

---

FEEDING RESILIENCE:  
**Unraveling the Asia-Pacific  
Food Crisis**



FEEDING RESILIENCE:

# Unraveling the Asia-Pacific Food Crisis

## AUTHORSHIP

This report was developed by the Dikoda team: Elizabeth Whelan, Chiara Cresta, Caroline Favas, Mari Manger, Didier Leibovici, Damith Chacrawarthidge, Erica Kunkio, Kristie Smith, and Sophie Goudet.

## ACKNOWLEDGEMENTS

We thank the staff at WFP Bangkok Regional Bureau (Jintana Kawasaki, Almudena Serrano, Anusara Singhkumarwong, Susana Moreno, Andrea Berardo, Kimberly Deni, Filippo Dibari), and the WFP Country Office staff at Kyrgyz Republic (Hilke David, Anastasia Iakovleva, Aizhan Erisheva, Aijamal Jekshelaeva), Philippines (Emilie Swalens, Juanito Berja, Angelica Cruz), Pakistan (Iftikhar Abbas), Sri Lanka (Shehan Fernando), Bangladesh (Arifeen Akter), Lao People's Democratic Republic (Rumbidzayi Machiridza, Manithaphone Mahaxay, Marc Sauveur, Shamsiya Miralibekova), and others for their support and collaboration throughout food system and resilience analysis. We also thank the urban food vendor respondents who gave their time to participate in the food vendor survey.

## DISCLAIMER

The findings, interpretations and conclusions expressed in this work do not necessarily reflect the views of WFP or Dikoda. All reasonable precautions have been taken by WFP and Dikoda to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WFP or Dikoda be liable for damages arising from its use.

# List of Contents

<b>Executive Summary</b> .....	<b>7</b>
<b>1. Introduction</b> .....	<b>8</b>
How the crisis has impacted the Asia-Pacific region.....	9
The Objective of This Report.....	9
<b>2. Methodology</b> .....	<b>10</b>
Comprehensive Scoping Review.....	9
Modeling the Impacts of the Crisis.....	10
Urban Food Vendors Survey.....	11
Evaluating Food System Resilience.....	11
<b>3. Scoping Review: Unpacking the Existing Evidence</b> .....	<b>12</b>
Summary.....	13
<b>4. Modeling the impact of crisis</b> .....	<b>14</b>
1. How has the polycrisis and its resulting changes in trade and inflation affected the price of food and food sales?.....	14
A. Food import trends.....	14
B. Food Sales Trends.....	16
2. How has the polycrisis affected household income, the cost of the diet, and the share of household income spent on food?.....	16
A. How household-level income changed during the crisis period.....	16
B. How income affected household expenditure on food during the crisis.....	17
C. How food prices have changed: a look at subnational variation.....	18
D. How have increased food prices affected the cost of diet overall?.....	18
3. How have these changes collectively influenced households' resilience, food security, and nutrition?.....	20
A. Changes in food security during the crisis.....	20
B. Impact on Nutrition.....	21
Summary.....	22

<b>5. Urban Food Vendors Survey .....</b>	<b>23</b>
Findings .....	23
Assessing the findings .....	25
<b>6. Resilience .....</b>	<b>26</b>
Resilience Snapshot: Bangladesh .....	26
Resilience Snapshot: The Kyrgyz Republic .....	26
Resilience Snapshot: Lao People's Democratic Republic .....	27
Resilience Snapshot: Pakistan .....	27
Resilience Snapshot: Philippines .....	28
Resilience Snapshot: Sri Lanka .....	28
Summary .....	29
<b>7. Conclusion .....</b>	<b>30</b>
<b>8. Recommendations .....</b>	<b>31</b>
<b>9. Recommendations for future research and data .....</b>	<b>33</b>
<b>References .....</b>	<b>34</b>

# List of Figures

**Figure 1:** Analytical Framework conceptualizing the nutritional impacts of the COVID-19 pandemic (WHO, UNICEF & USAID, 2022)..... 10

**Figure 2:** FSCI framework to monitor food systems..... 11

**Figure 3:** Total per capita volume (kilograms or liters) of imports of Global Dietary Recommendations (GDR)-classified NCD-risk factor and -protect food groups, by year (2017-2021) and country..... 14

**Figure 4:** Total value (USD) of imports of GDR-classified NCD-risk factor and -protect food groups..... 15

**Figure 5:** Percentage of GDR-classified food and beverage imports (USD value) (2019-2021). ..... 15

**Figure 6:** Per capita changes in food sales volume (kg or liters) (base year 2018). ..... 16

**Figure 7:** Percent change in household income (urban and rural) since 2015..... 17

**Figure 8:** Average percent of household expenditure spent on food (2017-2022)..... 17

**Figure 9:** Percent change in Cost of the Diet Energy and Nutritious (2022), relative to most recent pre-crisis data..... 19

**Figure 10:** Percent change in households unable to afford a nutritious diet (pre-crisis to 2022). ..... 19

**Figure 11:** Percent Change in Household Food Consumption Scores for 4 countries (baseline to 2022)..... 20

**Figure 12:** Percent Change in Household Livelihood Coping Strategies Index for 4 countries (baseline to 2022)..... 21

**Figure 13:** Self-reported impact of the food crisis on access to customers or markets by urban food vendors in seven Asia-Pacific countries ..... 23

**Figure 14:** Impact of the food crisis on supply chain as reported by urban food vendors in seven Asia-Pacific countries..... 24

**Figure 15:** Reported change in income reported by urban food vendors in 7 Asia-Pacific countries ..... 24

## Abbreviations:

<b>BDT</b>	Bangladeshi taka
<b>CGIAR</b>	Consultative Group on International Agricultural Research
<b>CotD</b>	Cost of the Diet
<b>FAO</b>	Food and Agriculture Organization
<b>FCS</b>	Food Consumption Scores
<b>FSCI</b>	Food Systems Countdown Initiative
<b>GDR</b>	Global Dietary Recommendations
<b>GIS</b>	Geographic Information Systems
<b>LCS-FS</b>	Livelihood Coping Strategies-Food Security
<b>LMICs</b>	Low- and Middle-Income Countries
<b>MSMEs</b>	Micro-, Small and Medium-sized Enterprises
<b>NCDs</b>	Noncommunicable Diseases
<b>PDR</b>	People's Democratic Republic
<b>SBC</b>	Social and Behavior Change
<b>UN</b>	United Nations
<b>UNICEF</b>	United Nations Children's Fund
<b>USD</b>	U.S. Dollar
<b>WFP</b>	World Food Programme
<b>WHO</b>	World Health Organization

## Executive Summary

The world is currently in the midst of a global food crisis which began in 2020 with the COVID-19 pandemic and compounded after the outbreak of war between Russia and Ukraine in 2022. Adding to the crisis are ongoing extreme weather events related to climate change, which are increasing in frequency and severity across the globe. One of the results of this 'polycrisis' is that for most of the past four years, populations around the world have faced spiking food insecurity.

While the effects of the current polycrisis are being felt all over the world, in the Asia-Pacific region, the impacts have been particularly severe. In order to better understand the impacts of the ongoing polycrisis on food security in the Asia-Pacific region, this report investigates diets, nutrition, and food system resilience during the crisis in six selected countries – Bangladesh, the Philippines, Pakistan, Lao People's Democratic Republic, Sri Lanka, and the Kyrgyz Republic.

Through this investigation, the report provides relevant insights on the shocks faced by each country during the crisis and assesses the resilience of their food systems in the face of these shocks. Moreover, it constructs much-needed data on the impacts of these shocks on diets and nutrition in each country

First, the **scoping review** examines the existing evidence on the impacts of the ongoing crisis in the six selected countries. Key findings include:

- Domestic food production was down from the pre-crisis period in all six countries.
- All six countries experienced significant food inflation during the crisis period.
- The purchasing power of consumers fell in all six countries during the crisis period, a decline felt disproportionately by women and youth, small-scale producers, and migrant and seasonal workers.
- Both dietary diversity and quality fell in all six countries during the crisis period, most severely for women and children.
- The use of food- and livelihood-based coping strategies rose in all six countries during the crisis period.
- The impacts of crisis were felt severely in both urban and rural areas.

Next, a **conceptual model** depicting the relationship between the food environment and changes in food security and nutrition is used to better understand the impact of the crisis on diets, nutrition, and resilience. Key findings include:

- From 2019-2021, the volume of food imports decreased, while the value of food imports increased.
- The value and proportion of "NCD risk" food imports increased, as did the sales volume of 'risk' foods.
- Household income increased overall but share of income spend on food stayed the same or increased.
- Where incomes decrease, these decreases are associated with sales of "NCD risk" foods.
- The cost of diets is rising, with greater increases in the cost of a nutritious diet.
- Increases in cost of diets means decreases in households able to afford those diets.
- The increased cost of a nutritious diet correlates with negative

household-level diet and food security outcomes.

Third, to better understand the challenges faced by **urban food vendors** during the ongoing crisis period, a survey was conducted in the six focus countries in 2023, yielding 677 responses from food vendors across 11 cities. The findings showed urban food vendors faced disruptions during the crisis, including:

- Reduced access to customers or markets
- Supply chain disruptions
- Decreasing income

Finally, **resilience snapshots** were created assessing shocks, vulnerabilities, capabilities, and resilience strategies in all six selected countries. Key highlights provided by these snapshots include:

- Reliance on rice production in Bangladesh left the country highly vulnerable to disruptions to rice supply during the crisis.
- Reliance on imports in the Kyrgyz Republic significantly impacted food system resilience and led to food inflation and price volatility.
- Overlapping shocks in Lao People's Democratic Republic during the crisis were mutually reinforcing and highlighted the need for multifaceted approaches to improving food system resilience in the current era of crises.
- Pakistan provided a sobering example of the Asia-Pacific region's documented susceptibility to climate change, as unprecedented flooding damaged most domestic food production in 2022.
- In the Philippines, rapid urbanization negatively impacted urban food security, with children and women in particular facing negative nutrition outcomes.
- Sri Lanka's catastrophic inorganic fertilizer ban in 2021, which halved local food production, highlighted the risks of enacting initiatives without stakeholder collaboration or relevant supportive training and education.
- Interestingly, while Lao People's Democratic Republic and Sri Lanka both faced significant shocks during the crisis, each saw improvements in infrastructure, indicated by mobile cellular subscriptions, and a stable or increasing social capital index.

Building on the findings, the report concludes with **recommendations** to both mitigate the impacts of the current polycrisis and build resilience against future shocks. These recommendations will assist policymakers and partners in critical areas such as:

- Promoting local supply chain resilience
- Building climate resilience
- Expanding the social safety net for vulnerable groups
- Promoting healthy diets across food systems
- Supporting urban food vendors to mitigate disruptions in market access, supply chains, and income during crisis

# 1. Introduction

The world is currently in the midst of a global food crisis brought about and exacerbated by a series of mutually reinforcing shocks to food systems.

It began with the COVID-19 pandemic and its subsequent lockdowns, border closures, and other containment measures, which stifled the production and transport of goods around the globe, and negatively affected the livelihoods of individuals, leaving many unable to access a nutritionally adequate diet physically or financially <sup>1</sup>.

This was followed by the outbreak of war between Russia and Ukraine in February of 2022. Because the two countries together produced 12% of the world's calories<sup>2</sup>, including 25%-30% of the world's wheat exports, and 30% of barley, their entry into conflict left global food systems short stocked, causing the global price of food commodities to rise and reducing their availability.

Compounding the problem was Russia's position as one of the world's largest suppliers of fertilizer and other agricultural inputs, including oil and natural gas. As Russia became the recipient of trade sanctions and import boycotts due to the conflict in Ukraine, the global supply chain for agricultural inputs was disrupted, reducing the availability and accessibility of said inputs, and negatively impacting food production and the livelihoods of those working within food systems all over the world.

Adding to these shocks are ongoing extreme weather events related to climate change. While climate events are not unique to the current crisis period, they are becoming more common and severe around the world, and have served to amplify the negative impacts of COVID-19 and the war in Ukraine on food systems by further lowering food production and damaging infrastructure critical to food systems across the globe <sup>3</sup>.

The result of this polycrisis is that for most of the past four years, populations around the world have faced sharp increases in the price of food alongside spiking food insecurity.

Indeed, the World Bank recently announced that a significant majority of low- and middle-income countries (LMICs) are currently experiencing food inflation of *at least* 5%, with many experiencing double-digit inflation levels<sup>4</sup>. Meanwhile, the World Food Programme (WFP) estimates that nearly one-third of the global population is now food insecure – with 333 million people facing “acute” food insecurity, up 184 million from pre-pandemic levels <sup>5</sup>.

Perhaps the most distressing element of the ongoing food crisis is its impact on vulnerable populations, who disproportionately suffer from the negative effects. Children have been particularly affected during the crisis. According to the World Health Organization (WHO), nearly one-third of all children under five are currently malnourished, including 150 million who are stunted, 45 million who are wasted, and 37 million who are obese <sup>6</sup>. Each of these numbers continues to rise, and United Nations Children's Fund (UNICEF) estimates that one child is currently being pushed into severe, life-threatening malnutrition *every minute* <sup>7</sup>. Another vulnerable group is women, who in times of food insecurity eat last and least. Indeed, research shows that the food insecurity gap between women and men, already at 150 million more women food insecure than men in 2021, is widening <sup>8</sup>.



## HOW THE CRISIS HAS IMPACTED THE ASIA-PACIFIC REGION

While the effects of the current polycrisis are being felt all over the world, in the Asia-Pacific region, the impacts have been swift and severe. Most simply, the region has seen a dramatic spike in food insecurity over the last four years. At the end of 2022, the WFP calculated that 41.5 million people had become “acutely food insecure” in the region since 2020<sup>9</sup>. Moreover, according to the Asia and the Pacific Regional Overview of Food Security and Nutrition 2023, some 370.7 million people in the region were undernourished in 2023, up more than 65 million from prior to the pandemic<sup>10</sup>. Notably, rising food insecurity in Asia-Pacific has had disproportionate impacts on women and children, as well as low-income households, with significantly higher numbers of people becoming food insecure in these groups than the overall population<sup>11</sup>. In other words, where food insecurity is rising, it is worse for the most vulnerable.

The Asia-Pacific region faces unique challenges in the current environment due to three distinct regional characteristics. Addressing the ongoing food crisis in Asia-Pacific requires understanding the specific context these key characteristics provide. As such, they will be introduced here, and frame the discussion throughout the report.

### 1. Reliance on imports

The first key characteristic is the Asia-Pacific region’s reliance on imports for much of its food supply. Most countries in the region are net food importers, often from Ukraine, Russia, or both, leaving them “highly exposed” to rising global food prices<sup>12</sup>. Moreover, many countries also rely on imports for the agricultural inputs which are critical for domestic production, meaning that the reduced availability and accessibility of said inputs leaves Asia-Pacific countries further at risk. Rice provides a poignant example of both threats, as it is not imported from Russia or the Ukraine, but still saw significant inflation after the outbreak of conflict, while its fertilizer-intensive production process is at risk from disruptions to the global fertilizer market.<sup>13</sup>

### 2. Susceptibility to climate events

The second key characteristic is the Asia-Pacific region’s extreme susceptibility to climate events brought about by climate change. As a recent UNICEF report bluntly states, Asia-Pacific is “the most disaster-prone region in the world”<sup>14</sup>. Indeed, climate change induced weather disasters are becoming

both more frequent and more intense in the region. UNICEF states that children born in the region today “are experiencing a six-fold increase in climate related disasters compared to their grandparents”<sup>18</sup>.

Numerous studies have established the connection between climate events and lowered agricultural production, and indeed, a poignant example can be seen in Pakistan, which saw more than 80% of its crops damaged during 2022 flooding<sup>15</sup>. This establishes an inherent fragility in Asia-Pacific food systems, with domestic food production and critical food system infrastructure constantly under threat, and climate events exacerbating the food insecurity outcomes of crises such as COVID-19 and the Ukraine War.

### 3. Rapid urbanization

The third characteristic which presents a unique challenge for Asia-Pacific when considering food security is the rapid and unprecedented urbanization taking place, which the United Nations (UN) called “the defining megatrend” in the region<sup>16</sup>. Nearly 55% of the region’s population is expected to live in urban areas by 2030, while in Asia more broadly, the urban population is expected to grow by an astonishing 1.2 billion people by 2050<sup>17</sup>.

