World Food Programme

The global food and economic crisis' impact on food system resilience: The Philippines

November, 2023

Findings presented in this brief were derived from national level data, and would therefore not enable the detection of likely food system subnational variabilities.
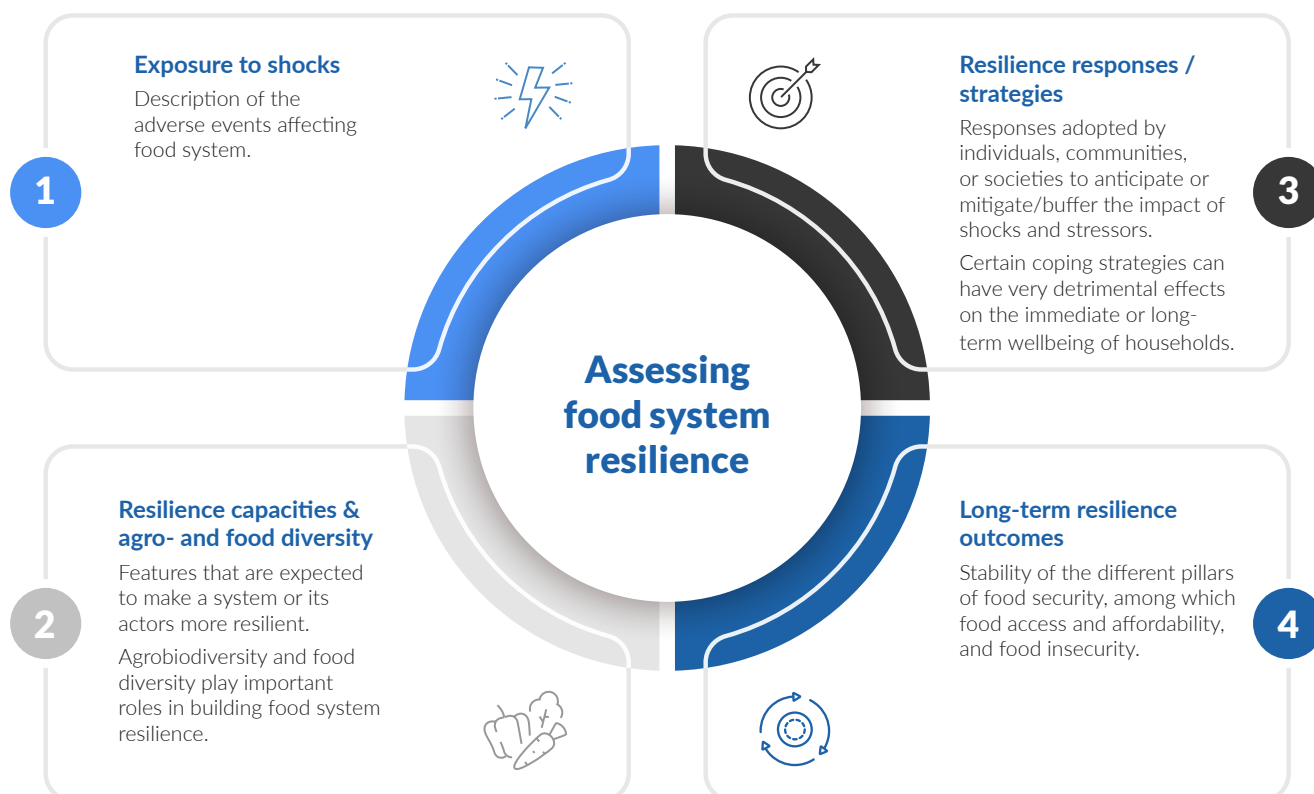
Background

The war in Ukraine has major implications for food security and diets across the world, given both countries' key roles in global food markets and Russia's prominence in global energy trade. The resulting global food and economic crisis risks heightening inequalities and vulnerabilities in a world still confronting the effects of the COVID-19 pandemic. In this context, food system resilience is crucial to maintain or adapt its functions in the face of shocks, and ultimately for system sustainability. Through a series of key indicators, this brief describes how the food system has been affected by this ongoing crisis and provides an overview of its resilience and potential opportunities for building resilience further.

Assessing food system resilience

Food system resilience is defined 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"[1].

Drawing from the conceptual framework established by the Food Systems Countdown Initiative[2], food system resilience was measured through 4 main indicator domains.

Exposure to shocks
Description of the adverse events affecting food system.

1

Resilience responses / strategies
Responses adopted by individuals, communities, or societies to anticipate or mitigate/buffer the impact of shocks and stressors.
Certain coping strategies can have very detrimental effects on the immediate or long-term wellbeing of households.

3

Assessing food system resilience

Resilience capacities & agro- and food diversity
Features that are expected to make a system or its actors more resilient.
Agrobiodiversity and food diversity play important roles in building food system resilience.

2

Long-term resilience outcomes
Stability of the different pillars of food security, among which food access and affordability, and food insecurity.

4

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1 Fanzo J, Haddad L, Schneider KR, Béné C, Covic NM, Guarin A, et al. Viewpoint: Rigorous monitoring is necessary to guide food system transformation in the countdown to the 2030 global goals. Food Policy. 2021;104

2 https://www.foodcountdown.org/about

HOW HAS THE PHILIPPINES BEEN EXPOSED TO SHOCKS SINCE 2020?

In the last 3 years, the Philippines has faced shocks that have affected the food system and its resilience in various ways. Like the rest of the world, the Philippines was hit by the COVID-19 pandemic in March 2020. To minimize COVID-19 spread, the government rapidly implemented strict containment strategies such as school closures and restrictions of movements and public gatherings among others, which can impact various domains of the food system (e.g., supply chain, consumer environment, consumer behaviors). The country had one of the world's longest and strictest lockdown (several levels of 'community quarantine') and state of emergency in response to the pandemic. In March 2020, Republic Act 11469 was signed into law, declaring a national health emergency across the Philippines due to the prevailing COVID-19 situation[3]. The country also adopted supportive economic policies as part of their COVID-19 relief package, such as income support for the population (e.g., emergency subsidy program targeting families engaged in the informal sector, financial assistance to low-income households), but these ended in 2021 while the containment measures continued for a longer period (Figure 1).

The Philippines currency (Philippine Peso, PHP) exchange rate – relative to the US dollar (USD) – underwent a progressive depreciation from 2012 to 2018 (42 to 53 PHP per USD).

Although the crisis did not seem to have noticeable impact, as the period 2018-2021 was marked by a slight appreciation of the PHP (53 to 49 PHP per USD), the PHP sustained a 10% depreciation in 2022 (from 49 to 54 PHP per USD) (Figure 2). The weakening of the PHP may have been a result of the volatility in global financial markets resulting from the war in Ukraine.

Besides shocks related to the COVID-19 pandemic and the war in Ukraine, the Philippines is also prone to numerous climate-related hazards, such as typhoons, earthquakes, floods, and volcanic eruptions. As reported in a recent study, the country has been classified as the third most vulnerable country to climate change across 67 countries. The frequency and/or intensity of such extreme events may be increased by climate change, potentially exacerbating vulnerabilities and impacting on people's food security[4]. The country has been heavily affected by climate-related disasters from 2011 to 2014, mainly resulting from tropical storm and typhoons, but also from riverine floods (2012). Between 2015 and 2019, although the country sustained several natural events, fewer people were affected. With regards to the current crisis period, a high number of people were affected by natural disasters in 2021 (11% of the population), primarily due to Typhoon Rai (Figure 3).

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[3] Official Gazzette of the Republic of the Philippines. https://www.officialgazette.gov.ph

[4] Alliance of Bioversity International and CIAT & World Food Programme. (2021). *Philippine climate change and food security analysis*. Manila, Philippines.

