

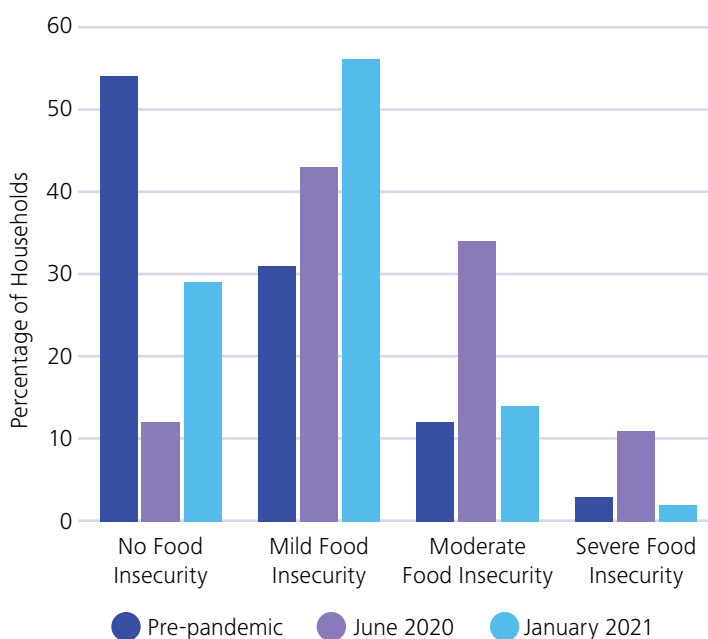


The third wave of COVID-19 in Bangladesh, from June through August 2021, was the deadliest. The spread of new variants, global vaccine supply shortages, and stalled deliveries have meant that most of the population has gone without some level of protection against the virus. Less than [3 percent](#) of the country's nearly 170 million people have been fully inoculated.

## ECONOMIC IMPACT OF COVID-19

Surveys conducted by CGIAR researchers show [the onset of the pandemic and lockdown restrictions in its early days likely contributed to significant increases in unemployment, income losses, and food insecurity](#). Cash or in-kind support was received by many rural households, mostly from government sources, and follow-up surveys reveal a reduction in unemployment and income losses. There was also a return of moderate and severe food insecurity prevalence to pre-pandemic levels. The recovery appears to be relatively inclusive and can be observed across different occupation categories. However, the prevalence of mild food insecurity (as shown in Figure 1) is significantly higher than during the pre-pandemic period, suggesting fragility in the economic recovery of rural Bangladesh.

**Figure 1: Rural food insecurity before and after the onset of the pandemic.**



Source: [Ahmed et al. 2021](#)

## CGIAR COVID-19 HUB RESEARCH RESPONSE

Having consulted with the government on their COVID-19 approach, CGIAR scientists developed an action plan offering support to the development of a suite of digital systems in seven critical areas: monitoring disease and locating hotspots; tracking household-level nutrient demand; and monitoring crop-weather issues, farm stress, crops at the country level, markets for women, and agricultural commodity prices.

### a. Digital disease monitor and hotspot locator

This locator involved crop disease training and intelligence gathering and the development of fish health intelligence and livestock disease reporting systems. Crop disease training and intelligence gathering from 22 districts can now be managed by the Department of Agricultural Extension (DAE) by leveraging the Centre for Agriculture and Bioscience International's (CABI) disease-reporting mobile application (Plantvise), training capacity, and the COVID-19 Hub monitoring dashboard. A fish health intelligence monitoring system enables the Department of Fisheries (DOF) to monitor fish mortality stress in Bangladesh on a real-time basis. DOF personnel have been trained in using the system, undertaken by CGIAR and the DOF. The digital crop and fish health intelligence systems enable faster decision-making on, and government interventions for, COVID-19 impacts. A livestock disease-reporting system has been developed with MPower, a social enterprise that utilizes an existing mobile application to report livestock diseases.

### b. Nutrient-secure homestead mobile application

This application collects household-level information and calculates nutrient demand using the recommended daily allowance of micro- and macronutrients. It can collect household diet data for seven days and calculate nutrient supply. It can also suggest missing nutrients by comparing demand and supply and suggesting possible crops and fish raised in homesteads to address deficiencies. The nutrient-secure homestead application is expected to redefine how nutritional security is represented by reorienting it from a focus on national balances to household-level nutritional deficits.