This reality has changed the urban-rural nexus within food security. Traditionally, it has been understood that urban populations do not face the same levels of food insecurity as their rural counterparts, due to living in areas with greater social and economic development. However, in an era of rapid urbanization, this is no longer necessarily the case. Cities concentrate poverty, particularly for new migrants to urban areas, in slums and informal settlements, where food security is often worse than in rural areas<sup>18</sup>. Furthermore, because most food is imported into cities rather than grown there, urban populations are almost entirely reliant on rural agriculture and supply chains, meaning disruptions of rural food systems during crises can have devastating effects on urban food security. Simply, rapid urbanization in Asia-Pacific means the discussion around food security in the region is transforming around an evolving urban/rural nexus.

## THE OBJECTIVE OF THIS REPORT

In order to better understand the impacts of the ongoing polycrisis on food security in the Asia-Pacific region, Dikoda was commissioned by the WFP Asia and Pacific offices to investigate diets, nutrition, and food system resilience during the crisis in six selected countries – Bangladesh, the Philippines, Pakistan, Lao People’s Democratic Republic (PDR), Sri Lanka, and the Kyrgyz Republic.

Through this investigation, we provide relevant insights on the shocks faced by each country during crisis and assess the resilience of their food systems in the face of these shocks. Moreover, we go beyond food security numbers and construct much-needed data on the impacts of these shocks on diets and nutrition in each country. Critically, the findings are then used to create recommendations for innovative strategies to promote food security and resilience in the face of the ongoing crisis.

## 2. Methodology

The section provides a brief overview of the methodologies used to assess the impacts of the ongoing crisis period in our six selected countries. For a more comprehensive breakdown of methodologies, please see Annex 5.

Our operational definition of the term “crisis period” used throughout this report considers the crisis to have begun when the WHO declared the COVID-19 pandemic in March 2020. Because the crisis was still ongoing at the time our research was conducted, we are not yet able to assess the post-crisis period. Therefore, we refer to two distinct periods of time in our data collection: the “pre-crisis period” for data collected prior to the year 2020, and the “crisis period” for data collected from March 2020 until June of 2023.

To begin our assessment, we first mapped the available data in order to construct a methodology to understand country-level food system resilience in our six countries and devise a model that would assess how food security and nutrition outcomes have been affected during this period. This exercise

aimed to identify relevant datasets, recognize data gaps, and identify areas for potential data collection. Various data sources, including UNICEF, the WFP, the WHO, Demographic and Health Surveys, and national surveys, were explored. Historical data were included for trend analysis. Based on the availability of data during both the pre-crisis period and the ongoing crisis period for each respective country, we methodically selected relevant indicators to describe the impact of the food and economic crisis on the food system components and their overall resilience, which we linked to the fundamental components of the food system dashboard framework. Through these indicators, we examined diets, nutrition, and resilience in our six selected countries using four distinct methodologies. See Annex 4, Table 1 for the full list of indicators that were mapped for their data availability, including the selected ones.

### COMPREHENSIVE SCOPING REVIEW

First, we conducted a scoping review in order to identify pre-existing research literature and initiate an initial assessment of the potential scale and implications of the COVID-19 pandemic and the Russia-Ukraine war on dietary behaviors.

To guide this review, we employed a framework jointly developed by UNICEF and WHO (Figure 1), elucidating the multi-sectoral impacts of the COVID-19 pandemic on nutritional outcomes. The framework describes the pathways from different determinants within the food, education, health, and social protection systems on food security, diets, and infant and young child feeding behaviours.

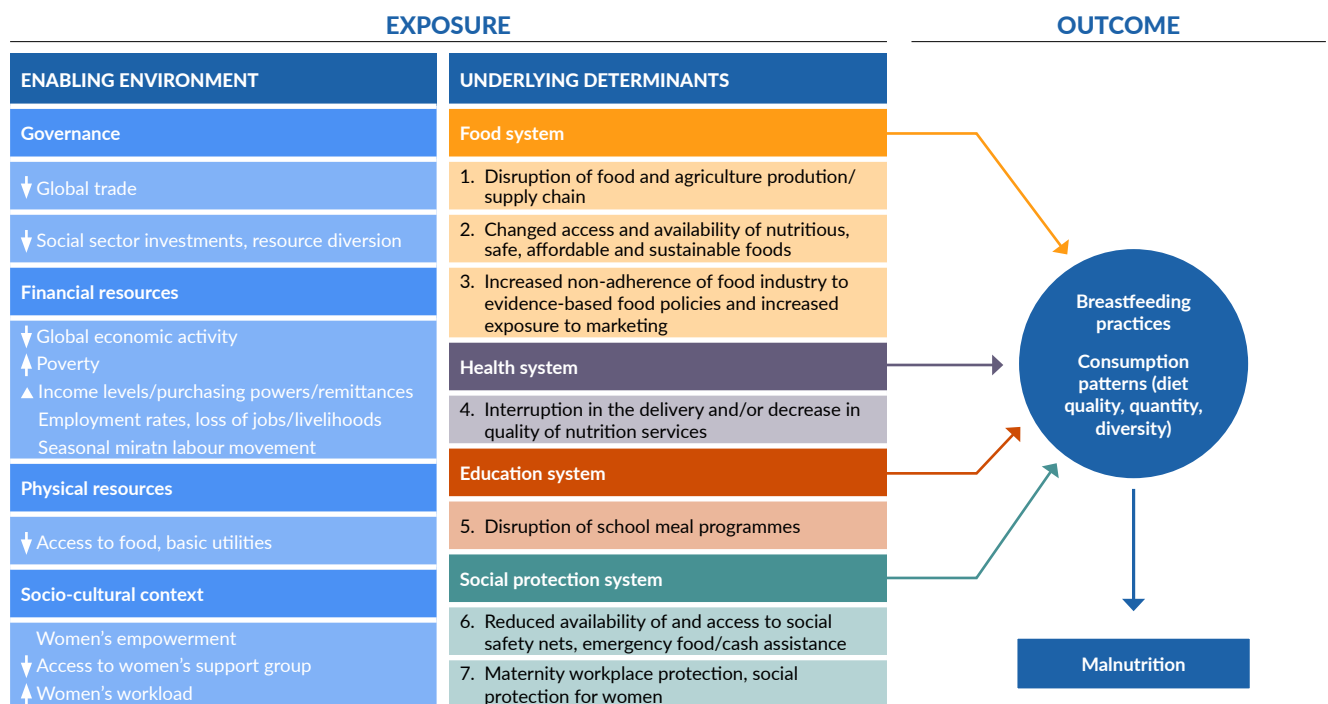


Figure 1: Analytical Framework conceptualizing the nutritional impacts of the COVID-19 pandemic (WHO, UNICEF & USAID, 2022).

Relevant literature was gathered on the six selected countries from three databases, as well as websites such as UNICEF, Food and Agriculture Organization (FAO), WFP, WHO, the Consultative Group on International Agricultural Research (CGIAR), and Google scholar. The most relevant findings to this report are presented in order to establish an effective baseline for the impacts of the crisis in our selected countries.

## MODELING THE IMPACTS OF THE CRISIS

To better understand how household food security and diets have been affected in the context of global food system disruptions, we conducted an analysis using a conceptual model depicting the relationship between the food environment and changes in food security and nutrition (Annex 3, Figure 2). The model is coherent with common causal frameworks for understanding food security, nutrition and food systems, including the standard UNICEF conceptual framework<sup>19</sup> and the Food Systems Dashboard Framework<sup>20</sup>, building from a previous framework by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security.

The model serves as a framework for answering questions central to our understanding of the polycrisis' impact on diets, nutrition, and resilience, including: How have changes in trade and inflation affected the price of food and food sales? How has household income, the cost of a diet, and the share of household income spent on food been impacted? And, ultimately, how have these changes collectively impacted household nutrition, resilience, and food security?

## URBAN FOOD VENDORS SURVEY

To better understand the challenges faced by urban food vendors during the ongoing crisis period, we conducted a survey among food-related businesses in urban areas of our six selected countries in 2023. The survey covered various aspects of running a food-related enterprise during the polycrisis, including access to markets, supply chain disruptions, business income, operational cost changes, and adaptation strategies. Capital cities were chosen for their diverse populations and economic significance, making findings more broadly applicable. Their role as policy and transportation hubs further aids in understanding the broader implications of food crises.

The survey yielded 677 responses from food vendors across 11 cities, allowing us to delve into the experiences of urban food vendors and generate unique insights into how the crisis has shaped diets and consumption patterns. The findings are discussed within the context of the established importance of urban food vendors to urban food systems and nutrition.

## EVALUATING FOOD SYSTEM RESILIENCE

Finally, we aimed to assess food system resilience during the ongoing crises period using a holistic, national-level approach. This included quantitative analysis, in which a range of indicators were selected to assess exposure to shocks, resilience capacities, agrobiodiversity, and food security stability. It also included qualitative analysis, through semi-structured interviews which were conducted with WFP country office members in the selected countries to gain contextual insights. In doing so, we drew largely from the Food Systems Countdown Initiative (FSCI) approach described by Fanzo et al., which presents a framework to measure and monitor the performance of food system activities through five thematic areas (Figure 2). Considering the specific objectives of our study and data availability, we adapted the list of indicators in order to conceptualize food system resilience through four indicator domains (Annex 4, Table 3) – exposure to shocks, resilience capacities and agro/food diversity, resilience responses/strategies, and longer-term resilience outcomes.

From this analysis, we construct an individual snapshot for each of our six selected countries which examines the shocks faced during the ongoing crisis and how they have affected the food system, specific vulnerabilities of each country, and unique strategies and opportunities to enhance food system resilience.

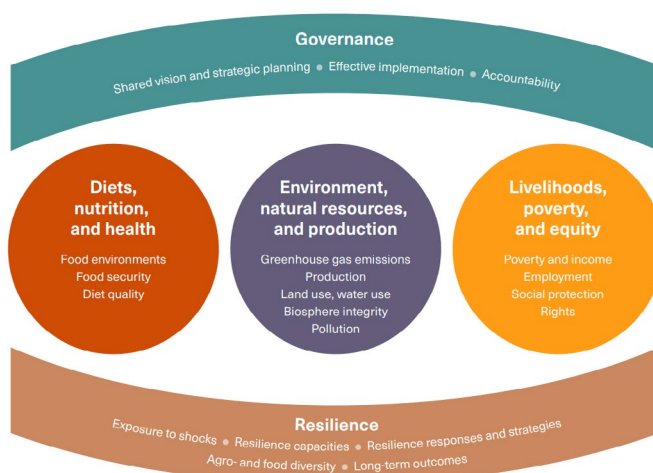


Figure 2: FSCI framework to monitor food systems

### 3. Scoping Review: Unpacking the Existing Evidence

In order to assess the impacts of the ongoing polycrisis on dietary behaviors and nutrition outcomes in Asia-Pacific, we conducted a scoping review examining the existing evidence on how disruptions in the food environment due to crisis influenced diets and nutrition in the six selected countries focused upon in this report. The review used a framework developed by UNICEF and the WHO, which describes the multi-sectoral impacts of crisis on diet and nutrition outcomes analyzed through food system, health, education, and social protection pathways (Figure 1). Below, the most critical and relevant findings of this review will briefly be highlighted and discussed in order to effectively summarize the current existing evidence on the impacts the current crisis is having on diets and nutrition.

#### Domestic food production fell

Food production was down across the six countries studied during the crisis period, including staple crops, fruits and vegetables, and animal-sourced foods. This began during COVID-19 and compounded after the outbreak of war between Russia and the Ukraine<sup>21 22</sup> due to disruptions to agricultural input supply chains and subsequent reductions in the availability and accessibility of inputs like fertilizer, seeds, and feed for livestock, as well as oil and natural gas. Representatively, in five of the six countries studied, the price of fertilizer and other agricultural inputs rose substantially in 2022. A joint FAO/WFP assessment<sup>23</sup> conducted in Sri Lanka in June and July of 2022 projected paddy production to decline 42% year-on-year, and maize production to be 40% below the five-year average in 2022, while at the same time concluding “production of vegetables, fruits, and export-oriented crops, such as tea, rubber, coconut, and spices, is well below the average levels.” Moreover, the production of chicken meat and eggs, the country’s main staple proteins, had been “severely affected,” while the production of beef and mutton meat was expected to “decline sharply,” each due to the “increased costs of production and limited availability of inputs.” Finally, fuel shortages together with increased costs of labour, inputs, and equipment has left fisheries facing “significant losses” (FAO & WFP, 2022).<sup>24</sup>

Also contributing to falling production was the increasing frequency and intensity of extreme weather events related to climate change – both droughts and floods, as well as tsunamis and earthquakes. Tellingly, five of the six countries studied experienced severe climate events in 2022. Recall that a key characteristic of the region is its susceptibility to climate events. Here, we see how climate events can combine with other shocks to produce negative effects on food production.

#### Food inflation

Significant food inflation was seen in all six countries focused upon during the crisis period. Disrupted global food supply chains during COVID and after the outbreak of war in Ukraine, and the subsequent increase in the cost of food imports, was a significant contributor to this food inflation, as each of the six countries relied on imports for their food supply. At the same time, the falling domestic food production mentioned above left countries unable to make up for reductions in the accessibility and availability of imports, neither able to acquire food imports affordably, nor produce more food of their own, further contributing to high food inflation.

While food inflation declined in 2023 from its peak in 2022, at the time this review was conducted, monthly food inflation

stood at between 4.1 and 42.7% in each country, in each case substantially higher than it was prior to the crisis.

#### Reduced purchasing power

The purchasing power of consumers, meaning the ability to buy food, fell during the crisis period, with households in all six countries studied spending more of their budgets on food in 2022 and 2023<sup>24 25 26 27 28</sup>. For instance, In Laos, a survey by Head et al. (2022)<sup>29</sup> revealed that 78.5% of households reported that it was harder to meet their family food needs during COVID-19 compared to before. Challenges included increased food prices (51.2%), income loss (45.3%), food unavailability in markets (36.6%), and market closures (36.5%). In addition, households reported spending 40% of their income on food, a 10% increase from that spent in 2017.

The rising cost of food discussed above was not the only contributing factor to this reduction in purchasing power. At the same time, declining food production dramatically affected the livelihoods of farmers, agricultural workers, and other actors across the food supply chain. This was a particular problem in the six countries studied, where large portions of the population were employed in agriculture and related food sectors. Indeed, each of the six countries saw notable percentages of households reporting an income decrease in 2022 – from 11% of households in the Kyrgyz Republic to 62% of households in Sri Lanka. Swarna et al. (2022)<sup>30</sup> conducted interviews with informal workers in Bangladesh, revealing that 98% experienced a drop in income between February and June 2020, averaging around Bangladeshi taka (BDT) 6,829 (approximately U.S. Dollar (USD) 64). This income decrease was accompanied by a significant 28% reduction in food expenditure, particularly pronounced in urban areas.

Notably, the review revealed that declining income was felt disproportionately by women and youth, small-scale producers, and migrant and seasonal workers, providing insight into how these types of shocks are felt most severely by vulnerable groups.

#### Dietary diversity and quality fell

Perhaps the most important finding of the review was that people in all six countries studied were eating a less diverse and less nutritious diet during the crisis period. This included eating fewer fruits and vegetables, while at the same time, eating more inexpensive and nutritionally deficient staple foods, as well as processed foods high in fat, sugar, and salt.

The reduced purchasing power discussed above, stemming from food inflation and falling income, negatively affected the

accessibility of a nutritious diet. At the same time, marketing campaigns for unhealthy foods and beverages high in fat, sugar, and salt became more aggressive, and included donations for pandemic responses across Asia-Pacific<sup>31</sup>. Notably, where dietary diversity was declining in all six countries focused upon, it was declining most severely for women and children<sup>32 33 34 35</sup>. Again, this provides insight into how the impacts of the ongoing crisis are felt disproportionately by vulnerable groups.

For instance, Geng et al. (2022)<sup>36</sup> found that the pandemic adversely affected household income, food diversity, and nutritional security in Pakistan. Two-thirds of households reported income reduction, leading to changes in dietary patterns, with significant declines in the consumption of fruits, vegetables, meat, and pulses. Energy and essential nutrient intake also decreased. Female-headed and larger households were more vulnerable, while those with land access and farmers were less affected. Similarly, in Bangladesh, Banna et al. (2022)<sup>37</sup> surveyed day laborers' households in rural and urban Bangladesh to assess household food security. Most households reported that during the COVID-19 pandemic they experienced a reduction in income (93.6%) in addition to an increase in the cost of food (97.7%). As a coping mechanism, households reported reducing the quantity of food they consumed (76%) as well as the variability of food groups (94.8%). 39% of households reported low dietary diversity, 56.3% a moderate dietary diversity, and only 4.7% high dietary diversity.