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Figure 1: COVID-19 - government response 2020-2022

Year

— Stringency Index
— Economic Support Index

SOURCE:
OxCGRT (Oxford COVID-19 Government
Response Tracker, Blavatnik School of
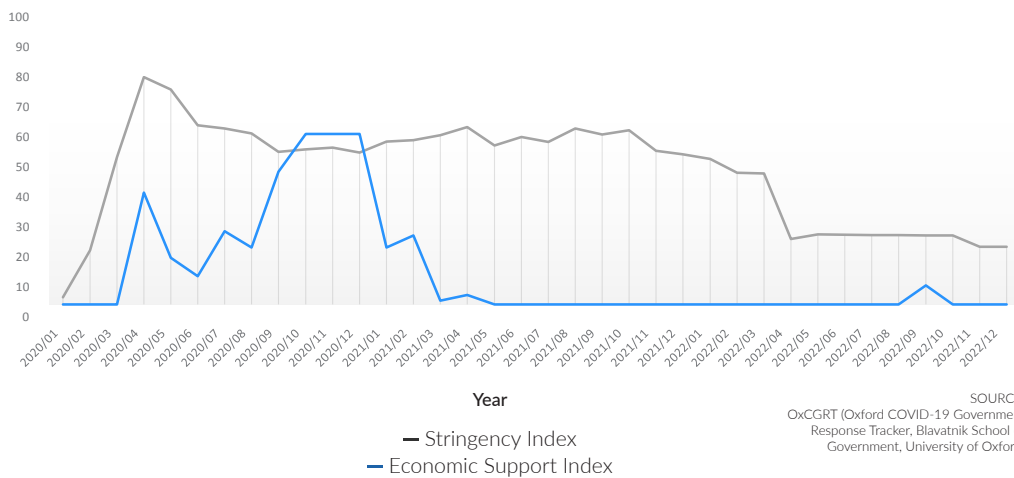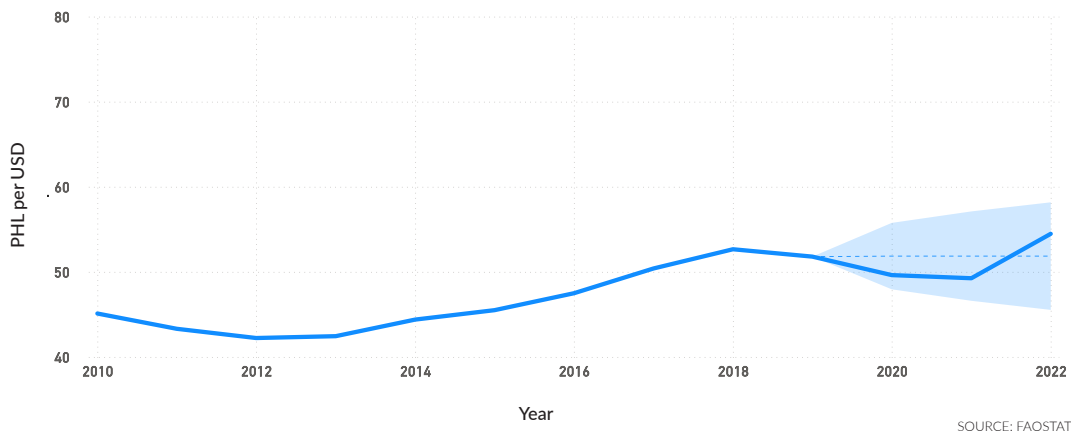Government, University of Oxford)

Figure 2: Exchange rate 2010-2022

Year

SOURCE: FAOSTAT

PHP = Philippine Peso USD = US dollar
The plain line is the actual trend observed, while the dotted line is a projected trend based on pre-crisis data, presented with the 95% confidence
interval (the shaded area)

Figure 3: Ratio of affected people (from natural disasters) to the total population 2010-2022
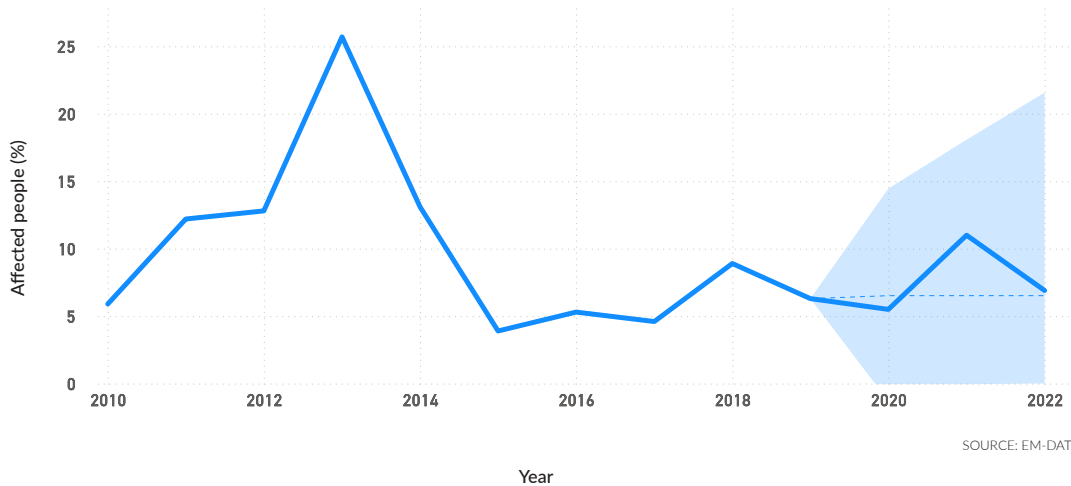
Year

SOURCE: EM-DAT

The plain line is the actual trend observed, while the dotted line is a projected trend based on pre-crisis data, presented with the 95% confidence
interval (the shaded area)

HOW HAVE RESILIENCE CAPACITIES AND AGRO- AND FOOD-DIVERSITY BEEN AFFECTED?

According to country-level statistics, the various shocks sustained during the current crisis period affected food system resilience capacities to varying degrees (Table 1). Overall, a decline in resilience capacities related to agro- and food supply diversity was observed whereas capacities linked to infrastructure or social capital seem to have better coped during the crisis.

With respect to domestic production, after a marginal decline from 2017 to 2019, crop production slightly rebounded in 2020 and 2021. However, a drastic reduction in livestock production was noted from 2020, reaching lower levels in 2021 than in 2010 (Figure 4). One contributing factor to this trend could be the impact of epidemics such as avian flu and swine flu on food systems, leading to shortages of pork, eggs, chicken, sugar, and onions. Another potential factor is the elevated cost of animal feed, driven by the recent food and energy crisis, which constitutes approximately 60-70% of the total production expenses in poultry, livestock, and aquaculture operations.

With regards to food imports, while volumes of national imports of NCDs -risk food remained stable during the crisis period, those of NCD-protect food markedly decreased in 2020 and 2021 (Figure 5). This may be explained by the sharp decline in whole grains imports – which is by far the most important food group in terms of volumes imported and which dropped by half in 2020 (Figure 6).

Mobile cellular subscriptions (including the number of postpaid subscriptions, and the number of active prepaid accounts, i.e. that have been used during the last three months) – a proxy of country's infrastructure level and therefore an important indicator for resilience – declined by almost 20 points in 2020 (whereas it had been on an upward trend since 2010) but slightly rebounded in 2021 and stagnated in 2022.

Social capital index – which reflects the strength of personal and social relationships, institutional trust, social norms, and civic participation in a country – withstood the crisis as it remained quite stable from 2020 to 2022 and increased by 4 points in 2023 (Figure 7).