### c. Crop-weather satellite monitor

This countrywide system monitors rainfall and temperature conditions (based on biological thresholds) affecting crops and fish. The system's dashboard presents weather-related stress triggers, providing DAE officers with an overview of temperatures and rainfall stresses for five-day periods. Officers at the DAE have been trained in its use.

The weather monitoring system informs decision-making and aims to reduce the double impact of COVID-19 and weather stress.

#### **d. Digital farm stress monitor**

Four hundred DAE officers have been trained by CGIAR on a system that monitors fertilizer and seed availability and quality, labor availability, irrigation availability, farmgate prices and production costs, and weather damage. The farm stress monitor allows government agencies to extract farm stress intelligence from their extension systems more quickly, which will help them to plan interventions in a more timely manner.

#### **e. Satellite-based countrywide crop monitor**

This monitoring system developed by CGIAR includes various indicators, including planting, harvesting, and flood monitoring. It can also monitor drought effects, with the capacity to make relative assessments compared to past (pre-COVID-19) years. The system allows for data to be downloaded in various formats for reporting purposes. The satellite-based countrywide monitor allows for the identification of areas where farming operations are delayed due to COVID-19-related (or other) issues. The system also enhances decision-making capacity on flood- and drought-related crop losses.

#### **f. Digital markets for women (feasibility study)**

CGIAR researchers are completing a study on women and digital markets with department of Agricultural Economics of Bangabandhu Sheikh Mujibur Rahman Agricultural University. The study is expected to provide insights on how digital markets can be used to benefit women producers, consumers, and entrepreneurs, which could help the government promote women-led initiatives on digital markets.

#### **g. Digital agricultural commodity price monitor**

This monitor, run by CGIAR, collects extensive data on price levels (weekly) for multiple agricultural commodities in different markets of Bangladesh. The price dashboard assists the Department of Agricultural Marketing in examining and mapping price changes for major commodities and identifying price variability hotspots. The price monitor allows government agencies to extract farm stress intelligence to inform decision-making and timely interventions.

### **UTILIZATION OF RESEARCH FINDINGS**

This suite of digital systems are expected to contribute to overall food system resilience in Bangladesh. The COVID-19 pandemic has

highlighted the importance of homestead farming to nutritional security and the ultimate aim is to have these systems support homestead farmers.

## **CGIAR COVID-19-RELEVANT WORK IN BANGLADESH**

### **Changes in women's empowerment and diet diversity in southern Bangladesh**

Using a November 2020 survey to re-interview adult women in the rural Patuakhali and Faridpur districts surveyed in November 2019, scientists tested the way and the extent to which women's employment outside their homes, their decision-making power concerning income use and food purchases, and their diet diversity had changed. Contrary to expectations, [more women had found, rather than lost, jobs over the past year](#). The survey also revealed that changes in women's dietary diversity were positively related to changes in their decision-making power over food purchases, but negatively related to changes in their autonomy over income use.

### **Impacts of COVID-19 on rural livelihoods in Bangladesh**

Using household-level data collected in rural Bangladesh in 2018 and 2020, CGIAR scientists provided [rigorous evidence on the impacts of COVID-19 on several livelihood outcomes](#). Agricultural production was significantly reduced because of COVID-19, with much more substantial effects on households affected by (fear of) sickness. Hired female labor was significantly lower for households affected by (fear of) sickness. However, the share of female hired labor increased by 0.8 percentage points due to (fear of) sickness.

### **NEXT STEPS**

Sixteen CGIAR Initiatives will begin work in Bangladesh in 2022, and consultation will continue on the products produced by the COVID-19 Hub. The new CGIAR initiatives [Transforming Agri-Food Systems in South Asia \(TAFSSA\)](#) and [Asian Mega Deltas \(AMD\)](#) may be able to build on COVID-19 Hub outputs and develop them into significant outcomes. There is also potential for these studies to be replicated in countries such as Myanmar, Nepal, Viet Nam, and Cambodia, and potential for the fish mortality monitoring system to be implemented in various bilateral projects.

The CGIAR COVID-19 Hub is led by the CGIAR Research Program on Agriculture for Nutrition and Health.

To learn more, visit [www.a4nh.cgiar.org/covidhub/](http://www.a4nh.cgiar.org/covidhub/)

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