### Food- and livelihood-based coping strategies up

The review revealed that the demand for social protection programs increased dramatically during the pandemic, and, subsequently, programs providing food, cash, or credit expanded in some countries. Limited research is available exploring the impacts of this expansion of social protection programs on dietary outcomes. However, research suggests that expanded

interventions might not lead to improvements in nutritional status or the quality and diversity of consumed foods due to a lack of focus on nutrition outcomes or limited access or awareness in the target population.<sup>38</sup>

More recently, economic stresses compounded by the Russia-Ukraine war have again increased the demand for social protection programs across Asia-Pacific. However, these same stresses have strained the provision of services, leading to a stagnation or reduction of programs in many countries. Again, limited research is available into the impacts of this stagnation and reduction, however, our review revealed that use of food- and livelihood-based coping strategies such as skipping meals, borrowing money to buy food, selling household assets, and cutting expenditures on health or education became common in each of the six countries studied during the pandemic. Indeed, use of these coping strategies was on the rise through the ongoing crisis in 2022 and 2023, indicating that in both cases, social protection programs were not enough to cover needs. This has particularly dire implications moving forward, as the use of negative coping strategies depletes the resources of households and makes them less resilient to future shocks.

### Urban/Rural nexus

The review uncovered important insights on the impacts of the ongoing food crisis in the context of the urban/rural nexus. Simply, the negative food and nutrition outcomes experienced during the ongoing crisis period were not exclusively assigned to rural or urban areas. Rather, the review showed that both rural and urban areas were severely impacted. In fact, in some of the countries studied, negative food and nutrition impacts were felt more severely in urban as opposed to rural areas. For example, the urban poor in Pakistan faced greater negative nutrition outcomes than the rural poor in 2022<sup>39</sup>. This is representative of the evolving urban-rural nexus in Asia-Pacific food security during a time of rapid urbanization in the region.

## SUMMARY

The scoping review has established an effective baseline for the impacts the ongoing crisis is having on diets, nutrition, and resilience in our selected Asia-Pacific countries, examining the shocks faced and uncovering relevant literature on the impacts of these shocks. Seven key findings emerged:

**Domestic food production was down from the pre-crisis period in all six countries.** This was the result of disruptions to agricultural input supply chains which reduced the availability and accessibility of said inputs, as well as the increasing frequency and intensity of extreme climate events, which damaged crops and food systems infrastructure.

**All six countries experienced significant food inflation during the crisis period.** This was the result of disruptions to global food supply chains which reduced the availability of food imports during the crisis period. Falling domestic production also contributed to food inflation, as countries were unable to offset higher import prices with local food production.

**The purchasing power of consumers fell in all six countries during the crisis period.** Households in each country spent more of their budgets on food in 2022 and 2023. This was the result of the rising cost of food, as well as falling income due to the loss of livelihoods for those employed within food systems as local production declined.

**Critically, both dietary diversity and quality fell in all six countries during the crisis period.** This was the result of reduced purchasing power, as well as an increase in marketing campaigns for unhealthy foods, and included both eating less fruits and vegetables, while at the same time eating more processed foods high in fat, sugar, and salt. Notably, dietary diversity was shown to be declining most severely for women and children.

**The use of food- and livelihood-based coping strategies rose in all six countries during the crisis period.** While social protection programs expanded in some countries during the COVID pandemic, before stagnating or reducing during the Russia-Ukraine war, coping strategies were common during COVID and rising in 2022 and 2023, indicating that social protection programs were not enough to cover needs.

**The impacts of crisis were felt severely in both urban and rural areas.** Negative food and nutrition outcomes were not exclusively uniquely assigned to either rural or urban areas. In fact, for some countries, specific indicators showed worse outcomes in urban areas than rural areas. This reflects the evolving urban-rural nexus in Asia-Pacific food security during a time of rapid urbanization.

## 4. Modeling the impact of crisis

In this section, we analyze the impacts of the ongoing crisis using a conceptual model depicting the relationship between the food environment and changes in food security and nutrition. The model serves as a guiding framework for answering questions central to our understanding of the polycrisis' impact on diets, nutrition, and resilience:

1. How has the polycrisis and its resulting changes in trade and inflation affected the price of food and food sales?
2. How has the polycrisis affected household income, the cost of diet, and the share of household income spent on food?
3. How have these changes collectively impacted households' resilience, food security and nutrition?

The findings related to these central questions are explored below.

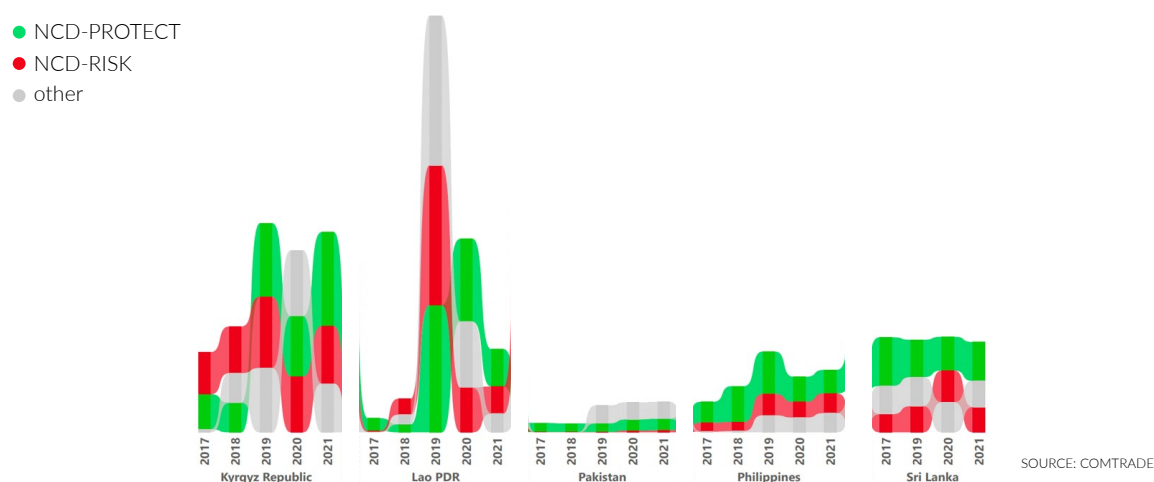
### 1. How has the polycrisis and its resulting changes in trade and inflation affected the price of food and food sales?

#### A. FOOD IMPORT TRENDS

##### Per capita food imports declined

In examining food and beverage import trends from 2019 to 2021, we start with a simple comparison for each country of the per capita volume of imports of foods (Figure 3). Data were available for five of our targeted countries – the Kyrgyz Republic, Lao People's Democratic Republic, Pakistan, the Philippines, and Sri Lanka. We classified a select number of food groups into two categories – those designated as either a “NCD protect” food, which serves to protect the body against Noncommunicable Diseases (NCDs), or an “NCD risk” food, which are those which are known to be a risk for NCDs (Annex 4, Table 2).

In terms of the volume of all foods and beverages, all but one country (Pakistan), saw per capita food imports decline between 2019 and 2021. This is unsurprising given the reduced availability and accessibility of imports during the COVID pandemic, but nonetheless stands as notable given the reliance of the studied countries on imports for their food supply.



**Figure 3: Total per capita volume (kilograms or liters) of imports of GDR-classified NCD-risk factor and -protect food groups, by year (2017-2021) and country.**

GDR: Global Dietary Recommendations, NCD: Noncommunicable diseases, NCD-Protect: foods protective against noncommunicable diseases (whole grains; legumes/pulses; vitamin A-rich orange vegetables; dark green leafy vegetables; other vegetables; vitamin A-rich fruits; citrus; other fruits; nuts and seeds). NCD-Risk: foods related to noncommunicable diseases (baked/grain-based sweets; other sweets; processed meat; unprocessed red meat - ruminant; unprocessed red -non ruminant; packaged ultra-processed salty snacks; instant noodles; sugar-sweetened beverages).

## Total value of food imports increased

The total value (USD) of food imports increased in all countries but one (Lao People's Democratic Republic ) for which data was available between 2019 and 2021 (Figure 4). This means that while the volume of imports decreased, the value of imports increased, reflecting the rising cost of food as global supply chains were disrupted. This adds to the findings of the scoping review, which showed significant food inflation across all countries, by indicating that countries were spending more on food imports, while getting less.

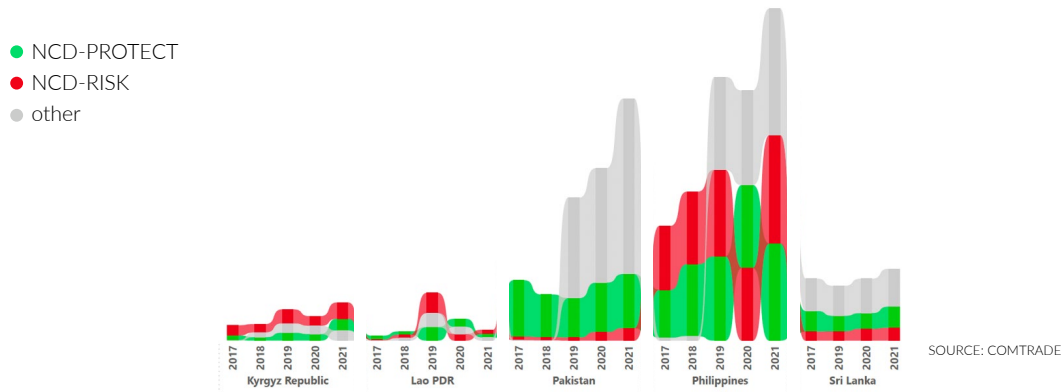


Figure 4: Total value (USD) of imports of GDR-classified NCD-risk factor and -protect food groups.

GDR: Global Dietary Recommendations, NCD: Noncommunicable diseases, NCD-Protect: foods protective against noncommunicable diseases (whole grains; legumes/pulses; vitamin A-rich orange vegetables; dark green leafy vegetables; other vegetables; vitamin A-rich fruits; citrus; other fruits; nuts and seeds). NCD-Risk: foods related to noncommunicable diseases (baked/grain-based sweets; other sweets; processed meat; unprocessed red meat - ruminant; unprocessed red -non ruminant; packaged ultra-processed salty snacks; instant noodles; sugar-sweetened beverages). Other: white roots, tubers, and plantains; eggs; cheese; yogurt; poultry; fish and seafood; Other: Fluid milk; Sweet tea / coffee / cocoa; Fruit juice and fruit-flavored drinks.

## The value and proportion of “NCD risk” food imports increased

In all countries but one (Lao People's Democratic Republic ), the value of imports of NCD risk foods increased during the crisis period from pre-crisis levels (Figure 5). On its own, this finding may not stand out, since the value of *all* food imports – both ‘risk’ and ‘protect’ – increased during the crisis period, as discussed above. However, by looking at the proportion of the countries’ imports of both NCD risk and NCD protect foods, we see that in three of the countries studied – Pakistan, the Philippines, and Sri Lanka – the proportion of risk factor foods went up compared to protect factor foods between 2019 and 2021. Moreover, in each of the two countries in which the proportion of NCD risk foods did not increase during this time – Lao People's Democratic Republic and the Kyrgyz Republic – the total value of risk factor food imports was higher than the value of NCD protect foods. This suggests that NCD risk foods are displacing – or at least outpacing – NCD protect foods in diets across the region.

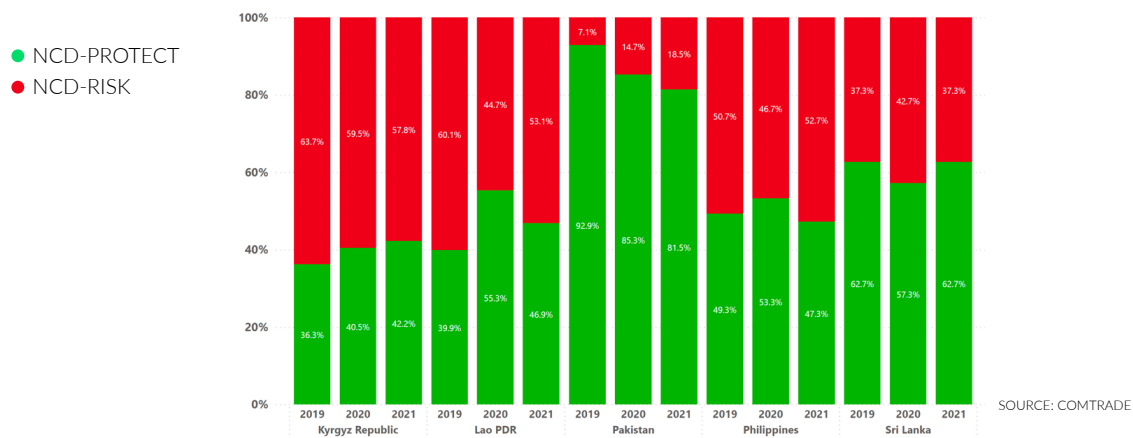


Figure 5: Percentage of GDR-classified food and beverage imports (USD value) (2019-2021).

GDR: Global Dietary Recommendations, NCD: Noncommunicable diseases, NCD-Protect: foods protective against noncommunicable diseases (whole grains; legumes/pulses; vitamin A-rich orange vegetables; dark green leafy vegetables; other vegetables; vitamin A-rich fruits; citrus; other fruits; nuts and seeds). NCD-Risk: foods related to noncommunicable diseases (baked/grain-based sweets; other sweets; processed meat; unprocessed red meat - ruminant; unprocessed red -non ruminant; packaged ultra-processed salty snacks; instant noodles; sugar-sweetened beverages).

## B. FOOD SALES TRENDS

### Sales volume of “NCD risk” foods went up between 2018-2023

Following our model's pathways linking the food environment to food security and diets, we analyzed food sales volume data from the Euromonitor database for our six countries between 2017 and 2023. For five of the six countries studied, the change in the per capita volume of NCD-risk foods sold substantially increased after the crisis, compared to the baseline year of 2018 (Figure 6). These changes suggest a negative impact of the crisis on the volume of NCD protect foods sold and indicate challenges in promoting and maintaining a balanced and nutritious diet that protects against noncommunicable diseases.

- NCD-PROTECT
- NCD-RISK

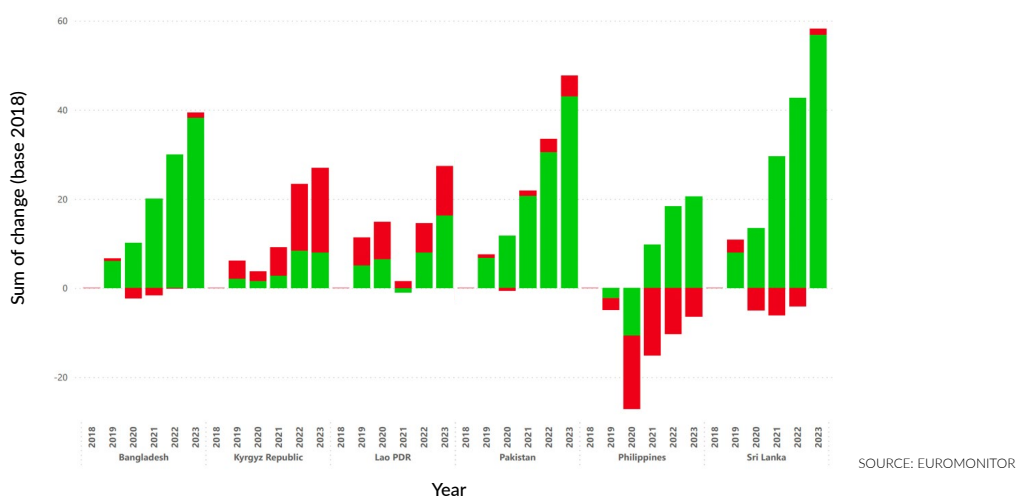


Figure 6: Per capita changes in food sales volume (kg or liters) (base year 2018).