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Table 1: Evolution of indicators of 'resilience capacities and agro- and food-diversity' domain from pre-crisis to crisis period, The Philippines
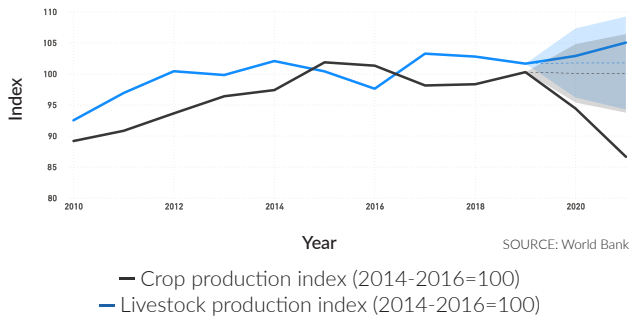
Resilience sub-domain	Indicator	Unit	Data period covered	Desirable direction	Actual direction during crisis*	Trend analysis
Food produced domestically	Crop production index (2014-2016=100)	Index	2010-2021	↑	↗	Stable trend since 2014 (except a significant decline in 2016). Slight increase during crisis period.
	Livestock production index (2014-2016=100)	Index	2010-2021	↑	↓	Upward trend up to 2015, then marginal decrease / stagnation up to 2019. Sharp decline during crisis period.
	Fertilizer consumption	Kg /ha of arable land	2010-2020	→ or ↑	↑	Increasing trend from 2018 to 2020.
Imported food	Food import – healthy NCD-protect	Kg /capita	2010-2021	↑	↓	Sharp decrease in 2017, then increase trend up to 2019. Marked decline during crisis period.
	Food import – unhealthy NCD-risk	Kg /capita	2010-2021	↓	→	Stable trend with marginal variations pre-crisis and during crisis period
Infrastructure	Mobile cellular subscription	Number / 100 people	2010-2022	↑	→	Increasing trend up to 2019, marked decline in 2020 and slight rebound in 2021-22.
Social capital	Social capital index	Index	2010-2023	↑	→	Slight decrease pre-crisis (from 2015), marginal increase in 2020-21 and then sharp increase in 2023

* Average crisis period compared to pre-crisis average (2018-2019 depending on data availability)

Desirable direction: ↑ denotes a higher value is more desirable, ↓ denotes a lower value is more desirable. Actual direction : a blue arrow denotes no substantial changes and stable value, a green arrow (up/down) denotes a direction similar to the desirable one, a light green arrow (diagonal up/down) denotes a direction similar to the desirable one but less pronounced, a red arrow (up/down) denotes an opposite direction to the desirable one, an orange arrow (diagonal up/down) denotes an opposite direction to the desirable one but less pronounced

Kg= kilograms; ha= hectare

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[5] NCDs: noncommunicable diseases

Figure 4: Domestic production indices 2010-2021 (2014-2016=100)

SOURCE: World Bank

— Crop production index (2014-2016=100)
— Livestock production index (2014-2016=100)

The plain line is the actual trend observed, while the dotted line is a projected trend based on pre-crisis data, presented with the 95% confidence interval (the shaded area)

Figure 5: Country-level food imports 2010-2021

SOURCE: UN Comtrade

— Other food imports — NCD-risk food imports
— NCD-protect food imports
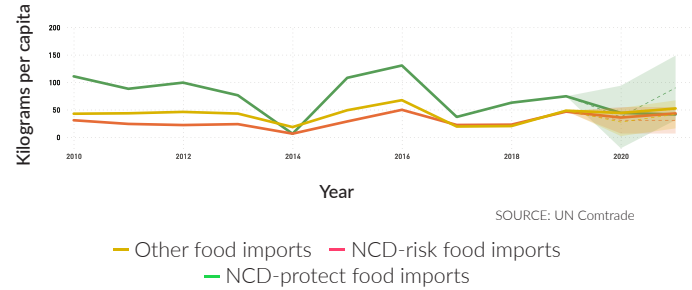
"NCD: non-communicable disease
The plain line is the actual trend observed, while the dotted line is a projected trend based on pre-crisis data, presented with the 95% confidence interval (the shaded area)
"

Figure 6: Country-level food imports 2017-2021, top 3 NCD-protect and NCD-risk food groups

● Other fruits
● Other vegetables
● Whole grains
● Other sweets
● Packaged ultra-processed salty snacks
● Sugar-sweetened beverages (soft drinks)
● Unprocessed red meat (non-ruminant)
● Unprocessed red meat (ruminant)

"NCD: non-communicable disease

This indicators shows the total volume of imports (kilograms or liters, depending on type of food) by year for the top 3 NCD-protect and NCD-risk food groups.
The top 3 food groups are defined as the food groups with the highest volumes imported for a given year.
The NCD-protect food groups are displayed with a range of green color and the NCD-risk food groups with a range of red colors."
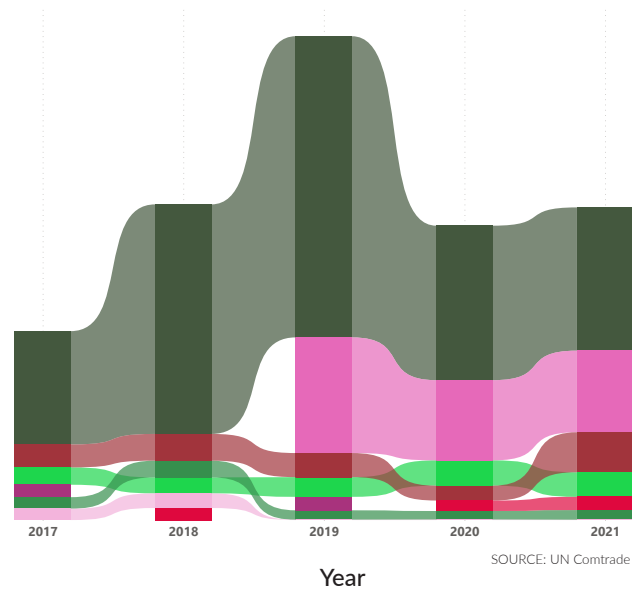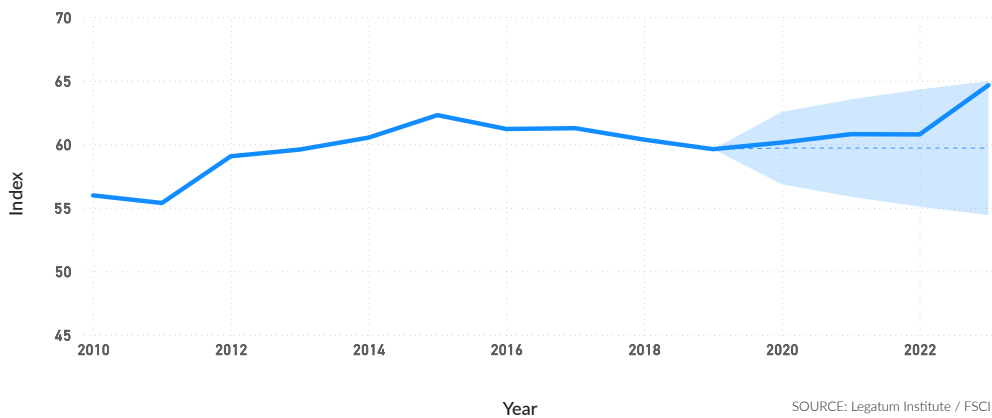

SOURCE: UN Comtrade

Figure 7: Social capital index 2010-2023

SOURCE: Legatum Institute / FSCI

The plain line is the actual trend observed, while the dotted line is a projected trend based on pre-crisis data, presented with the 95% confidence interval (the shaded area)

RESILIENCE RESPONSES / STRATEGIES AND LONGER-TERM RESILIENCE OUTCOMES

Based on the analysis of national level data, the crisis period was marked by various adverse food system resilience outcomes (Table 2).

Changes in the use of livelihood and food coping strategies could not be assessed due to lack of data. However, data from 3 survey rounds conducted between October 2022 and March 2023 show that a fourth of households are adopting severe livelihood strategies to address their food needs[6]. The majority of households (65%) are in fact using at least one negative coping strategy, the most common being borrowing food or money to get food. Households with agricultural livelihoods more frequently reported difficulties in accessing food and are more inclined to resort to severe coping strategies. Additionally, when faced with food shortages or financial constraints, individuals tend to opt for lower-quality food as a coping strategy.

