iii) Increased production of grains and vegetables to ensure food and nutrition security and (iv) Digital Ethiopia 2025 strategy in which digitalization of agriculture is one of the targets.

For the **Ethiopia** action plan, outputs with partners such as the Ministry of Agriculture (MoA), the National Information Platform for Nutrition and the Ethiopian Public Health Institute will include:

- A report on lessons learned from the COVID-19 pandemic regarding availability and access to inputs, dietary, and food safety/water, sanitation and hygiene (WASH) challenges, and emerging opportunities.
- A seed supply chain mapping through identifying critical functional points for digital solutions for a specific geographical location to be determined with the MoA, Ethiopian Institute of Agricultural Research (EIAR), Ethiopian Agricultural Businesses Corporation (EABC) and other relevant national partners.
- An app for facilitating agricultural input supply (seed) and market access (such as wheat and tomato value chains) by farming communities and farming households for the selected geographical location. This will have the flexibility to contextualize to local needs informed by the project's outcomes.
- An app and dashboard to help detect and analyze misinformation related to COVID-19 and

associated food consumption and disseminate 'corrected' advisories in near real-time.

- An app and system to disseminate targeted messages on food safety, consumption patterns, nutrition, and selected WASH aspects.
- A set of recommendations on how digitalization of agriculture input supply and market access could be addressed within the context of the Digital Ethiopia 2025 Strategy and the MoA COVID-19 Response Plan and responses to similar future emergencies.

By the end of 2020, three additional countries (**Malawi, Myanmar, and Nigeria**) were added as Hub priority countries and are implementing a fast-tracked version of the country engagement process to identify areas for strategic cross CGIAR collaborative COVID-19 research. The country teams are facilitating the rapid alignment and co-design processes to finalize action plans in March 2021. Based on these, they will each implement two to three priority research actions, supported by Working Group 3. In **Nigeria**, CGIAR held initial discussions with the Federal Ministry of Agriculture and Rural Development in 2020 on the main priorities for mitigating risks to food systems during and after the COVID-19 pandemic. In **Myanmar**, the cross CGIAR team has carried out virtual meetings with international and national partners (e.g., the Gulf of Mottama project funded by the Swiss Agency for Development and Cooperation, Department of Fisheries) to identify research activities that are aligned with the COVID-19 Economic Relief Plan (CERP) and, more recently, the Myanmar Economic Resilience and Relief Plan (MERRP).

The experiences of the five COVID-19 Hub countries will be summarized and analyzed to provide lessons for the country and regional engagement processes that form an important part of One CGIAR.

Work Area 4: Food System Resilience

In 2020, this Working Group conducted a survey of studies from across CGIAR related to COVID-19, collecting information on 89. The Working Group also undertook a study to map the impacts of COVID-19 on food systems, food security, and nutrition, and to understand key fragility points and underlying vulnerabilities. The researchers analyzed 337 documents covering 62 different countries from all major geographic regions. The study was released in late February, and explored through a March 2 webinar.

The group will build on this work in 2021 by addressing the vulnerabilities identified by the mapping exercise and focusing on building back better. Three sets of activities are planned:

- Identify possible solutions to the issues identified by the food system fragilities' mapping exercise conducted in 2020, for the various actors affected (e.g. producers, traders, SMEs and processors, workers, consumers)
- Foresight, ex-ante analysis, and modelling of agri-food systems and the wider economy to anticipate/foresee longer-term issues influencing food system performance and resilience, and policy options to address them. This work may integrate both qualitative and quantitative approaches to scenario planning/foresight.
- Develop tools, policy recommendations, and capacity building resources to integrate risk prevention/mitigation and uncertainty management into food systems and build back better.

Some important dimensions to be considered include:

- Food safety needs to be part of the building back better; it is linked to diets, nutrition, and One Health.
- Linking public health, diets, and agriculture to identify methods that can achieve food security and nutrition objectives while mitigating health

and environmental risks and considering the inevitable trade-offs (as described in Work Area 2).

- Consideration must be given to how economic incentives in labor markets, transport systems, and value chains' organization can be modified to address the epidemiologic risks identified and documented in Work Area 3, and/or to reduce the impacts of an infection in any of the fragile points.
- Analysis is needed on rural-urban interdependencies and linkages, including the potential of rural areas and agriculture, fisheries, and forestry to buffer urban employment loss. Recommendations include linking rural and urban food system transformation with a larger component from local food sources.
- Exploration of trade-offs between resilience and sustainable productivity intensification of different food production systems (mixed/specialized farming; settled/migrant, etc.) and different market regimes (e.g. traditional open markets versus modernizing retail) is important.