GDR: Global Dietary Recommendations, NCD: Noncommunicable diseases, NCD-Protect: foods protective against noncommunicable diseases (whole grains; legumes/pulses; vitamin A-rich orange vegetables; dark green leafy vegetables; other vegetables; vitamin A-rich fruits; citrus; other fruits; nuts and seeds). NCD-Risk: foods related to noncommunicable diseases (baked/grain-based sweets; other sweets; processed meat; unprocessed red meat - ruminant; unprocessed red -non ruminant; packaged ultra-processed salty snacks; instant noodles; sugar-sweetened beverages).

## 2. How has the polycrisis affected household income, the cost of the diet, and the share of household income spent on food?

### A. HOW HOUSEHOLD-LEVEL INCOME CHANGED DURING THE CRISIS PERIOD

#### Household income increased between 2015-2022

All five countries for which household income data was available in the Euromonitor database, including Bangladesh, Lao People's Democratic Republic, Pakistan, the Philippines, and Sri Lanka, show incomes increasing overall from 2015 to 2022 (Figure 7) in both urban and rural households.

These findings warrant further examination in light of the scoping review presented above, which found that significant portions of households in each of these five countries saw their incomes decrease during the crisis period. While our model did not provide data reconciling these findings, one possible explanation could be the unequal and disproportionate occurrence of income outcomes, where, in effect, incomes increased for some at a greater rate than they declined for many.

Moreover, in each of the Philippines, Lao People's Democratic Republic, and Sri Lanka, we found that income levels plateaued in 2020 after steady growth from 2015 to 2019, before recovering in 2021 and 2022, suggesting impacts of the COVID pandemic which warrant further study.



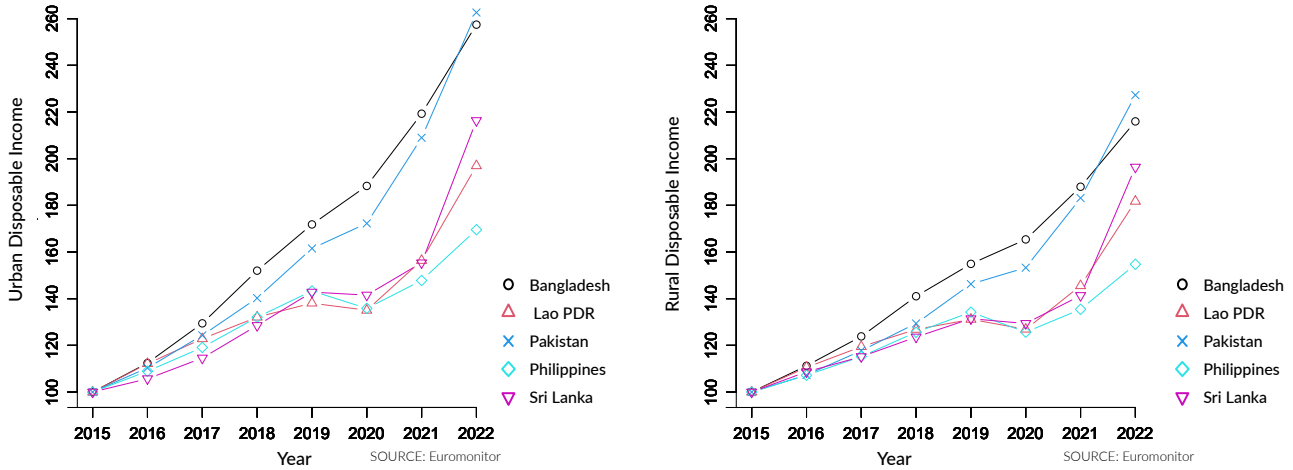


Figure 7: Percent change in household income (urban and rural) since 2015.

Disposable income: gross income less social security contributions and income taxes.

## B. HOW INCOME AFFECTED HOUSEHOLD EXPENDITURE ON FOOD DURING THE CRISIS

### Share of income spent on food stayed the same or increased during the crisis

While national-level household incomes increased for all five countries for which data was available (Figure 8), food expenditure remained somewhat constant for Bangladesh and Lao People’s Democratic Republic during the crisis period, and increased for Sri Lanka, the Philippines, and Pakistan in 2020, before returning to pre-crisis levels in 2021 in Sri Lanka and Pakistan, and 2022 in the Philippines.

This is a notable finding. While household incomes were increasing, the proportion of this income households spent on food stayed the same or increased.

This can be seen as a potential effect of the food inflation discussed in the scoping review, which each of these countries experienced during this time period, as well as an indication of the difficulties faced by consumers in these countries in increasing their purchasing power.

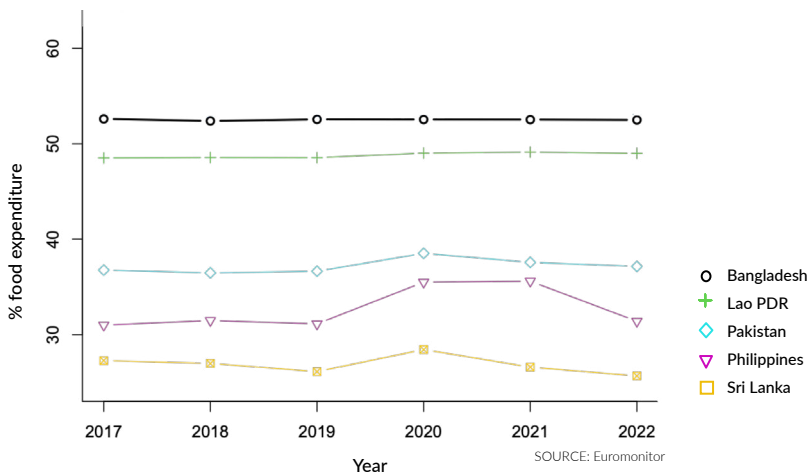


Figure 8: Average percent of household expenditure spent on food (2017-2022).

## Decrease in household income is associated with sales of “NCD risk” foods

Critically, our model shows that decreases in household income are associated with sales of processed foods and beverages that are high in salt, sugar, and fats, and are risk factors for NCDs.

Where incomes decrease across the six countries in the region, sales volume (and presumably consumption) of packaged ultra-processed salty snacks, processed meats, sugar-sweetened beverages, fruit juice, and instant noodles increased, while the sales volume of whole grains, fish and seafood, and milk decreased (Annex 4, Table 4).

While there are correlations between all these foods, the only moderately strong correlation was detected between changes in income and instant noodles. It is not particularly surprising to find a correlation between decreased incomes and an increased sales volume of instant noodles. As food prices go up, people may simply be looking for inexpensive and convenient foods to satisfy their basic energy needs.

## C. HOW FOOD PRICES HAVE CHANGED: A LOOK AT SUBNATIONAL VARIATION

### The cost of a ‘basket’ of basic food commodities increased

Drawing from WFP’s subnational retail price data for food commodities from the six countries included in our analysis, we selected a handful of key commodities through which we could examine food price behaviors across the countries. The five commodity categories are: rice, wheat flour, vegetable oil, pulses, and eggs. Although there are a number of varieties of each of these five commodities in our ‘food basket’ the most commonly consumed varieties often differ from country to country. Therefore, we opted to examine food commodity categories, which for some commodities are inclusive of multiple varieties.

Notably, for all countries, the subnational average cost of a basket of basic commodities started increasing in 2020 and continued through the crisis period. In the case of all countries except the Philippines, which saw more modest increases, the cost of a basket increased very sharply beginning in either 2020 or 2021 (Annex 3, Figure 10).

Unpacking the basket of goods and looking at a few individual commodities, we see that the average price of rice, the region’s main staple, has spiked over the course of the polycrisis for the six countries that are represented in our regional analysis, though the timing of the increases differed slightly within and across countries. Pulse prices have been more variable across the region, with some countries like the Philippines seeing significant subnational variation in the behavior of pulse prices, and others, such as Pakistan, the Kyrgyz Republic, and Bangladesh, seeing a dramatic upward trend in the price of pulses in 2021, 2022 and 2023. Prices of vegetable oil have also increased dramatically across the region, consistent with the timing both of the pandemic as well as the Russia-Ukraine War.

## D. HOW HAVE INCREASED FOOD PRICES AFFECTED THE COST OF DIET OVERALL?

### The cost of diets rose, with a greater increase in the cost of ‘nutritious’ diets

When analyzing the Cost of the Diet (CotD) within the selected countries, our model includes data for two types of diets – an energy-only diet, which is a diet that meets the recommended average energy specifications for each individual in the theoretical household, and a nutritious diet, which meets recommended intake for energy, protein, fat, and micronutrients (Annex 5).

Overall, the cost of diets has been highly variable and rising in the five selected countries for which data was available (Figure 9). Critically, for all countries except for Bangladesh, there were greater increases seen in the cost of a nutritious diet than an energy-only diet, suggesting that nutrient-dense foods, including fruits, vegetables, and animal-sourced foods have become less accessible to vulnerable populations.

Bangladesh is the only country for which the median cost of a nutritious diet actually decreased, while the median cost of an energy only diet increased by about 25 percent. For the Kyrgyz Republic, the median cost for both energy only and nutritious diets rose by about 50 percent, while for Lao People’s Democratic Republic , Sri Lanka and the Philippines, there have been significant increases in the median cost of a nutritious diet. In fact, the median cost of a nutritious diet in Sri Lanka was nearly 300 percent higher (compared to energy only, which is about 100 percent higher) in 2022 than its pre-crisis value. Interestingly, for Lao People’s Democratic Republic , the median cost of a nutritious diet went up over 250 percent, while the median cost of an energy only diet remained about the same.

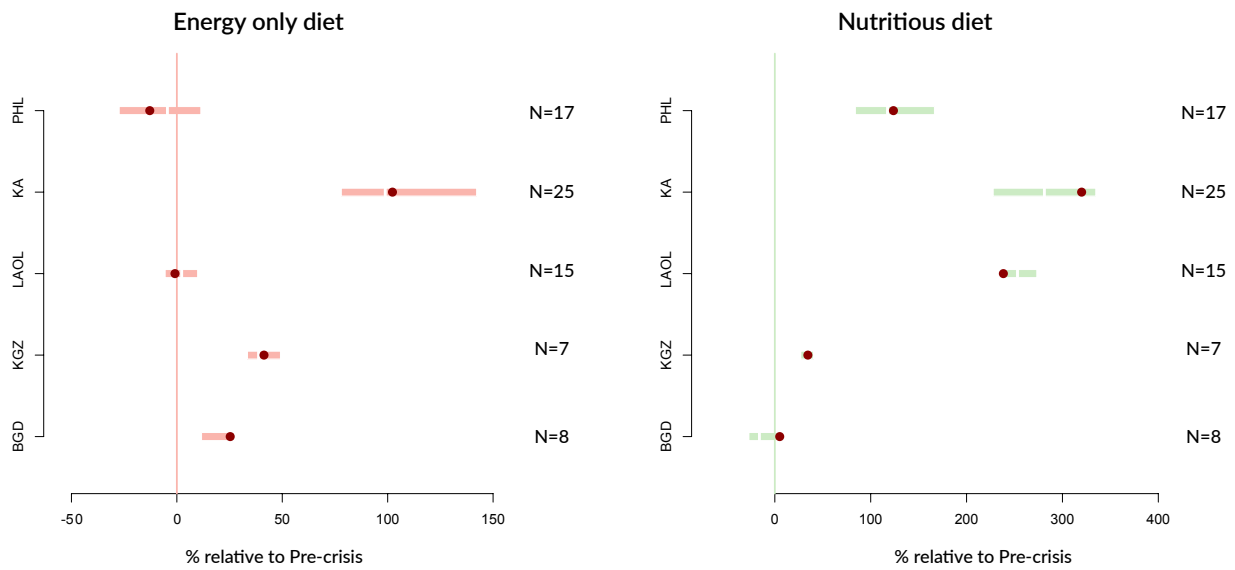


Figure 9: Percent change in Cost of the Diet Energy and Nutritious (2022), relative to most recent pre-crisis data.

PHL: Philippines; LKA: Sri Lanka; LAO: Lao People's Democratic Republic ; KGZ: Kyrgyz Republic; BGD: Bangladesh.

Pre-crisis data: Philippines – September 2015; Sri Lanka – June 2016; Lao People's Democratic Republic – March 2017; Kyrgyz Republic – November 2017; Bangladesh – September 2016.

N: number of sub-national values.

Dots in red: national level values.

### Increases in cost of diets means decreases in households able to afford those diets

Using our model as a guide, we have already seen the correlation between the current polycrisis and increased sales of NCD-risk foods. This suggests that a number of households may be replacing nutrient dense foods with lower quality, processed foods. To understand the reasons behind this phenomenon, we will now use our model to explore how changes in the cost of diets may have impacted food security at the household level.

First, while sufficient data existed for only two of our six selected countries, the findings suggest that increases in the cost of diets mean decreases in the number of households able to afford those diets, be they energy-only or nutritious. Of the two countries with sufficient data, we see that for Sri Lanka there was approximately a 350% increase in the median number of households unable to afford a nutritious diet between 2016 and 2022, with a number of outliers (Figure 10), which coincided with a time period in which the cost of a nutritious diet was 300 percent higher than pre-crisis levels, as discussed above though it is uncertain how much of this can be attributed to the economic crisis which was taking place in Sri Lanka during 2022, as opposed to the broad conditions of the global crisis. For the Philippines, changes were not as extreme, but still high, with an approximately 120% increase in the number of households unable to afford a nutritious diet between 2015 and 2022.

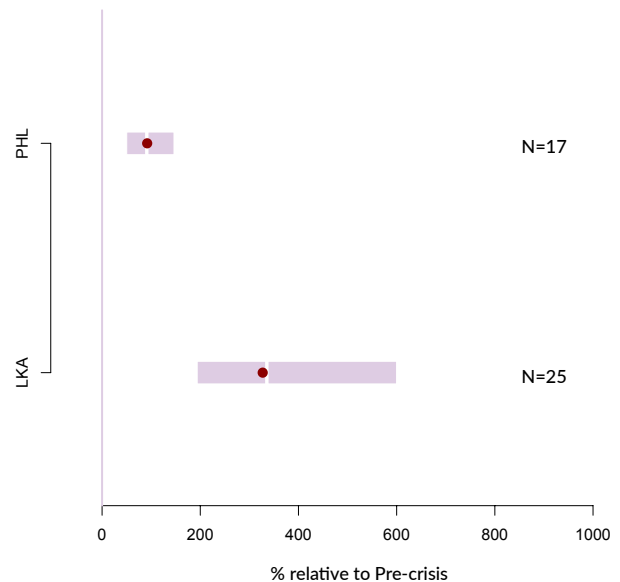


Figure 10: Percent change in households unable to afford a nutritious diet (pre-crisis to 2022).

PHL: Philippines; LKA: Sri Lanka

Pre-crisis data: Philippines – September 2015; Sri Lanka – June 2016.

N: number of sub-national values.

Dots in red: national level values.

### 3. How have these changes collectively influenced households' resilience, food security, and nutrition?

#### A. CHANGES IN FOOD SECURITY DURING THE CRISIS

##### Cost of a nutritious diet linked with decreased consumption and increased coping strategies

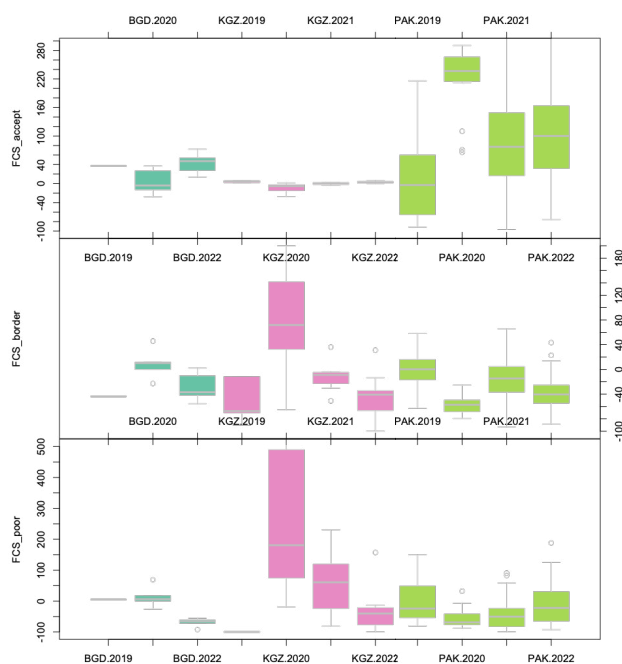
Households' inability to afford a nutritious diet has been a major driver for food insecurity in the region. Indeed, our model found that an increase in the cost of a nutritious diet was linked to both a decrease in acceptable food consumption scores (FCS), as well as an increase in the use of crisis strategies as measured by the livelihood coping strategies index (LCS-FS). The component correlation was 0.86, which is a moderate positive correlation.