Even prior to the current crisis, the Philippines has been highly susceptible to variations in food price inflation, as shown by the regular peaks at 5.5%, 5.8%, and 6.8% in 2011, 2014, and 2018 respectively. The crisis period was marked by a steady rise in 2020 and 2021, where another peak at 5.5% was reached, while food price inflation declined moderately in 2022 (4.5%) (Figure 8). This may have affected people's access to food, as indicated by the 6% increase in the population unable to afford a healthy diet observed in 2020-21 compared to 2019 (Figure 11). However, it's essential to note that our data may not fully capture the higher inflation experienced in areas outside the National Capital Region (NCR). This volatility in food prices is not reflected in the food price anomalies for rice: the price of rice remained within the range of normal growth, whether it be

during pre-crisis or crisis period (Figure 9). Nevertheless, given that rice remains the primary staple food in the Philippines, particularly for poorer households, it is advisable to utilize Social and Behavior Change (SBC) to promote other staple foods, reducing vulnerability to potential rice price increases.

With respect to food supply variability, which is an indicator of food availability, the pre-crisis period has seen a drastic drop in 2015, which is a positive change as it indicates a lower variability in food supply. This was however followed by a steady worsening until 2019 (from 9 to 41 kcal per capita/day). Since the start of the current crisis, food supply variability has moderately receded and was back to the 2018 levels in 2021, which suggests a slight improvement in food availability for the Philippine population (Figure 10).

In 2020, worsening food access and affordability issues did not yet result in higher food insecurity levels that year. However, lack of data for the subsequent years prevents an assessment of the potential lagged effect on the population food security and disparities between regions that may not be reflected in national-level data.

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[6] WFP Philippines – Food Security Monitoring – Remote Household Food Security Survey Brief - November-December 2022

Table 2: Evolution of indicators of 'resilience responses / strategies' and 'longer-term resilience outcomes' domains from pre-crisis to crisis period, The Philippines

Resilience sub-domain	Indicator	Unit	Data period covered	Desirable direction	Actual direction during crisis*	Trend analysis
Coping strategies	Livelihood coping strategy (LCS): None (N) Stress (S) Crisis (C) Emergency (E)	% population	2022	↑ N ↓ S, C, E		*Insufficient data to analyse trend (only 2022)*
	Reduced Coping Strategy Index (rCSI)	Index	2022	↓		*Insufficient data to analyse trend (only 2022)*
Food price volatility	Food price annual inflation	%	2010-2022	↓	↑	Volatile trend pre-crisis, with inflation spikes in 2014 and 2018. Sharp decrease in 2019. Crisis period: increasing trend in 2020-21, and slight decline in 2022
	Food Price Anomalies (IFPA), wheat	Index	2015-2022	↓	→	Normal price growth pre-crisis. High price growth in 2020, return to normal in 2021, but moderately high growth in 2022.
Food supply variability	Food supply variability	Kcal / capita / day	2010-2021	↓	↘	Steady increase from 2015 up to 2019. No change in 2020 and decline in 2021
Food security	% population experiencing moderate or severe food insecurity	% population	2015-2021	↓	→	Marginal upward trend from 2018 to 2020 (2.6% increase)
	% population who cannot afford a healthy diet	% population	2017-2021	↓	↑	Stable trend pre-crisis while marked increase in 2020 and stagnation in 2021

* Average crisis period compared to pre-crisis average (2018-2019 depending on data availability)

Desirable direction: ↑ denotes a higher value is more desirable, ↓ denotes a lower value is more desirable. Actual direction : a blue arrow denotes no substantial changes and stable value, a green arrow (up/down) denotes a direction similar to the desirable one, a light green arrow (diagonal up/down) denotes a direction similar to the desirable one but less pronounced, a red arrow (up/down) denotes an opposite direction to the desirable one, an orange arrow (diagonal up/down) denotes an opposite direction to the desirable one but less pronounced

IFPA = indicator of food price anomalies; Kcal= kilocalories

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Figure 8: National food price inflation 2010-2022
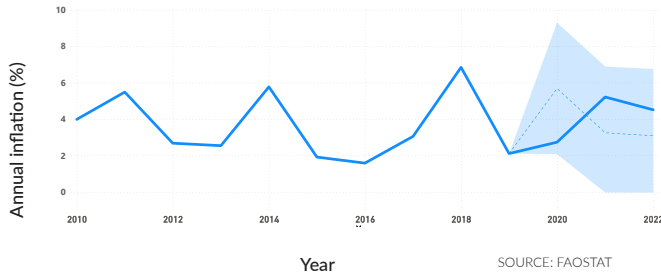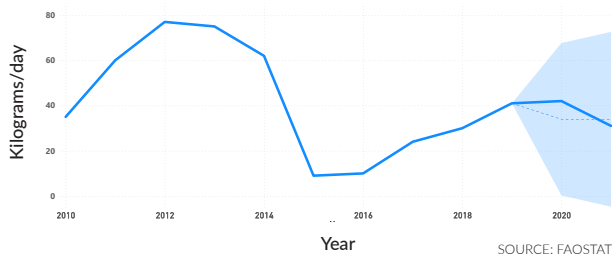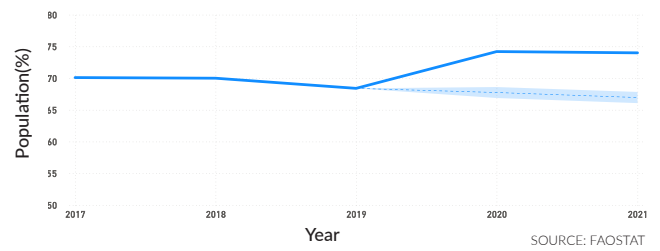

SOURCE: FAOSTAT

The plain line is the actual trend observed, while the dotted line is a projected trend based on pre-crisis data, presented with the 95% confidence interval (the shaded area)

Figure 9: Food Price Anomalies (IFPA) 2015-2022 – Rice, country level
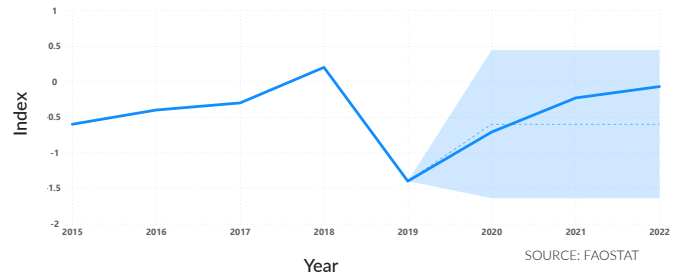
SOURCE: FAOSTAT

The plain line is the actual trend observed, while the dotted line is a projected trend based on pre-crisis data, presented with the 95% confidence interval (the shaded area)

Figure 10: Per capita food supply variability 2010-2021, country level

SOURCE: FAOSTAT

The plain line is the actual trend observed, while the dotted line is a projected trend based on pre-crisis data, presented with the 95% confidence interval (the shaded area)

Figure 11: National share of the population unable to afford a healthy diet 2017-2021

SOURCE: FAOSTAT

The plain line is the actual trend observed, while the dotted line is a projected trend based on pre-crisis data, presented with the 95% confidence interval (the shaded area)

CONTEXTUAL SPECIFICITIES AND VULNERABILITIES

The Philippines faces a unique set of challenges that creates vulnerabilities within its food system. The Philippines has significant environmental vulnerabilities, as evidenced by the number of climate-related disasters experienced since 2020. As a multi-hazard country, it grapples with the simultaneous threat of typhoons, floods, earthquakes, and volcanic eruptions.