Hub outputs planned for 2021:

Work Area	Objectives	Planned Outputs in 2021
1. Address value chain fractures	Develop syntheses of country-, value chain-, and commodity-specific case studies and new collaborative research to inform policy and investment decisions and actions to restore food/agriculture value chains.	<ol style="list-style-type: none"> 1. Framework for assessing value chain fractures 2. Inventory of CGIAR value chain studies on COVID-19 to date 3. Synthesis of lessons learned from existing studies of value chains during COVID-19 4. Collaborative study of how well innovations in value chains mitigated impacts of COVID-19
2. Integrate a One Health approach to COVID-19 responses	Link health, economic, and environment models and provide targeted reports and joint modelling for three to four priority countries, plus a series of high-profile evidence papers. This will build understanding of human, animal, and environmental health, de-risk agricultural hotspots, and avoid future zoonosis cross-over events.	<p><i>Pathogen crossovers</i></p> <ol style="list-style-type: none"> 1. Review of key risk factors associated with cross-over of pandemic-potential pathogens from animals to humans 2. Vietnam case study with analysis of risks from wild bushmeat, wildlife farming and livestock. <p><i>Epidemiology</i></p> <ol style="list-style-type: none"> 3. Framework to map COVID-19 and other zoonotic diseases on agricultural productivity. 4. Transmission at the interface of humans, domestic animals, and wildlife in different host ecosystems in Vietnam. 5. Slaughterhouses as “hot-spots” for SARS-CoV-2 transmission in Kenya 6. Framework for One Health assessment of aquatic food systems in Bangladesh <p><i>Epidemiological and economic modeling</i></p> <ol style="list-style-type: none"> 7. Framework and analysis of joint models in two to three countries
3. Support country COVID-19 responses	Establish a response network across CGIAR partner countries and provide national partners with analyses, evidence-based recommendations, and scalable solutions on policies, strategies, and investment options for integrated COVID-19 crisis and recovery responses.	<ol style="list-style-type: none"> 1. Implementation of co-designed action plans with partners in Bangladesh, Ethiopia, Malawi, Myanmar and Nigeria 2. Synthesis of lessons learned from country engagement and providing agile cross-CGIAR COVID-19 research response
4. Address food systems' fragility and build back better	Identify the impacts of COVID-19 on food systems' fragility and integrate foresight modelling results and prioritized solutions to improve resilience and build back better, with particular emphasis on vulnerable groups and country priorities.	<ol style="list-style-type: none"> 1. Literature review of relevant studies on food system fragilities and how to address vulnerabilities. 2. Working paper and policy brief on mitigating vulnerabilities and reinforcing resilience with particular emphasis on vulnerable groups and country and regional priorities, through integration of sustainable production, trade and consumption strategies and governance for risk prevention to improve food system adaptation processes. 3. Foresight analysis that incorporates this new knowledge to assist the re-design and scaling of improved food systems in building back better.

STEPPING UP COUNTRY ENGAGEMENT TO ADDRESS A CRISIS

As part of the transition to One CGIAR, CGIAR is stepping up regional and country engagement as a central and vital pathway for delivering an ambitious and impactful research and innovation agenda. For its partners, One CGIAR will be more accessible and easier to work with, both locally and globally, providing a one-stop shop to access all of its global capabilities. It will also better respond to local priorities and engage more with local private sector and value chains.

As a theory of change for how One CGIAR can be transformative and innovative in its engagement, the key conditions for effective engagement include:

- **Institutionalization-** ensuring there is a strong mandate, purpose and leadership for engagement
- **Resourcing-** putting in place the necessary funding and capacity to support effective and sustained engagement
- **Alignment-** triangulating the demand, supply and feasibility for research activities in dialogue with key stakeholders
- **Co-Design-** developing plans with key partners for the processes ahead
- **Collaboration-** activating and sustaining diverse and robust partnerships

- **Contribution-** undertaking joint monitoring and measurement of activities to benefit multiple needs, and recognizing contributions of partners

Through the work of the COVID-19 Hub, CGIAR is testing this approach using an adapted process – given the urgency of the situation – and will extract lessons for strengthening and scaling up our partnerships with governments, scientists, farmers, agrifood businesses and other stakeholders. This framework allows a consistent approach across the countries where CGIAR works while reflecting country contexts through a dynamic approach that enables CGIAR to bring what it has to offer countries in terms of COVID-19-related research in line with the priorities and needs of those countries.

Stakeholders can access CGIAR COVID-19 resources through a dedicated email address (COVID-19-Hub@cgiar.org) and [webpage](#), managed by A4NH. The Hub also provides quarterly updates on its work, including emerging evidence, work progress, country briefs and proposals for strengthening and expanding CGIAR's multidisciplinary and system-wide strategic research response to COVID-19.

To learn more about the CGIAR COVID-19 Hub, visit www.a4nh.cgiar.org/covidhub/ or email COVID-19-Hub@cgiar.org