This is a significant finding, as our model has already shown the cost of a nutritious diet is rising in four of five countries for which data was available. Moreover, it provides a driver behind the findings of the scoping review, which showed that dietary diversity and quality was falling, while the use of coping strategies was rising, in all six countries during the crisis period.

##### Food Consumption Score showed notable variation during the crisis

In order to understand how FCS changed over the course of the crisis, we analyzed percent change in FCS from the baseline point in 2019 (Figure 11). Pre-crisis and crisis period data for FCS was available from the WFP for three of the six countries we studied – Bangladesh, the Kyrgyz Republic, and Pakistan.

In each of these three countries, the median FCS acceptable scores increased from baseline over the course of the crisis. For Pakistan, overall food consumption scores significantly improved in crisis year 2020 before worsening slightly in 2021 and 2022, but remaining above pre-crisis levels, with more households moving from acceptable to borderline scores in 2021. Median acceptable FCS decreased in and Kyrgyz Republic and Bangladesh in crisis year 2020 before rising again. However, borderline FCS increased from the baseline in Bangladesh and the Kyrgyz Republic over the course of the crisis, spiking in 2020 then lowering, but remaining above the baseline in 2021 and 2022. Notably, poor FCS went down in Bangladesh and Pakistan over the course of the crisis, while rising in the Kyrgyz Republic. Note that of these three countries, the Kyrgyz Republic was the only country which our model showed was facing rising cost of both energy-only and nutritious diets during the crisis, perhaps providing insight for why their borderline and poor FCS scores rose above the baseline during the crisis.



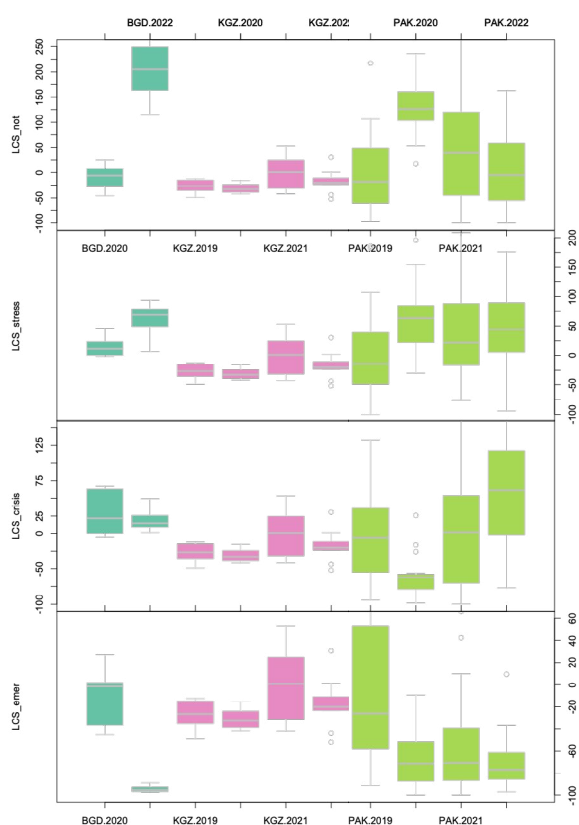
**Figure 11: Percent Change in Household Food Consumption Scores for 4 countries (baseline to 2022).**

BGD: Bangladesh; KGZ: Kyrgyz Republic; PAK: Pakistan  
 FCS\_accept: households with acceptable Food Consumption Score (>42);  
 FCS\_border: households with borderline Food Consumption Score (28.001-42);  
 FCS\_poor: households with poor Food Consumption Score (≤28)

## Livelihood Coping Strategies Index showed no clear pattern or trend during the crisis

In order to understand how LCS-FS changed over the course of the crisis, we analyzed percent change in LCS-FS from the baseline point (2019) similarly to the way we analyzed FCS above. Data was available for the same three countries as above – Bangladesh, the Kyrgyz Republic, and Pakistan.

As can be seen in Figure 12, there is a wide range in how countries—and within countries, households— appear to have coped with the crisis over time. Furthermore, there is no clear pattern or trend that has emerged across the three countries studied during this period. There could be many reasons for this, including the fact that the LCS-FS index is a medium to longer term measure, which means that the full impact of the polycrisis on may take some additional time to manifest fully.



**Figure 12: Percent Change in Household Livelihood Coping Strategies Index for 4 countries (baseline to 2022).**

BGD: Bangladesh; KGZ: Kyrgyz Republic; PAK: Pakistan  
 LCS\_not: households not adopting coping strategies;  
 LCS\_stress: households adopting stress coping strategies;  
 LCS\_crisis: households adopting crisis coping strategies;  
 LCS\_emer: households adopting emergencies coping strategies.

## B. IMPACT ON NUTRITION

The results presented in this section suggest negative nutrition outcomes are likely for a number of reasons, including the rising cost of a nutritious diet and the inability of households to afford those diets, as well as NCD risk foods outpacing NCD protect foods in diets across the region. These results add further nuance to the findings of the Scoping Review above, particularly its assertion that both dietary diversity and quality fell in all six countries during the crisis period.

However, our research highlights a lack of existing data on individual-level nutrition outcomes, particularly regarding nutritionally vulnerable populations, including women and children. This gap has been recorded previously in the literature, and indeed identified as a top priority to be addressed in order “to fully understand the current state of nutrition, inform effective action, and ensure that impact can be measured and monitored”<sup>40</sup>.

Here, a lack of data constrains our ability to explore possible correlations between the crisis and nutrition outcomes, most notably on those who are most vulnerable to its effects. As such, our ability to draw conclusions on the nutrition impacts of crisis, and particularly on how women, children, and other vulnerable populations are impacted, is limited.

## SUMMARY

This section analyzed the impacts of the crisis on diets, nutrition, and resilience using a conceptual model to answer three central questions:

1. *How has the polycrisis and its resulting changes in trade and inflation affected the price of food and food sales?*
2. *How has the polycrisis affected household income, the cost of diet, and the share of household income spent on food?*
3. *How have these changes collectively impacted households' resilience, food security and nutrition?*

Seven key findings emerged:

**From 2019-2021, the volume of food imports decreased, while the value of food imports increased.** All but one country (Pakistan) saw the volume of food imports decline from 2019-2021, while at the same time, the value (USD) of food imports increased in all countries but one (Lao People's Democratic Republic). This reflects the rising cost of food imports as global supply chains were disrupted, showing that countries were spending more on food imports but getting less.

**The value and proportion of "NCD risk" food imports increased, as did the sales volume of 'risk' foods.** In all countries but one (Lao People's Democratic Republic), the value of imports of NCD risk foods increased from 2019-2021. Importantly, the proportion of NCD risk food imports increased for three countries during this time, while for the remaining two countries for which data was available, the total value of risk food imports was greater than protect foods. Relatedly, five of the six countries saw a substantial increase in NCD risk foods sold over the same time period, suggesting that a number of households may have been replacing nutrient dense foods with lower quality, processed foods.

**Household income increased during the crisis, but share of income spent on food stayed the same or increased.** All five countries for which data was available showed household incomes increasing overall from 2015 to 2022 in both urban and rural households. However, at the same time, the percentage of income households spent on food remained the same or increased. This is a reflection of food inflation in each country, and a strong indication of the difficulties faced by consumers regarding increasing their purchasing power.

**Decreases in income are associated with sales of "NCD risk" foods.** While our model found that overall, household incomes were rising, recall that the scoping review showed significant percentages of households in each of our six countries reporting a decline in income during the crisis period. Here, our model shows that these decreases in income are associated with sales of NCD risk foods.

**The cost of diets is rising, with greater increases in the cost of a nutritious diet.** In all countries for which data was available, the cost of a basket of basic commodities increased during the crisis period, as did the cost of both energy-only and nutritious diets. Notably, in all countries but one, there were greater increases seen in the cost of a nutritious diet than an energy-only diet, suggesting that nutrient-dense foods have become less accessible.

**Increases in cost of diets means decreases in households able to afford those diets.** While sufficient data existed for only two of our six selected countries, the findings suggest that increases in the costs of diets means decreases in the number of households able to afford those diets, whether nutritious or energy-only.

**The increased cost of a nutritious diet correlates with negative household-level diet and food security outcomes.** Our model found that an increase in the cost of a nutritious diet was linked to both a decrease in acceptable food consumption scores, and an increase in the use of 'crisis' coping strategies. This is a critical finding, as our model showed that indeed the cost of a nutritious diet was rising in all countries for which data was available. While negative nutrition impacts are likely for a number of reasons, unfortunately with a lack of data on nutrition outcomes, our ability to draw conclusions on how women, children and other vulnerable populations, specifically, are impacted is limited.

## 5. Urban Food Vendors Survey

Urban food vendors, critical links in the food supply chain in urban areas, offer unique insights into how the crisis influences diets and consumption patterns in cities. To better understand the challenges faced by urban food vendors during the ongoing crisis period, a survey was conducted in the six focus countries in 2023, yielding 677 responses from food vendors across 11 cities.

To be eligible for the survey, vendors needed to be a registered company, based in an urban area within one of the six countries, and part of the food sector, including businesses involved in food production, distribution, and sales. The survey was conducted in a structured manner, translated into local languages and administered by national call centers using an online data entry system.

The results of this survey reveal disruptions in market access, supply chain issues, and income reductions, as well as adaptations made by these businesses to navigate the crisis, each of which will be discussed below in order to provide a focused view of the impact of the polycrisis on essential urban food supply chains.

### FINDINGS

#### Market Access

The crisis negatively affected vendors across countries with regards to their access to customers or markets (Figure 13). Respondents from Bangladesh, Kyrgyz Republic, and Lao People's Democratic Republic reported the most significant negative impacts, with at least 64.7% of vendors reporting severe impacts, while those in the Philippines felt the least disruption. Notably, at least 50% of vendors in all countries reported some impacted access to markets or customers. Disruptions in access to markets or customers were often due to reduced customer traffic, store closures, and lockdowns.

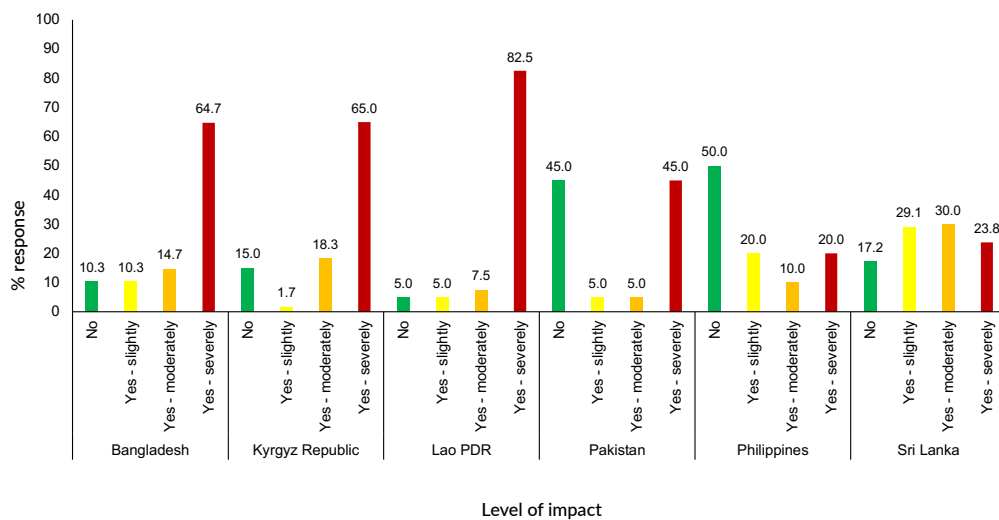


Figure 13: Self-reported impact of the food crisis on access to customers or markets by urban food vendors in seven Asia-Pacific countries

### Supply Chain Disruptions

Significant supply chain disruptions were reported by vendors in all countries (Figure 14). Again, respondents from Bangladesh, Kyrgyz Republic, and Lao People's Democratic Republic reported the most significant negative impacts, with at least 54.3% of vendors reporting severe impacts, while Pakistan felt the least disruption. Notably, the majority of vendors in all countries reported some impacts on the supply chain.

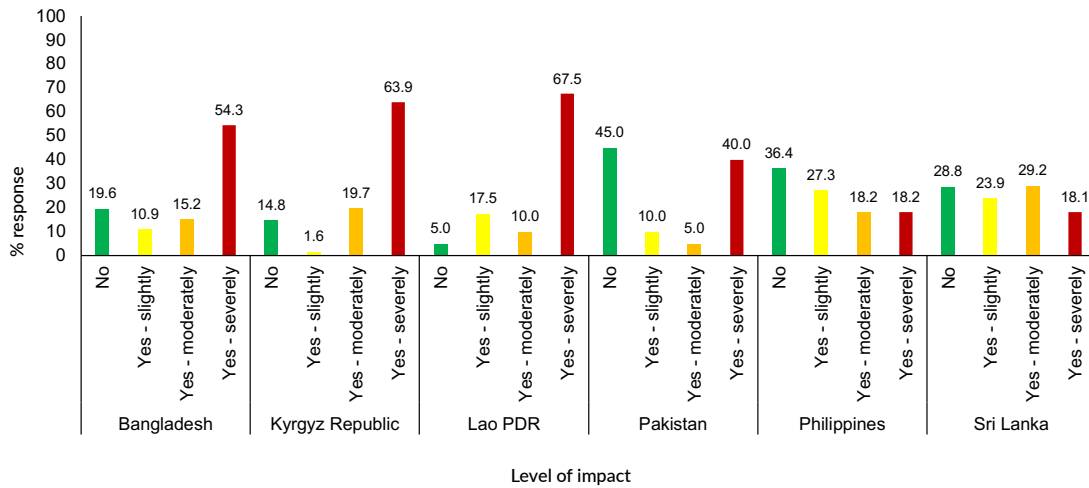


Figure 14: Impact of the food crisis on supply chain as reported by urban food vendors in seven Asia-Pacific countries

### Economic Impact on Businesses

A significant majority of vendors in all countries, at least 63.2% in each country, experienced a decrease in income during the crisis (Figure 15). Alarming, nearly all vendors in Bangladesh (97.4%) reported decreased income, while nine in ten reported a decrease in Lao People's Democratic Republic. Interestingly, a small percentage of vendors reported increased incomes in the Philippines (8.3%) and Sri Lanka (3.6%) during the crisis.

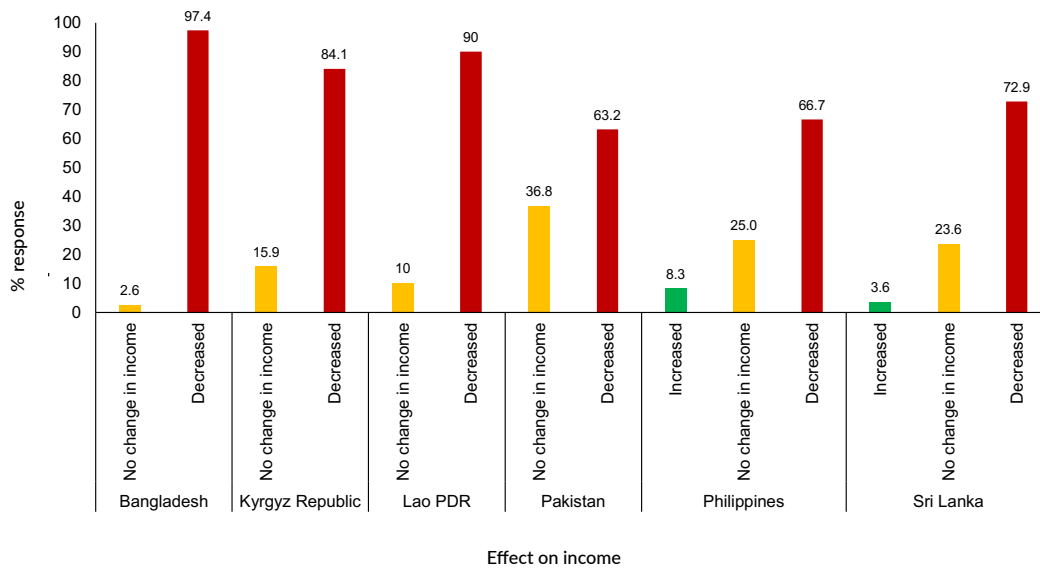


Figure 15: Change in income reported by urban food vendors in 7 Asia-Pacific countries



## Adaptations to the Crisis

Despite income reductions, few businesses significantly reduced operational costs. Notable reductions occurred in Kyrgyz Republic and Pakistan, and included downsizing staff, altering sales hours, changing suppliers, and reducing production to lower supplies and cut costs. The surveyed food vendors also made other adaptations, including diversifying products, introducing new food items, sharing their workforce with other businesses, and employing new distribution methods.