The process of urbanization, notably pronounced in Quezon City, one of the Philippines' largest and most populous cities, presents a significant challenge to the city's food system during crisis. Post-pandemic, Quezon City emerged as the most food-insecure compared to Yangon and Jakarta[7]. Data from the SDFU 2021 Philippines revealed that it had the highest percentage of participants experiencing moderate or severe food insecurity (63% and 3.4, respectively), with 87.1% expressing concerns about food within the past 12 months. Furthermore, after the pandemic, more than 10% of households in Quezon City resorted to substituting nutrient-dense (ND) foods with more cost-effective alternatives compared to the pre-pandemic period. Alarming statistics also indicated that 52% of children aged 6–59 months in Quezon City consumed unhealthy food, while 57% did not consume any vegetables or fruit in the past day. Women's minimum dietary diversity (MDD) in Quezon City was notably low at 15.7%, and only 12.6% of children aged 6–23 months in the city achieved the MDD target post-pandemic. These findings underscore the urgent need for comprehensive, multi-sectoral interventions in Quezon City to bolster food security and enhance the dietary quality of vulnerable households, particularly among children under five and women of reproductive age. Such interventions should encompass the distribution of ND foods, provision of cash assistance, and tailored social behavior change interventions through diverse platforms—including social media-- promoting appropriate complementary feeding practices and the consumption of nutrient-dense foods.

Compounding the negative impact of urbanization is the unequal capacity of Local Government Units in rolling out government programs. The uneven distribution of resources and administrative capabilities can lead to disparities in the delivery of essential services, including those related to food security. This inequality extends to social programs, where some poor farmers and fisherfolk struggle to register due to a lack of asset documents as proof of their livelihood. Such challenges highlight the urgent need for a more inclusive and regionally sensitive approach to address the distinct needs of both urban and rural populations in the Philippines.

Another prominent concern in the Philippines centres around the high consumption and sale of sugar sweetened beverages (SSB), fast food, and processed food, often lacking nutritional value. During the pandemic, the government's distribution of food baskets aimed to assist the population in meeting its food needs, but unfortunately, many of these provisions failed to offer nutritious options. Despite the existence of a national policy on SSB, with proceeds directed towards public health nutrition, the industry has seized the opportunity during this period to increase their sales. Notably, marketing strategies that promote SSB have intensified during the pandemic, exacerbated by the influential role of social media and digital platforms in shaping children's dietary habits and enabling persuasive marketing for unhealthy foods. In response to these challenges, the National Nutrition Council's Technical Working Group has initiated the development of nutrient profile model for processed and ultra-processed food items containing sodium, total fat, saturated fat, trans fats and free sugars, reflecting the urgency of addressing these issues in the Philippines.

In the Philippines, the unique contextual specificities of being a net food importer, particularly for staple commodities like rice, contribute to vulnerabilities in its food system. The heavy reliance on imports has created an environment susceptible to price manipulation and artificial shortages. Opportunistic traders exploit market dynamics by hoarding essential supplies, exacerbating fluctuations in prices and availability. The consequences of this extend beyond economic impact, and lead to instances of corruption within government programs which procure food resources. Recently, for example, officials from the Department of Agriculture (DA) and Food Terminal Incorporated (FTI) were suspended by the Office of the Ombudsman in response to alleged irregularities in onion procurement and deliveries conducted under the government's KADIWA program.

[7] Auma, C. I., Pradeilles, R., Ohly, H., Eymard-Duvernay, S., Brizendine, K. A., Blankenship, J., Singhkumarwong, A., & Goudet, S. (2023). Urban nutrition situation in the slums of three cities in Asia during the COVID-19 pandemic. *Maternal & Child Nutrition*, e13543. https://doi.org/10.1111/mcn.13543

Impact of food system: further results

Since the start of the crisis, food prices have risen in a steep curve, and in 2023, the mean food prices at national level for the food groups considered was 23% higher than the baseline (average 2017-2018). The trend is similar across regions (Figure 12) but varies across food items: compared to the baseline, prices of eggs sharply increased and were more than 40% higher in 2023 while rice was cheaper in 2020-21 and then underwent a slight price mark-up in 2022-23 to reach around 5% increase in 2023 (Figure 13).

While the overall cost of a locally available diet that meets caloric needs decreased, the daily cost for a household to purchase a diet which meets their nutrient requirements more than doubled relative to pre-crisis, with some variability across regions (Figure 14). This suggests that nutrient-dense foods rich in vitamins and minerals, such as animal sourced foods, fruits and vegetables, among others, increased in price to a greater extent than other types of food;

Food price inflation also translated into a higher cost of living and households allocating more money on food, as demonstrated by the increase in the share of food expenditure observed in 2020-21 (although both went down in 2022) (Figure 15, 16). Similarly, households' income fell slightly in 2020 but rebounded in 2021-22 (Figure 17)

During the pre-crisis period, volumes of both NCD-protect and NCD-risk food groups have been following a steady increasing trend up to 2017-2018 and stagnated in 2019. The crisis period was marked by a decline of both NCD-protect and NCD-risk food
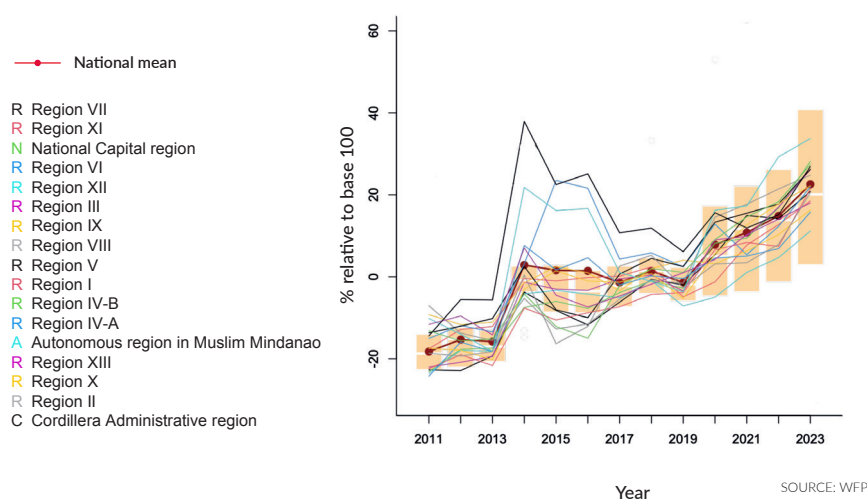
sales in 2020, followed by a rebound the next 3 years, which was more pronounced for NCD-protect food groups. NCD-protect food sales are largely dominated by "other fruits" while "SSB" represents around 70% of the NCD-risk food sales. Volumes of other food sales have been on a downward trend since 2010, but levelled off from 2020 (Figure 18, 19).

Our survey in the Philippines focused on the challenges faced by urban food vendors during the crisis in Quezon City. Urban vendors in the Philippines faced the least disruption compared to other urban vendors in the Asia region. Most businesses saw a decrease in income, but the Philippines stood out with few reporting income increases. Despite limited cost reductions, Filipino vendors adapted by diversifying products, introducing new food items, and exploring new distribution methods. In summary, vendors demonstrated resilience and adaptability, which appear to have offset the negative impacts of the crisis.

Because of insufficient data at the national level, changes in households' food security during the crisis period compared to pre-crisis could not be assessed. However, data for 2022 on food consumption score (FCS) show that between 8% and 12% of households had a poor or borderline FCS (Figure 20).

FOOD PRICES AND COST OF DIET

Figure 12: Changes in food prices 2011-2023 (2017-2018 = 100), country level and 17 regions

Legend:
National mean

| R | Region VII |
R	Region XI
N	National Capital region
R	Region VI
R	Region XII
R	Region III
R	Region IX
R	Region VIII
R	Region V
R	Region I
R	Region IV-B
R	Region IV-A
A	Autonomous region in Muslim Mindanao
R	Region XIII
R	Region X
R	Region II
C	Cordillera Administrative region

The changes in food prices was calculated for 4 food items: 1. eggs; 2. vegetable oil (sunflower and cotton); 3. rice (milled superior, regular milled, well milled, paddy, premium, special); 4. Beans (mung, green fresh, string). The graph shows the variability as quartiles boxes of the percentage change of food prices for those items relative to the base period 2017-2018 (base 100), at national level and for each of the 17 regions. The relative changes are also mean-aggregated.