## ASSESSING THE FINDINGS

It is well established that urban food vendors play a pivotal role in urban food systems in Asia-Pacific. In urban areas, where agriculture is limited, populations depend on food supply chains for their daily sustenance, and it is urban food vendors who bridge the gap between producers and consumers. Critically, open markets with fresh produce are essential for provision of daily fresh foods such as vegetables and fruits, dairy products, fresh meat, and fish and seafood, which are rich in protein and essential micronutrients, such as iron, iodine, calcium, zinc, Vitamin A, and Vitamin B12.

Accordingly, shocks which disrupt the operation of urban food vendors can have significant negative impacts on urban diets and food security. The COVID-19 pandemic, for example, had a documented impact on diets in cities. Closures and restrictions on formal and informal food services such as markets, mobile vendors, or supermarkets, especially in the early stages of the pandemic, created a supply shock (Carducci et al., 2021), restricting the access of millions of people to fresh, nutritious foods as well as sources of income, and thereby increasing the risk of malnutrition and micronutrient deficiencies. Additional research indicated that in urban settings where the operation of urban food vendors was disrupted due to the pandemic, the minimum dietary diversity of women and children fell significantly.<sup>41</sup>

As such, the findings of our food vendors survey can be seen as particularly concerning. That the majority of vendors reported that the crisis lowered their access to customers or markets, impacted the supply chain, and contributed to decreasing income, could have significant negative impacts on food security in the countries studied.

To counteract the potential impacts of disruptions to urban food vendors, the adaptations employed by the vendors in our survey, and the success or failure of each, should be studied further, in order to assist in tailoring interventions and policies more effectively when faced with future shocks and disruptions.

## 6. Resilience

As we examine the ongoing food crisis created in part and exacerbated by the COVID-19 pandemic, the war in Ukraine, and ongoing climate crises, it is critical to recognize that these types of shocks can no longer be seen as unusual or unexpected moving forward. Indeed, we are now living in an era of crises and overlapping shocks, and food systems must be approached as such, constructed and operated in a state of what has been called “permanent crisis resilience”.

While many different definitions of food system resilience exist in the literature, for our purposes, we refer to the definition of food system resilience used by Fanzo et al., as “the ability of different individual and institutional food system actors to maintain, protect, or quickly recover the key functions of that system despite the impacts of disturbances”<sup>42</sup>.

In this section, we will examine the overall resilience of the food system across our six selected countries. The examination will include the impacts of shocks such as the COVID-19 pandemic, economic instability, and natural disasters, revealing the diverse array of challenges each of our six countries has faced. Additionally, it will assess the resilience capacities and outcomes in these countries, shedding light on the ability of their food systems to withstand and adapt to these disruptions. Moreover, it will explore resilience strategies and approaches tailored to each country’s unique challenges and circumstances, addressing issues related to food production, distribution, affordability, and social support.

Below, we will provide a snapshot for each of the six selected countries, describing how the shocks stemming from ongoing crisis have affected food systems and identifying specific vulnerabilities, while exploring unique strategies and opportunities to build and enhance food system resilience.

### RESILIENCE SNAPSHOT: BANGLADESH

Bangladesh grappled with multiple challenges to its food system resilience during the crisis period. Disruptions to supply chains for agricultural inputs due to COVID and the war in Ukraine reduced domestic agricultural output, particularly in rice production, which negatively impacted the livelihoods of those employed within food systems. At the same time, Bangladesh faced significant damages from cyclones and floods in 2020 and 2022 which further disrupted food production and reduced livelihoods, highlighting the country’s susceptibility to climate events. Along with lowered domestic production, import constraints, notably for wheat and vegetable oils, led to high food inflation. These import constraints were compounded by a modest depreciation of the country’s currency in 2022.

With food prices rising, and livelihoods lost due to falling food production, food consumption decreased among Bangladeshi households, while at the same time, households were pushed to adopt negative coping strategies for food access.

These challenges suggest critical opportunities to enhance food system resilience.

First, food systems in Bangladesh are heavily reliant on rice production, leaving the country highly vulnerable to disruptions in the rice supply, as has taken place during the ongoing crisis. Diversifying crops, including the cultivation of alternatives like lentils, can reduce the nation’s heavy reliance on rice, mitigating risks tied to climate change, pests, global supply chain disruptions, and market fluctuations.

Second, supporting agricultural workers and those employed within food systems, including informal food vendors, through economic policies and social protection programs can enhance household and food system resilience, with emergency cash transfers providing a crucial safety net when livelihoods are threatened due to falling domestic production.

Finally, it must be mentioned that gender disparities in access to resources and issues like maternal nutrition further challenge food system resilience, impacting women’s well-being and children’s nutrition. Addressing gender disparities and enhancing women’s access to resources, education, and healthcare can significantly fortify households and communities, promoting overall resilience.

### RESILIENCE SNAPSHOT: THE KYRGYZ REPUBLIC

A reliance on food imports was a significant and notable factor impacting resilience in the Kyrgyz Republic during the crisis period. Despite no significant natural disasters in the country during the crisis period, a reliance on imports during a time when global food supply chains were disrupted led to worsened food price volatility and a substantial rise in national food prices. As a result, the Kyrgyz population’s purchasing power and therefore their ability to access food suffered, which is reflected by the surge in the use of harmful food- and livelihood-based coping strategies. The share of the population unable to afford a healthy diet also sustained a noticeable increase during this period.

This highlights the importance of reducing reliance on food imports in the Kyrgyz Republic. To enhance food system resilience, the Kyrgyz Republic should focus on diversifying domestic food production and improving agricultural practices, reducing dependence on external markets. However, analysis shows that this may be easier said than done. The government's efforts to convert non-irrigated land for farming face challenges due to the country's mountainous terrain. Water scarcity is also a significant concern, as the domestic water supply, sourced from glaciers and snowmelt, is diminishing due to aging infrastructure.

Further relevant resilience strategies are revealed when looking specifically at the impacts of the ongoing crisis on vulnerable groups in the country.

First, as food insecurity has intensified, leading to compromises in dietary quality, children have been disproportionately affected, and are increasingly consuming low-quality, processed foods which are heavily marketed by companies. Implementing food security safety nets and nutrition education would empower children and their caregivers to make informed dietary choices.

Second, income inequality in the country negatively impacts its food system resilience, with vulnerable communities, especially those in the informal economy, bearing the brunt of economic and social hardships. Migration, both internal and external, plays a crucial role, with a substantial portion of the population near the national poverty line and relying on remittances. Rebuilding social capital and implementing crisis preparedness programs can help vulnerable communities better respond to shocks, while supporting local markets and sustainable practices in vulnerable communities reduces import dependence and preserves the environment for long-term food security.

## RESILIENCE SNAPSHOT: LAO PEOPLE'S DEMOCRATIC REPUBLIC

During the crisis period, Lao People's Democratic Republic faced significant and overlapping shocks. First, the COVID-19 pandemic in 2020 prompted strict containment measures, impacting the food system. Then, as the impacts of COVID were still being felt, the outbreak of the war in Ukraine in 2022 resulted in import challenges for both food and fuel supplies, while the country's currency weakened notably due to global financial instability. At the same time, climate related shocks led to a decline in domestic food production, affecting food availability. Moreover, the country's high reliance on agriculture for livelihoods meant that falling production posed a significant threat those employed in the sector, including, most notably, women, who make up about 64% of the agricultural workforce in the country.

During this time, Lao People's Democratic Republic faced rising food inflation, which surged in 2022, and contributed to a declining food security situation, highlighted by a reduced access to nutritious foods and food shortages in some areas, which especially impacted rural communities and remote regions of the country, those most dependent on farming and most vulnerable to natural disasters.

The situation in Lao People's Democratic Republic shows how overlapping shocks can be mutually reinforcing, highlighting the necessity of multifaceted approaches to improving food system resilience. For example, opportunities for enhancing food system resilience in the country could include diversifying agricultural practices by promoting sustainable and climate-resistant approaches, including introducing modern farming techniques, efficient water management, and resilient crop varieties, while at the same time strengthening the food supply chain's resilience through investments in transportation infrastructure, storage facilities, and improved market access, particularly in remote areas. Furthermore, promoting the production of nutrient-rich and dense foods, such as fruits, vegetables, and animal-sourced products, can address nutritional needs during crises, with support for small-scale farmers and nutrition education playing a vital role.

Interestingly, and perhaps relevant to the longer-term resilience of Lao People's Democratic Republic, despite overlapping shocks, mobile cellular subscriptions improved from pre-crisis levels, reflecting infrastructure improvements, and the social capital index, which reflects personal and social relationships, institutional trust, and civic participation, showed a modest increase during the crisis, despite previous declining trends. Building social capital through community initiatives, local networks, and trust-building can contribute to resilience, aiding in responses and recovery from shocks.

## RESILIENCE SNAPSHOT: PAKISTAN

Pakistan showed some positive resilience trends during the crisis period prior to 2022. Crop and livestock production demonstrated positive trends, while food imports remained relatively low, with slight increases in specific food groups. Moreover, mobile cellular subscriptions continued to rise, reflecting infrastructure improvements.

However, food supply variability experienced fluctuations, impacting food price and availability. Notably, wheat suffered from price instability stemming from a lack of consistent government policy, including regarding the export of wheat and flour to neighboring countries, which lacks oversight and drives up domestic prices. This highlights the importance of implementing

stable pricing and market policies for staple crops like wheat in order to reduce price fluctuations and improve food affordability, especially during crises. Additionally, regulating and monitoring the export of essential food commodities, such as wheat and flour, helps prevent domestic supply shortages and maintains food stability.

Related to this, regional disparities were evident in the country, with Punjab producing the majority of wheat and other provinces relying on it, highlighting the need for equitable distribution policies. Developing fair food distribution policies, with a focus on regions heavily dependent on food imports, is necessary to provide equitable access to vital food resources.

While these characteristics are relevant to note, the most important factor impacting Pakistan's food system resilience emerged in 2022. From June to October of that year, Pakistan suffered from unprecedented flooding which damaged more than 80% of the crops across the country and killed more than 800,000 livestock animals. With local food production decimated by flooding, Pakistan's food imports, particularly of wheat, increased dramatically. With the rising cost of food imports due to the disruptions to the global supply chain resulting from the war in Ukraine, this dramatically spiked food prices in the country, and reduced the population's ability to afford a healthy diet. Consequently, household food insecurity spiked, rising to 60% in late-2022.

In Pakistan, we see a worst-case scenario of the Asia-Pacific region's susceptibility to climate events, a warning which highlights the imperative of promoting climate-resilient agriculture in order to mitigate the impact of climate change on food production, as well as investing in better storage facilities to protect food supplies during natural disasters and crises, minimizing food losses and ensuring long-term food security.

## RESILIENCE SNAPSHOT: PHILIPPINES

As elsewhere in the region, the Philippines faced food inflation during the crisis period, impacting people's ability to access food, and resulting in an increase in food- and livelihood-based coping strategies. Heavy reliance on food imports, especially staples like rice, exposed the country to price manipulation and artificial shortages, leading to economic impacts and corruption within government food procurement programs. This was evident in alleged irregularities in onion procurement under the Kadiwa program, resulting in suspensions of government officials. More positively, food supply variability improved slightly during the crisis period, indicating a modest increase in food availability, while social capital remained relatively stable.

Notably, two characteristics stood out when assessing food system resilience in the Philippines.

First, rapid urbanization, particularly in Quezon City, worsened urban food insecurity, with children and women in particular facing declining dietary quality. Unequal capacities among Local Government Units in implementing government programs highlight the need for a more inclusive approach for urban and rural populations. Moreover, collaboration with city governments is essential to expand urban gardening initiatives, diversify staple food promotion through SBC strategies, and strengthen governance capacities. These actions will enhance the implementation of food security and nutrition programs. Critically, however, there is a need for more localized data to understand potential disparities between regions, as national-level data may not fully capture variations in inflation and food security.

Second, a major concern which emerged in the Philippines is the high consumption of low-quality, processed foods, driven by intensive marketing, especially through social media. To improve food system resilience, the Philippines should finalize the initiative on nutrient thresholds for sensitive nutrients like trans-fat and sugar, which is already underway, enabling better regulation of food products, particularly among children. Moreover, it is imperative to strengthen measures to protect pregnant women, mothers, and young children from harmful marketing practices in both traditional and digital spaces. Extending monitoring and enforcement ensures a comprehensive approach and promotes positive nutrition behaviors.

## RESILIENCE SNAPSHOT: SRI LANKA

The most significant characteristic impacting food system resilience in Sri Lanka emerged in April of 2021, when the government of the country announced a sudden shift to organic farming, abruptly banning chemical fertilizer in an effort to make agriculture more environmentally sustainable. The sudden shift was conducted without stakeholder collaboration throughout the food supply chain, and without providing the necessary training for farmers on how to transition from chemical to organic-based agriculture. Consequently, the outcome was catastrophic, resulting in a severe disruption of agricultural production which significantly reduced crop yields. Significant rice yield losses, for example, necessitated rice imports for the first time in a decade, while feed production and livestock were also adversely affected, along with fruit and vegetable production. By November of 2021, the government had reversed its ban on chemical fertilizers, but this did not stem the disruption to production, which continued into

the 2022 planting season.

Here, Sri Lanka provides a warning as initiatives are enacted to promote food security and build resilience around the world. To do so abruptly, without stakeholder collaboration, and without providing the proper training to facilitate the transition, can have the opposite of the desired effects, reducing production and resilience, and increasing food insecurity.

However, analysis shows that reduced production due to a fertilizer ban was not the only shock Sri Lanka faced during the crisis period. Since early-2021, Sri Lanka has grappled with political turmoil stemming from a severe economic crisis, which, along with disruptions to global supply chains during the ongoing crisis period and domestic food production reductions from the fertilizer ban, contributed to surging food inflation and increasing unaffordability of a healthy diet in the country. These issues have pushed households into deeper food insecurity, with lower food consumption, and many households resorting to food- and livelihood-based coping strategies, potentially leaving them more vulnerable to future shocks.

Notably, however, some food system resilience capacities appeared relatively stable during the successive shocks. For example, the country's infrastructure, as indicated by mobile cellular subscriptions, continued to improve, although at a slightly reduced pace during the crisis, while the social capital index, reflecting personal and social relationships, remained relatively stable.

## SUMMARY

This section examined food system resilience in each of our six selected countries, assessing shocks, vulnerabilities, capabilities, and resilience strategies through six unique resilience snapshots. Seven key findings emerged:

In **Bangladesh**, a heavy reliance on rice production left the country highly vulnerable to disruptions in the rice supply which arose during the crisis period. This highlights the importance of diversifying food production beyond reliance on only one crop in order to mitigate shocks from global supply chain disruptions, market fluctuations, and climate events.

In the **Kyrgyz Republic**, a reliance on food imports emerged as a significant factor impacting food system resilience. As global food prices rose, the country's reliance on imports meant it was subjected to significant food inflation and price volatility. This highlights the importance of reducing reliance on external markets by increasing and diversifying domestic food production, improving agricultural practices, and expanding food system infrastructure.

**Lao People's Democratic Republic** provided a poignant example of how overlapping shocks can be mutually reinforcing, as during the current crisis period they faced compounding shocks from COVID-19, the Russia-Ukraine War, and extreme climate events, at the same time as their national currency weakened notably. This highlights the necessity of multifaceted approaches to improving food system resilience in the current era of crises which focus on issues like climate change, global financial instability, local supply chain resilience, and social safety nets at the same time.

**Pakistan** provided a worst-case scenario of the Asia-Pacific region's noted susceptibility to climate change, as unprecedented flooding damaged most domestic food production in 2022. Through this example, a warning is provided on the imperative of promoting climate-resilient agriculture to mitigate the impact of climate change on food production, as well as investing in storage facilities to protect food supplies during natural disasters.

In the **Philippines**, an example is provided of how rapid urbanization can negatively impact urban food security, with children and women in particular facing declining dietary quality. This highlights the importance of inclusive policy approaches for urban populations, greater collaborations with city governments and urban stakeholders, as well as more localized data to understand disparities between region and better define urban food security.

Through the catastrophic impacts of its 2021 fertilizer ban, which decimated local crop production, **Sri Lanka** provides a warning as initiatives are enacted to promote food security around the world. To do so without appropriate stakeholder collaboration, and without providing proper training and education in support of initiatives, can mean initiatives have the opposite of the desired effects.

Finally, an interesting situation emerged in both Lao People's Democratic Republic and Sri Lanka. Despite each country facing a cavalcade of overlapping shocks, both countries saw improvements in infrastructure, indicated by mobile cellular subscriptions, and a stable or increasing social capital index, reflecting personal and social relationships, institutional trust, and civic participation. How and why these positive outcomes emerged despite the stresses of numerous shocks, and their implications for longer-term food system resilience, warrant further examination.

## 7. Conclusion

With the world currently in the midst of a global food crisis, and Asia-Pacific in particular suffering severe impacts, this report sought to investigate diets, nutrition, and resilience in six selected countries in the region during the crisis. Numerous relevant findings were generated on the shocks faced by each country during the crisis, the resilience of their food systems, and the impacts of shocks on diets and nutrition.

### **DOMESTIC FOOD PRODUCTION DECLINED FROM PRE-CRISIS LEVELS IN ALL SIX COUNTRIES DURING THE CRISIS.**

Domestic production was negatively impacted by disruptions to global supply chains for agricultural inputs which reduced the availability and accessibility of necessary inputs like fertilizers, seeds, animal feed, oil, and natural gas. In addition, extreme climate events lowered production by damaging crops and food system infrastructure. In Sri Lanka, food production was seriously hindered by a poorly planned and hastily instituted ban on fertilizers, the effects of which continued even after the ban was reversed.

### **FOOD SYSTEM RESILIENCE IN ALL SIX COUNTRIES IS SUSCEPTIBLE TO CLIMATE EVENTS WHICH COMPOUND THE IMPACTS OF ONGOING CRISES.**

While Pakistan provided an example of a worst-case scenario, all six countries studied are susceptible to extreme climate events, and indeed, five of six experienced significant natural disasters in 2022. The report provided extensive findings on how climate events can lower domestic food production, which reduces household income, particularly of those working within food systems, as well as damage local infrastructure critical to food system resilience.

### **ALL SIX COUNTRIES EXPERIENCED SIGNIFICANT FOOD INFLATION DURING THE CRISIS PERIOD.**

A reliance on food imports in all six countries contributed to significant food inflation during the crisis period, when global food supply chains were disrupted, and the availability and accessibility of food imports was reduced. Falling domestic food production also contributed to food inflation, as countries were unable to offset higher import prices with local production. Tellingly, our model showed that while the volume of food imports decreased in all but one country between 2019-2021, the value of food imports increased in all but one country during the same time period, indicating that countries were spending more on food imports, but getting less.

### **THE PURCHASING POWER OF CONSUMERS STAGNATED OR FELL IN ALL SIX COUNTRIES DURING THE CRISIS PERIOD.**

The rising cost of food during the crisis period, as well as the loss of livelihoods during COVID-19 restrictions and within food systems as local production declined, each contributed to reduced or stagnating purchasing power of consumers within all six countries. Our modeling showed that despite household incomes increasing overall from 2015-2022, the percentage

of income households spent on food remained the same or increased, while the scoping review indicated that households in each country were spending more of their budgets on food in 2022 and 2023.

### **URBAN FOOD VENDORS FACED DISRUPTIONS DURING THE CRISIS PERIOD.**

Our survey of urban food vendors indicated that the majority of vendors faced disruptions during the crisis, including lowered access to customers or markets, supply chain disruptions, and decreasing income. With the established importance of urban food vendors to urban food supply chains and food security, these findings imply negative impacts for diets and nutrition in the eleven cities covered by the survey.

### **THE URBAN/RURAL NEXUS IN ASIA-PACIFIC FOOD SECURITY IS EVOLVING.**

Negative diet and nutrition outcomes were not exclusively assigned to either rural or urban areas. Indeed, the impacts of the crisis were felt severely in both. In fact, for some countries, specific indicators showed worse outcomes in urban areas than rural areas. This reflects the evolving urban-rural nexus in Asia-Pacific food security during a time of rapid urbanization. The Philippines provided an important example of how rapid urbanization can negatively impact urban food security, with women and children in particular facing disproportionate negative outcomes.

### **PERHAPS MOST CRITICALLY, BOTH DIETARY DIVERSITY AND DIETARY QUALITY DECLINED IN ALL SIX COUNTRIES DURING THE CRISIS PERIOD.**

In the scoping review, we see how food inflation and lost livelihoods contributed to reduced purchasing power and lower access to healthy foods, causing dietary diversity and quality to fall. Our modeling showed the value and proportion of imports of unhealthy “NCD risk” foods to be increasing during the crisis period, alongside the volume of national level sales of risk foods. Moreover, it showed that the cost of a nutritious diet is rising at a greater rate than the cost of an energy-only diet, and this increased cost of a nutritious diet correlates with negative food security outcomes. Where the scoping review found that significant portions of households in all six countries reported an income decrease in 2022, our modeling showed how decreases in income correlate with sales of unhealthy foods. Furthermore, in each of the six country-specific resilience snapshots, we see the unique ways in which access to healthy diets has been negatively impacted during the crisis, as well as, in the Kyrgyz Republic and the Philippines, how aggressive marketing of unhealthy food products supports their consumption. Simply, to achieve food security and adequate nutrition, particularly among women, children, and other vulnerable groups, various food system components should align to support access to an affordable, sustainable, healthy diet. However, this report shows that the components are unfortunately, instead, leading people towards sub-optimal diets.

## 8. Recommendations

Building upon the findings discussed above, this section provides a number of recommendations for the WFP, policymakers, and partners to both mitigate the impacts of the current polycrisis, and also buffer the Asia-Pacific region against future shocks.

### Promote local supply chain resilience

Reliance on imports is a key characteristic for all six countries studied in this report. In its resilience snapshot, the Kyrgyz Republic provided a notable example of how this reliance on imports harms food system resilience. Additionally, reliance on a limited variety of crops in local production, as seen in Bangladesh with rice, can leave countries vulnerable to disruptions in the production and supply of those crops. Furthermore, food systems infrastructure, including for transportation, storage, and market access, and particularly in rural or remote areas, was noted as a key resilience characteristic in multiple studied countries. As such, the following recommendations are presented in order to promote supply chain resilience where it is most needed:

#### **Boost local food production to reduce reliance on imports.**

This should include initiatives supporting small-scale farmers, particularly those in remote areas, as well as promoting urban agriculture within cities. Moreover, it should mean leveraging digital innovation at all areas of the supply chain in order to increase productivity in the face of shocks, reduce waste, and create better data to inform decisions more broadly.

#### **Diversify domestic food production to reduce reliance on few food commodities.**

This can include promoting the production of nutrient-rich foods such as fruits and vegetables, as well as underutilized and indigenous species that are climate-resilient and nutrient-dense. While this strategy will be particularly challenging in a region where rice has caloric, livelihood, and cultural importance, it will become increasingly necessary for both meeting the region's nutrient needs and protecting communities against the impact of future crises.

**Invest in infrastructure.** Invest in supply chain infrastructure and logistics to ensure the smooth movement of food from production areas both to urban centers, as well as hard-to-reach rural markets. This includes building roads, storage facilities, and improving transportation networks. Where possible, shorten food and supply chains, connecting local producers, processors and consumers, to minimize disruption in the event of a crisis.

### Build climate resilience in food systems

Susceptibility to climate events is a key characteristic for the six countries studied in this report. The report provided extensive findings on how climate events can negatively impact diets, nutrition, and resilience – lowering domestic food production and food supply, reducing household income, particularly of those working within food systems, and thus negatively impacting purchasing power and ultimately dietary diversity and quality. Pakistan provides a worst-case scenario for how

climate events can impact domestic food systems, but each country must urgently build climate resilience into food systems. As such, the following recommendations are presented:

#### **Promote sustainable agriculture through climate-smart approaches.**

This includes developing and cultivating climate-resilient crop varieties, diversifying crop production to reduce vulnerability to shocks, improving irrigation systems, and implementing disaster risk reduction strategies to enhance food system stability. To attenuate the impact of flooding and ensure a consistent water supply for agriculture, promote water-saving techniques and prioritize the rehabilitation and maintenance of irrigation systems.

**Create anticipatory action frameworks.** These are frameworks which anticipate shocks and organize aid before crises arise in order to protect communities and their existing assets, which research has shown is more effective than traditional after-the-fact responses, both for mitigating crises and supporting long-term resilience<sup>43</sup>.

#### **Enact shock-responsive social protection programming.**

Adapt or structure social protection programs to be able to expand rapidly in the event of an emergency. Ensure that programs have adaptive modalities that can respond quickly to prevent the most nutritionally vulnerable and food-insecure groups from depleting critical assets during times of crisis. Integrate anticipatory action into the architecture of social protection programming so that when imminent climate-related hazards are predicted, systems are equipped to be activated or scale up<sup>44</sup>.

### Expand social safety nets for vulnerable groups

This report provided numerous examples of negative outcomes impacting vulnerable groups disproportionately, including women and children. Moreover, the resilience snapshot of Bangladesh illuminates how gender disparities in access to resources challenge food system resilience. As such, the following recommendations are presented:

#### **Create comprehensive social protection policies for vulnerable groups, including women and children.**

Create or scale-up social protection programming as an investment in resilience. Where social protections do not exist or are insufficient, support their design, drawing from the growing evidence-base of effective social protection programming. Where social protection programs do exist, support their agility and functionality to rapidly scale up when a shock hits, including effective targeting, community feedback mechanisms, use of technology (eg. mobile money), and relevant design features to meet the specific needs of nutritionally vulnerable and food-insecure groups.

**Design social protection interventions to be nutrition-sensitive.** To ensure the greatest benefits for nutrition outcomes, social protection interventions should be designed with specific nutrition objectives and explicitly target households which are nutritionally vulnerable. Nutrition-sensitive policies should improve dietary quality and reduce food insecurity by improving stable access to a higher quality and greater quantity of diverse, nutrient-dense products at lower prices. At the same time, addressing the affordability and accessibility of ultra-processed foods, which often serve as cheap but unhealthy commodities for those experiencing food insecurity, is crucial.

**Provide access to low-risk financial products and services.** Support access to the banking sector for nutritionally vulnerable groups, including women, small-scale farmers, and those in remote areas and urban slums. Support access to no- and low-risk financial products and services to support investment in small-scale agriculture and food-related Micro-, Small and Medium-sized Enterprises (MSMEs).

**Enact gender equality initiatives.** By bolstering the standing of women and facilitating their improved access to resources, education, and healthcare, the overall resilience of households and communities can be substantially enhanced. Initiatives designed to address issues related to maternal nutrition and early marriage hold the potential to effect positive change, elevating the health and nutrition status of both women and children.

**Implement price stabilization mechanisms.** Implement and enforce consistent pricing and market policies for staple crops, such as rice and wheat or other essential food items. This would reduce price volatility and ensure food affordability for vulnerable groups, especially during times of crisis.

## Promote nutritious diets

A reduction in dietary diversity and quality is a prominent theme throughout this report. As such, the following recommendations are presented as critical:

**Create an enabling policy environment for nutrition.** This entails setting restrictions or even bans on food and beverage marketing targeting children, as well as implementing policies restricting the marketing and sale of ultra-processed foods. Additionally, promoting reformulation of products to reduce the presence of harmful elements like trans-fats, excessive sugar, and excessive salt can lead to more nutritious food options for consumers. Implementing labeling laws that provide transparent information about nutritional content empowers individuals to make informed dietary choices.

**Support nutrition-sensitive agriculture for nutrition outcomes.** Investment in agriculture does not necessarily or automatically yield positive nutrition results<sup>45</sup>. To ensure positive nutrition outcomes, agricultural interventions must be designed with specific nutrition objectives. Target nutritionally vulnerable households with agricultural interventions and proactively engage women producers. Support farmers with crop and livestock diversification strategies, including cultivation of biofortified crops and nutrient-dense foods for

both consumption and sale. Integrate nutrition objectives into interventions, and then track and measure nutrition outcomes, both to build the evidence-base as well as to ensure that objectives are achieved.

**Pursue food fortification.** Support the establishment or strengthening of mandatory large-scale food fortification of commonly and universally consumed, industrially processed staple foods, including edible oils, rice, wheat flour, fish sauce, or salt, with the micronutrients considered most of public health concern in the specific country. Support both the supply of and the demand for fortified food products among nutritionally vulnerable groups.

**Rely on evidence-based behavior change approaches to support diverse food consumption.** Investigate the context-specific barriers to, and enabling factors for, diverse food consumption and other key nutrition behaviors among women and young children. Support demand for diverse, nutritious diets, through effective and evidence based social and behavior change (SBC) initiatives.

## Support urban food vendors

Through our urban food vendors survey, we highlighted notable disruptions faced by food vendors in access to customers or markets, supply chain disruptions, and reduced business incomes in eleven cities across Asia-Pacific during the crisis period. The importance of urban food vendors for urban food supply chains is well established, and thus the findings of our survey highlight the need to better support urban food vendors, particularly during times of crisis. To do so, the following recommendations are presented:

**Formalize the informal sector.** To support smooth functioning of food vendors, suppliers and businesses, provide informal food system actors with legal recognition and access to resources and training. Furthermore, enhancing the digital literacy of informal actors and equipping them with online tools can improve their market access and overall competitiveness. This strategy should prioritize capacity strengthening through training programs on food safety, good nutrition practices, hygiene, and business management, enabling informal actors to operate more efficiently. In addition, creating collaborative platforms and networks can facilitate knowledge sharing and collective action, strengthening the position of informal vendors in the food system.

**Provide financial support to urban food vendors.** Offering microfinance and credit facilities to urban food vendors can help them expand their businesses and increase their resilience.



## 9. Recommendations for future research and data

Our analysis of the ongoing polycrisis' impact on food security and nutrition has uncovered significant insights and allowed for the generation of relevant and innovative policy recommendations. However, in our initial mapping of the data, we noted areas where critical research and data gaps exist, including in areas such as primary food production and dietary outcomes, as well as, critically, dietary information among nutritionally vulnerable populations such as women and children. (For a complete list of all notable data gaps among our six countries see Annex). More positively, our research also uncovered various interesting and potentially groundbreaking areas for future research, in which further information is needed to more fully understand the implications of the findings. As such, the following recommendations for future research directions and data construction are presented:

### **SYSTEMATICALLY INTEGRATE STANDARD MEASURES OF WOMEN AND CHILDREN'S NUTRITION INTO ROUTINE DATA COLLECTION EFFORTS.**

Subnational and national level data on vulnerable populations, including women of reproductive age and children under the age of five, are critical to drawing conclusions about the diets of the most vulnerable populations. Current standard dietary indicators in the WFP compendium of indicators include the proportion of children 6-23 months who consumed a minimum acceptable diet, as well as minimum diet diversity for women of reproductive age. These, at minimum, should be integrated into all relevant routine data collection tools.

### **STRENGTHEN OR ESTABLISH NUTRITION SURVEILLANCE MECHANISMS TO DETECT CHANGES IN NUTRITIONAL STATUS OF VULNERABLE POPULATIONS, INCLUDING WOMEN AND CHILDREN UNDER THE AGE OF 5.**

Given the reality of future shocks facing the region, it will become increasingly important for robust nutrition surveillance mechanisms to be in place. Given the challenges of nutrition data collection in the era of COVID-19, innovative solutions for collecting proxy indicator, and/or anthropometry data, including the potential use of AI or other technologies to facilitate data collection and analysis, should be pursued.