SOURCE: WFP

Figure 13: Changes in food prices 2011-2023 (2017-2018 = 100), rice and eggs, country level and 17 regions
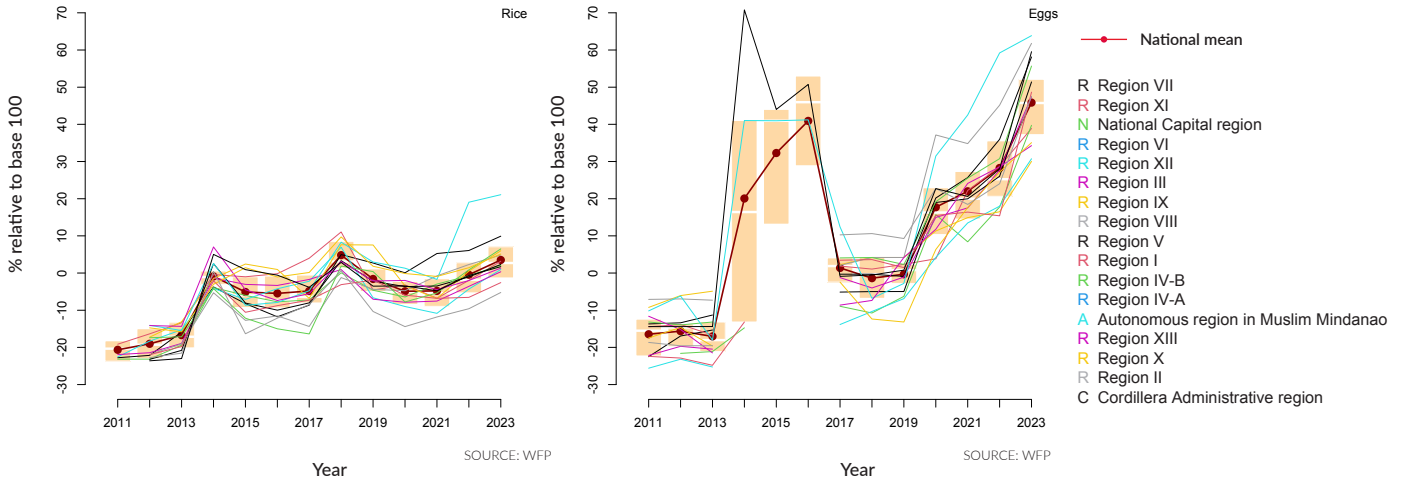
The changes in food prices was calculated for rice and eggs. The graph shows the variability as quartiles boxes of the percentage change of food prices for those items relative to the base period 2017-2018 (base 100), at national level and for each of the 17 regions. The relative changes are also mean-aggregated.

Figure 14: Change in daily cost of diet (energy only and nutritious) pre-crisis and crisis period, 5 countries
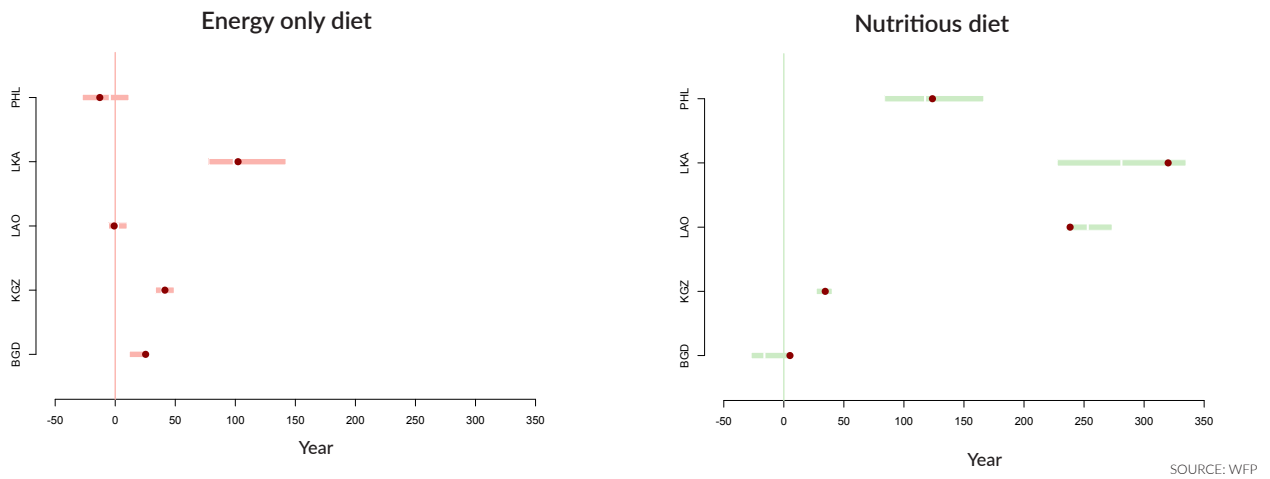
This figure shows the change in CoD crisis period relative to pre-crisis for 5 countries in the region at national level (red dot) as well as the variability across provinces (box plots showing the 25%, median and 75% illustrating the spread of the values).
Pre-crisis and crisis periods:
- Bangladesh: September 2016; August 2022
- Kyrgyz Republic, November 2017; October 2022
- Laos: March 2017; October 2022
- Sri Lanka: June 2016; June 2022
- Philippines: September 2015; October 2022

FOOD EXPENDITURE, INCOME, AND FOOD SALES

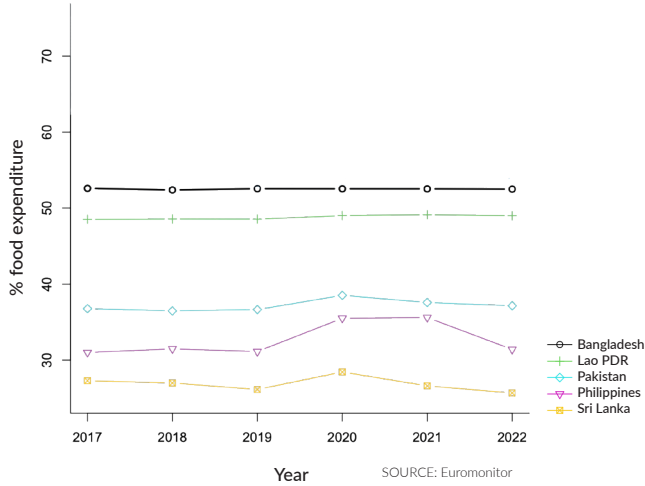### Figure 15: Household food expenditure share, 2017-2022, 5 countries

SOURCE: Euromonitor

Figure 16: Cost of living (internationally comparable) 2017-2022, 5 countries
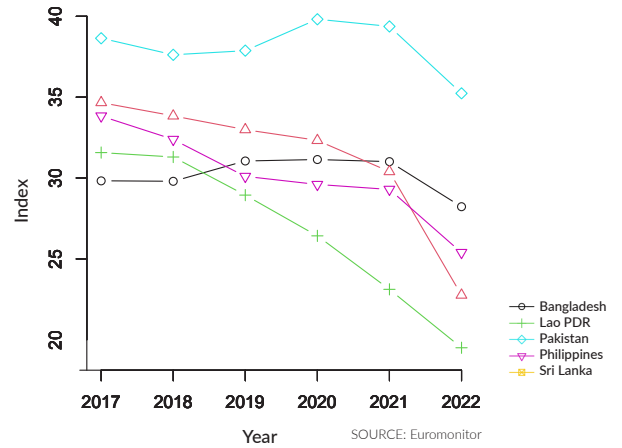

SOURCE: Euromonitor

Figure 17: Urban and rural disposable income 2015-2022, 5 countries

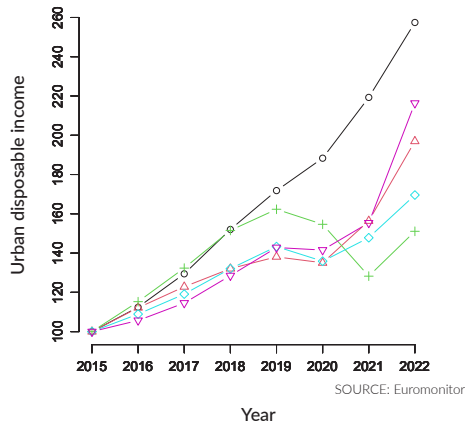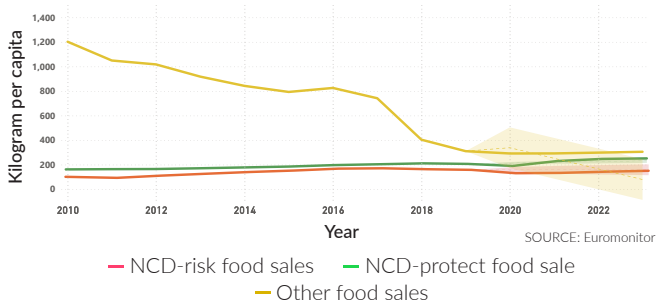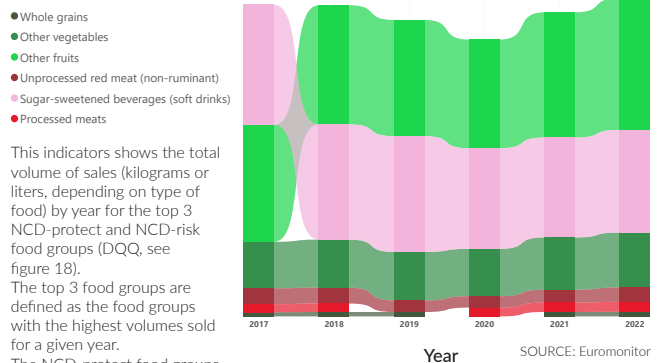SOURCE: Euromonitor

SOURCE: Euromonitor
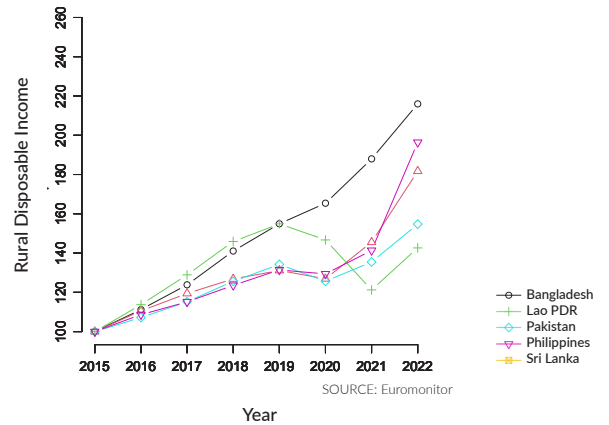
Figure 18: Food sales 2010-2023, country level

SOURCE: Euromonitor

NCD: non-communicable diseases
The plain line is the actual trend observed, while the dotted line is a projected trend based on pre-crisis data, presented with the 95% confidence interval (the shaded area)

Figure 19: Country-level food sales 2017-2023 (volume per capita), top 3 NCD-protect and NCD-risk food groups

- Whole grains
- Other vegetables
- Other fruits
- Unprocessed red meat (non-ruminant)
- Sugar-sweetened beverages (soft drinks)
- Processed meats

This indicators shows the total volume of sales (kilograms or liters, depending on type of food) by year for the top 3 NCD-protect and NCD-risk food groups (DQQ, see figure 18).
The top 3 food groups are defined as the food groups with the highest volumes sold for a given year.
The NCD-protect food groups are displayed with a range of green color and the NCD-risk food groups with a range of red colors.

SOURCE: Euromonitor

FOOD SECURITY AND DIETS

Figure 20: Households' Food Consumption Score
October and December 2022, country level

SOURCE: WFP
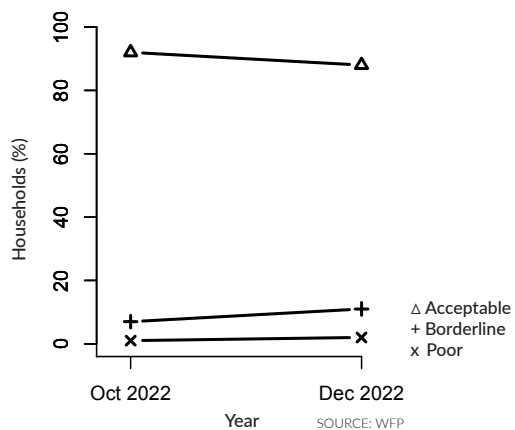
OPPORTUNITIES FOR BUILDING FOOD SYSTEM RESILIENCE

NUTRIENT THRESHOLDS FOR HEALTH:

It is crucial for the National Nutrition Council to finalize the initiative of establishing nutrient profile model for processed and ultra-processed food items containing sensitive nutrients like sodium, total fat, saturated fat, trans fats and free sugar. This will enable better regulation of food products and contribute to improved public health by reducing the consumption of unhealthy foods, particularly among children.

URBAN GARDENING FOR FOOD SECURITY:

Urban gardening presents an opportunity to diversify food sources in urban areas. Collaborate with National Government Agencies, such as the Department of Agriculture and the Department of the Interior and Local Government, to expand urban gardening initiatives. The World Food Programme (WFP) can provide support through Social and Behavior Change (SBC) and capacity-strengthening interventions.

DIVERSIFY STAPLE FOOD PROMOTION:

The Department of Agriculture aims to promote alternative staple foods such as corn and cassava, in place of rice. This might be implemented through the use of SBC strategies. Diversifying staple foods can reduce vulnerability to rice price increases and ensure a more resilient food supply. The Department of Agriculture has actively

STRENGTHEN GOVERNANCE CAPACITIES:

Enhance the capacities of Local Government Units (LGUs) and improve coordination between different levels of government. This will strengthen effective and quality implementation of food security and nutrition programs at the local level.

Registry System for Vulnerable Farmers/Fisherfolks: Support and facilitate the registration of vulnerable farmers and fisherfolks in the Registry System for Basic Sectors in Agriculture (RSBSA). This registry will help identify and target those in need of assistance more efficiently.

INNOVATIVE SOCIAL PROTECTION PROGRAMS:

In addition to improving their processes and systems, introduce new features in social protection programs, such as subsidies or vouchers, to mitigate the impact of food system vulnerabilities, like inflation. These innovations can help ensure that vulnerable populations, particularly women, have access to essential food items, even during times of crisis. Social protection programming should be paired with social and behavior change initiatives in order to support the adoption of positive behaviors, and maximize positive nutrition outcomes.

CONTINUE TO STRENGTHEN MEASURES TO PROTECT PREGNANT WOMEN, MOTHERS AND YOUNG CHILDREN FROM HARMFUL MARKETING PRACTICES IN BOTH TRADITIONAL AND DIGITAL SPACES:

Strengthen existing regulatory frameworks, including the Philippine Milk Code and the First 1000 Days Law, to monitor and restrict the marketing of unhealthy foods and beverages to vulnerable groups, such as pregnant women, mothers, and young children. Monitoring and enforcement of the code should further extend to digital spaces, ensuring a comprehensive approach. Additionally, build on successes in leveraging digital and social media to instead promote the adoption of positive nutrition behaviors at scale.