### **CONDUCT SUBNATIONAL ANALYSIS OF FOOD SYSTEM RESILIENCE:**

Establish methods and protocols for gathering data, at the subnational level, including information on food prices, food

security indicators, local agricultural production, income levels or wages of the poor, which can serve as a proxy for income, and other relevant variables to allow decision-makers to access actionable, high-quality, and geographically specific data for subregions. This is crucial for tailoring strategies and interventions to address the unique challenges faced by different areas within a country or region. Utilize data analysis software and tools to process and analyze the collected information. This can include statistical software, geographic information systems (GIS), and other analytical techniques to identify trends, patterns, and relationships in the data. Establish mechanisms for feedback and communication between data collectors, analysts, and policymakers. Regular feedback loops help refine data collection methods and adapt strategies as new information becomes available.

### **EXAMINE THE ADAPTATION STRATEGIES OF URBAN FOOD VENDORS DURING THE CRISIS PERIOD.**

Our urban food vendors survey found that to counteract the potential impacts of disruptions during crisis, vendors employed a variety of adaptation strategies, including downsizing staff, altering sales hours, changing suppliers, cutting costs, diversifying products, introducing new food items, sharing the workforce with other businesses, and employing new distribution methods. The impacts of each of these strategies, and similar strategies employed by urban food vendors in additional research, can be studied further in order to determine their success or failure and assist in tailoring interventions more effectively when faced with future shocks.

### **EXAMINE INFRASTRUCTURE AND SOCIAL CAPITAL IMPROVEMENTS IN LAO PEOPLE'S DEMOCRATIC REPUBLIC AND SRI LANKA DURING CRISIS.**

Despite each facing a cavalcade of overlapping shocks during the crisis period, both Lao People's Democratic Republic and Sri Lanka saw improvements in infrastructure, indicated by mobile cellular subscriptions, and a stable or increasing social capital index, reflecting personal and social relationships, institutional trust, and civic participation. How and why these positive outcomes emerged despite the stresses of numerous shocks, and their implications for longer-term food system resilience, warrant further study.

## References

- <sup>1</sup> Béné, C., Bakker, D., Chavarro, M. J., Even, B., Melo, J., & Sonneveld, A. (2021). Global assessment of the impacts of COVID-19 on food security. *Global Food Security*, 31. <https://doi.org/10.1016/j.gfs.2021.100575>
- <sup>2</sup> Behnassi M, El Haiba M. *Implications of the Russia-Ukraine war for global food security*. *Nat Hum Behav*. 2022 Jun;6(6):754-755. doi: 10.1038/s41562-022-01391-x. PMID: 35637299.
- <sup>3</sup> Glauber, J., Laborde, D. (2023). *The Russia-Ukraine conflict and global food security*. [doi://doi.org/10.2499/9780896294394](https://doi.org/10.2499/9780896294394).
- <sup>4</sup> The World Bank. (2023). *Food security | rising food insecurity in 2023*. Available at: <https://www.worldbank.org/en/topic/agriculture/brief/food-security-update> [Accessed November 6, 2023].
- <sup>5</sup> WFP (2023). *WFP Global Operational Response Plan 2023 Update #9 November 2023*. Available at: [docs.wfp.org/api/documents/WFP-0000153758/download/?\\_ga=2.112362050.712933249.1704798394-1192708500.1702887792](https://docs.wfp.org/api/documents/WFP-0000153758/download/?_ga=2.112362050.712933249.1704798394-1192708500.1702887792)
- <sup>6</sup> WHO. (2023). *122 million more people pushed into hunger since 2019 due to multiple crises, reveals UN report*. Available at: <https://www.who.int/news/item/12-07-2023-122-million-more-people-pushed-into-hunger-since-2019-due-to-multiple-crises--reveals-un-report> [Accessed November 6, 2023].
- <sup>7</sup> UNICEF. (2022a). *Global hunger crisis pushing one child into severe malnutrition every minute in 15 crisis-hit countries*. Available at: <https://www.unicef.org/press-releases/global-hunger-crisis-pushing-one-child-severe-malnutrition-every-minute-15-crisis> [Accessed November 6, 2023].
- <sup>8</sup> FAO. (2023a). *Why are women more food insecure than men? Exploring socio-economic determinants of the gender gap and the role of COVID-19 in the UNECE region*. Available at: <https://unece.org/statistics/documents/2023/04/working-documents/why-are-women-more-food-insecure-men-exploring-socio> [Accessed November 6, 2023].
- <sup>9</sup> WFP. (2023). *The Global Food Crisis: Impact on the Asia Pacific Region*. Available at: [https://docs.wfp.org/api/documents/WFP-0000146218/download/?\\_ga=2.173501155.1980682024.1696387696-1736357883.1695089281](https://docs.wfp.org/api/documents/WFP-0000146218/download/?_ga=2.173501155.1980682024.1696387696-1736357883.1695089281) [Accessed 6 November, 2023].
- <sup>10</sup> FAO (2023b). *Asia and the Pacific Regional Overview of Food Security and Nutrition 2023*. Available at: [www.fao.org/3/cc8228en/online/sofi-statistics-rap-2023/sdg-2-food-insecurity.html](http://www.fao.org/3/cc8228en/online/sofi-statistics-rap-2023/sdg-2-food-insecurity.html)
- <sup>11</sup> WFP. (2023). *The Global Food Crisis: Impact on the Asia Pacific Region*. Available at: [https://docs.wfp.org/api/documents/WFP-0000146218/download/?\\_ga=2.173501155.1980682024.1696387696-1736357883.1695089281](https://docs.wfp.org/api/documents/WFP-0000146218/download/?_ga=2.173501155.1980682024.1696387696-1736357883.1695089281) [Accessed 6 November, 2023].
- <sup>12</sup> ESCAP. (2022). *The war in Ukraine: impacts, exposure and policy issues in Asia and the Pacific*. ESCAP. Available at: <https://www.unescap.org/kp/2022/war-ukraine-impacts-exposure-and-policy-issues-asia-and-pacific> [Accessed 7 November, 2023].
- <sup>13</sup> Glauber, J. and Mamun, A. (2023). *Rice markets in South and Southeast Asia face stresses from El Niño, export restrictions*. IFPRI. Available at: [www.ifpri.org/blog/rice-markets-south-and-southeast-asia-face-stresses-el-ni%C3%B1o-export-restrictions](http://www.ifpri.org/blog/rice-markets-south-and-southeast-asia-face-stresses-el-ni%C3%B1o-export-restrictions)
- <sup>14</sup> UNICEF. (2023a). *Humanitarian Situation Report No.1 |East Asia and Pacific Region*. Available at: <https://www.unicef.org/media/143661/file/East-Asia-and-Pacific-Region-Humanitarian-SitRep-No.1-January-June-2023.pdf> [Accessed November 6, 2023].
- <sup>15</sup> Naz, F. (2022). *Floods are tipping Pakistan into a food crisis*. Aljazeera. Available at: <https://www.aljazeera.com/opinions/2022/10/28/floods-are-tipping-pakistan-into-a-food-crisis/> [Accessed November 6, 2023].
- <sup>16</sup> UN-Habitat. (2023). *Urbanization in Asia and the Pacific Region: Building inclusive & sustainable cities*. Available at: <https://unhabitat.org/asia-and-the-pacific-region> [Accessed 6 November, 2023].
- <sup>17</sup> UNICEF. (2023b). *As the pace of urbanization quickens in Asia-Pacific, so too does the threat of urban food insecurity – UN agencies report*. Available at: <https://www.unicef.org/eap/press-releases/asia-pacific-threat-urban-food-insecurity> [Accessed 6 November, 2023].
- <sup>18</sup> FAO, WFP, UNICEF & WHO. (2022). *Asia and the Pacific - Regional overview of food security and nutrition*. Available at: <https://www.fao.org/3/cc3990en/cc3990en.pdf> [Accessed 6 November, 2023].
- <sup>19</sup> UNICEF. (2021). *UNICEF Conceptual Framework on maternal and child nutrition*. [online] Available at: <https://www.unicef.org/media/113291/file/UNICEF%20Conceptual%20Framework.pdf> [Accessed 6 November, 2023].
- <sup>20</sup> Fanzo, J., Haddad, L., McLaren, R., Marshall, Q., Davis, C., Herforth, A., et al. (2020). *The Food Systems Dashboard is a new tool to inform better food policy*. *Nature Food*. [doi:10.1038/s43016-020-0077-y](https://doi.org/10.1038/s43016-020-0077-y).
- <sup>21</sup> MAPSA (2022a). *Monitoring the agri-food system in Myanmar: Food vendors - March 2022*. Available at: <https://www.ifpri.org/publication/monitoring-agri-food-system-myanmar-food-vendors-march-2022> [Accessed 9 November, 2023].
- <sup>22</sup> World Vision (2022). *Rapid Food Security Survey Report*. Available at: <https://www.wvi.org/publications/report/sri-lanka/rapid-food-security-survey-report-july-2022-0> [Accessed 9 November, 2023].

- <sup>23</sup> FAO and WFP. 2022. *Special Report – FAO/WFP Crop and Food Security Assessment Mission (CFSAM) to the Democratic Socialist Republic of Sri Lanka*. September 2022. Rome. <https://doi.org/10.4060/cc1886en>.
- <sup>24</sup> Samavong, C., Laos Macroeconomic Research Institute, Vilavong, B. and Laos Ministry of Industry of Commerce (2023). Laos must address rising inflation in 2023. *East Asia Forum*. Available at: <https://www.eastasiaforum.org/2023/02/01/laos-must-address-rising-inflation-in-2023/> [Accessed 9 Nov. 2023].
- <sup>25</sup> WFP. (2023b). *Price Monitoring for Food Security in the Kyrgyz Republic, Issue #65*. Available at: <https://reliefweb.int/report/kyrgyzstan/price-monitoring-food-security-kyrgyz-republic-issue-65-24-february-2023> [Accessed 9 Nov. 2023].
- <sup>26</sup> WFP. (2022). *The Philippines – Food Security Monitoring - October 2022*. Available at: <https://www.wfp.org/publications/wfp-philippines-food-security-monitoring-october-2022> [Accessed 9 Nov. 2023].
- <sup>27</sup> IFRC and Sri Lanka Red Cross Society. (2022). *Sri Lanka complex emergency - Needs assessment report*. Available at: <https://reliefweb.int/report/sri-lanka/sri-lanka-complex-emergency-needs-assessment-report-october-2022> [Accessed 6 November, 2023].
- <sup>28</sup> IPC. (2022). *Pakistan: Food Security Snapshot*. Available at: <https://reliefweb.int/report/pakistan/pakistan-food-security-snapshot-balochistan-khyber-pakhtunkhwa-sindh-july-december-2022-published-december-30-2022> [Accessed 9 November, 2023].
- <sup>29</sup> Head, J. R., Chanthavilay, P., Catton, H., Vongsitthi, A., Khamphouxay, K., & Simphaly, N. (2022). Changes in household food security, access to health services and income in northern Lao People's Democratic Republic during the COVID-19 pandemic: a cross-sectional survey. *BMJ Open*, 12(6). <https://doi.org/10.1136/bmjopen-2021-055935>
- <sup>30</sup> Swarna, N. R., Anjum, I., Hamid, N. N., Rabbi, G. A., Islam, T., Evana, E. T., Islam, N., Rayhan, M. I., Morshed, K. A. M., & Juel Miah, A. S. M. (2022). Understanding the impact of COVID-19 on the informal sector workers in Bangladesh. *PLoS ONE*, 17(3 March). <https://doi.org/10.1371/journal.pone.0266014>
- <sup>31</sup> UNICEF. (2022c). *Safeguarding Children's access to good diets, services, and practices in East Asia and the Pacific during the COVID-19 Pandemic: An overview of UNICEF's Nutrition response*. In 2022.
- <sup>32</sup> Dikoda, & World Food Programme. (2021). *Urban rapid market assessment and food system characterization in Jakarta, Quezon City and Dhaka*.
- <sup>33</sup> Auma, C., Pradeilles R, Ohly, H., Eymard-Duvernay, S., Brizendine, K., Blankenship, J., Singhkumarwong, Anu., Goudet, S. (2023). *Urban nutrition situation in the slums of three cities in Asia during the COVID-19 pandemic*, Submitted for publication MCN
- <sup>34</sup> Head, J. R., Chanthavilay, P., Catton, H., Vongsitthi, A., Khamphouxay, K., & Simphaly, N. (2022). Changes in household food security, access to health services and income in northern Lao People's Democratic Republic during the COVID-19 pandemic: a cross-sectional survey. *BMJ Open*, 12(6). <https://doi.org/10.1136/bmjopen-2021-055935>
- <sup>35</sup> Geng, J., Haq, S. U., Abbas, J., Ye, H., Shahbaz, P., Abbas, A., & Cai, Y. (2022). Survival in Pandemic Times: Managing Energy Efficiency, Food Diversity, and Sustainable Practices of Nutrient Intake Amid COVID-19 Crisis. *Frontiers in Environmental Science*, 10. <https://doi.org/10.3389/fenvs.2022.945774>
- <sup>36</sup> Geng, J., Haq, S. U., Abbas, J., Ye, H., Shahbaz, P., Abbas, A., & Cai, Y. (2022). *Survival in Pandemic Times: Managing Energy Efficiency, Food Diversity, and Sustainable Practices of Nutrient Intake Amid COVID-19 Crisis*. *Frontiers in Environmental Science*, 10. <https://doi.org/10.3389/fenvs.2022.945774>
- <sup>37</sup> Banna, M. H. Al, Sayeed, A., Kundu, S., Kagstrom, A., Sultana, M. S., Begum, M. R., & Khan, M. S. I. (2022). Factors associated with household food insecurity and dietary diversity among day laborers amid the COVID-19 pandemic in Bangladesh. *BMC Nutrition*, 8(1). <https://doi.org/10.1186/s40795-022-00517-8>
- <sup>38</sup> UNICEF. (2022b). *Safeguarding Children's Access to Good Diets, Services, and Practices in East Asia and the Pacific | UNICEF East Asia and Pacific*. Available at: <https://www.unicef.org/eap/reports/safeguarding-childrens-access-good-diets-services-and-practices> [Accessed 8 November, 2023].
- <sup>39</sup> Qureshi, T. A. & Rana, A. W. (2022). Pakistan: Impacts of the Ukraine and Global Crises on the Economy and Poverty. *IFPRI*. Available at: [ebrary.ifpri.org/utills/getfile/collection/p15738coll2/id/136406/filename/136615.pdf](https://ebrary.ifpri.org/utills/getfile/collection/p15738coll2/id/136406/filename/136615.pdf)
- <sup>40</sup> Global Nutrition Report (2021). *2021 Global Nutrition Report: The state of global nutrition*. Available at: [www.un.org/nutrition/sites/www.un.org.nutrition/files/global\\_nutrition\\_report\\_2021.pdf](http://www.un.org/nutrition/sites/www.un.org.nutrition/files/global_nutrition_report_2021.pdf)
- <sup>41</sup> Auma, C.I., Pradeilles, R., Ohly, H., Eymard-Duvernay, S., Brizendine, K.A., Blankenship, J., et al. (2023). *Urban nutrition situation in the slums of three cities in Asia during the COVID-19 pandemic*. *Maternal and Child Nutrition*. [doi:10.1111/mcn.13543](https://doi.org/10.1111/mcn.13543)
- <sup>42</sup> Fanzo, J., Haddad, L., McLaren, R., Marshall, Q., Davis, C., Herforth, A., et al. (2020). *The Food Systems Dashboard is a new tool to inform better food policy*. *Nature Food*. [doi:10.1038/s43016-020-0077-y](https://doi.org/10.1038/s43016-020-0077-y)
- <sup>43</sup> IFPRI (2023). *Global Food Policy Report: Rethinking food crisis responses*. Available at: <https://ebrary.ifpri.org/utills/getfile/collection/p15738coll2/id/136619/filename/136836.pdf> [Accessed 6 November, 2023].
- <sup>44</sup> Secades, U. and Solorzano, A. (2022). *Integrating Anticipatory Action and Social Protection*. WFP. Available at: <https://www.wfp.org/publications/integrating-anticipatory-action-and-social-protection> [Accessed 10 Nov. 2023].
- <sup>45</sup> Ruel, M.T., Quisumbing, A.R. and Balagamwala, M. (2018). *Nutrition-sensitive agriculture: What have we learned so far?* *Global Food Security*. [doi:10.1016/j.gfs.2018.01.002](https://doi.org/10.1016/j.gfs.2018.01.002)



Prepared by