Notes on methodology

DATA SOURCES AND METHODOLOGY

For assessing the impact of food and economic crises on diets among vulnerable groups across urban and rural areas in selected countries, we employed a multi-faceted methodology. Primary Data Collection: We conducted food vendor surveys in various cities to understand how the COVID-19 pandemic and the Russia-Ukraine conflict affected businesses in the food sector. Secondary Data Analysis: We analyzed data from diverse sources, including food trade data, the Euromonitor International market sales database, and Cost of Diet data from the Fill the Nutrient Gap (FNG) initiative by WFP RBB. This analysis helped us examine changes in food imports, assess sales of both NCD-protect and NCD-risk food items, and study the affordability of diets, particularly for vulnerable groups. Modeling: We utilized economic shocks models to explore how change in food imports and sales affect food security and diets. We used techniques like Principal Component Analysis, Canonical Correlation Analysis, t-SNE, and Multivariate Random Forest to understand how changes in the food environment, income, and inflation influence food security.

To evaluate food system resilience, we selected specific indicator domains, curating data from various sources to understand changes over time and trends. We assessed food system resilience through various indicators, covering economic stability, natural disaster impact, COVID-19 stringency, domestic food production, imported food percentages, infrastructure, social capital, coping strategies, food price volatility, food supply stability, and food security. These indicators provided a comprehensive perspective on resilience across economic, environmental, and social dimensions. We also conducted semi-structured interviews with experts from WFP country offices to gather qualitative insights and identify opportunities to enhance resilience. Ethical standards were upheld throughout the study, with participants providing consent, data privacy and confidentiality being respected. Our research adhered to the TRUST code, a global code of conduct for equitable research partnerships.

The research was conducted between January 2023 and November 2023.

LIMITATIONS

For some indicators, there was limited data available, which restrained the ability to conduct further analyses on specific food system areas or to assess the impact of the current crisis. For example, several indicators for food system resilience only had data available up to 2020 or 2021 (e.g., domestic production, fertilizer consumption, food import, food supply variability), therefore the effect of the Russia/Ukraine war - which started in February 2022 – could not captured.

For indicators related to coping strategies, food expenditure share by category, and food consumption score, data collection did not cover the 4 provinces (Punjab was excluded), therefore results presented might not be representative of the entire country. Moreover, timing of data collection and provinces targeted varied across years: Sindh and Balochistan were included in 2019, only Khyber-Pakhtunkhwa was included in 2020, and data was collected for those 3 provinces in October 2021 and 2022. This may affect the interpretability of the findings presented.

With respect to most indicators, the analysis was conducted at the level of the country, potentially masking subnational variabilities (e.g., across different regions, or across urban/rural areas) and/or disparities among specific groups (e.g., most vulnerable groups). Further research would be warranted to shed light on these variations.

DEFINITIONS OF KEY TERMS

Crisis period: the on-going food and economic crisis results from a combination of two main shocks: the COVID-19 pandemic (from March 2020) and the Ukraine and Russia war (from February 2022).

Food system: "all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the output of these activities, including socio-economic and environmental outcomes" (HLPE, 2017).

INDICATOR DEFINITIONS

Indicator domain	Indicator	Definition	Data source
Exposure to shocks	Exchange rate	Annual exchange rates. Local currency units per US dollar.	FAOSTAT
	Ratio of affected people to the total population	Natural disasters include biological (animal accident, epidemic, insect infestation), climatological (drought, glacial lake outburst, wildfire), geophysical (earthquake, mass movement - dry, volcanic activity), hydrological (flood, landslide, wave action), and meteorological disasters (storm, extreme temperature, fog). Total people affected include the total of injured (including hospitalization), affected (number of houses damaged multiplied by the family size), and homeless people (number of houses destroyed multiplied by the family size). Note: proportion of the total population may be an overestimation, as people may have be counted more than once for a given year, if they have been affected by different natural disasters throughout that year	EM-DAT
	COVID-19 Stringency Index	Composite indicator calculated by using nine scaled indicators, including eight containment and closure policy indicators (school closing, workplace closing, cancel public events, restrictions on gatherings, close public transport, stay at home requirements, restrictions on internal movement, and international travel controls) and one indicators of public information campaigns, rescaled to a value from 0 to 100 (100 = strictest).	OxCGRT
	COVID-19 Economic Support Index	Composite measure based on four indicators: direct transfers to people not working due to the pandemic; debt relief for households; fiscal spending to stimulate the economy; and international support, rescaled to a value from 0 to 100 (100 = highest).	OxCGRT
Resilience capacities and agro-food diversity	Crop production index (2014-2016 = 100)	Agricultural production for each year relative to the base period 2014-2016. It includes all crops except fodder crops. Regional and income group aggregates for the FAO's production indexes are calculated from the underlying values in international dollars, normalized to the base period 2014-2016.	World Bank
	National crop production (gross harvest	Quantity of plant nutrients used per unit of arable land. Fertilizer products cover nitrogenous, potash, and phosphate fertilizers (including ground rock phosphate). Traditional nutrients--animal and plant manures--are not included.	WFP[b]
	Fertilizer consumption	Quantity of plant nutrients used per unit of arable land. Fertilizer products cover nitrogenous, potash, and phosphate fertilizers (including ground rock phosphate). Traditional nutrients--animal and plant manures--are not included.	World Bank
	Livestock production index (2014-2016 = 100)	Includes meat and milk from all sources, dairy products such as cheese, and eggs, honey, raw silk, wool, and hides and skins. It shows the relative level of the aggregate volume of agricultural production for each year in comparison with the base period 2014-2016.	World Bank
	Food import NCD-protect, NCD-risk food groups	This indicator was created using the data available in the United Nation's Comtrade database. Annual food import data was downloaded with the Harmonized System (HS) Codes 6-digits that is a standardized numerical method of classifying traded products. These commodity groups were re-categorized into standard Diet Quality Questionnaire (DQQ) food groups. Classification as NCD-risk and NCD-protect food groups was done based on the Global Dietary Recommendations (GRD) guideline. 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).	UN Comtrade
	Mobile cellular subscription	Mobile cellular telephone subscriptions are subscriptions to a public mobile telephone service that provide access to the PSTN using cellular technology. The indicator includes (and is split into) the number of postpaid subscriptions, and the number of active prepaid accounts (i.e. that have been used during the last three months). The indicator applies to all mobile cellular subscriptions that offer voice communications. It excludes subscriptions via data cards or USB modems, subscriptions to public mobile data services, private trunked mobile radio, telepoint, radio paging and telemetry services.	World Bank
	Social capital index	A composite index based on a subset of indicators from the Social Capital pillar of the Legatum Prosperity Index, which assesses social cohesion and engagement, community and family networks, and political participation and institutional trust. The index is scaled to a value that ranges from 0 (low) to 100 (high).	Legatum Institute/ FSCI
Resilience responses and strategies	Reduced Coping Strategy Index (rCSI)	Measure of the frequency and severity of household behaviors when faced with shortages of food or financial resources to buy food. It is calculated using five standard food consumption-based strategies and severity weighting, a higher score indicates more frequent and/or extreme negative coping strategies.	WFP[b]
	Livelihood coping strategy – Food security	Indicator used to understand households' medium and longer-term coping capacity in response to lack of food or lack of money to buy food and their ability to overcome challenges in the future. The indicator is derived from a series of questions regarding the households' experiences with livelihood stress and asset depletion to cope with food shortages.	WFP[b]

Indicator domain	Indicator	Definition	Data source
Longer-term resilience outcomes	Food price inflation[a]	Inflation is measured in terms of the annual growth rate and in index, 2015 base year.	FAOSTAT
	Food Price Anomalies (IFPA), by type of product (Rice)	Identifies market prices that are abnormally high. The IFPA relies on a weighted compound growth rate that accounts for both within year and across year price growth. The indicator directly evaluates growth in prices over a particular month over many years, taking into account seasonality in agricultural markets and inflation, allowing to answer the question of whether or not a change in price is abnormal for any particular period.	FAOSTAT
	Food Price Anomalies (IFPA), by type of product (Wheat)		
	Food supply variability[a]	This indicator uses the data on dietary energy supply from the Food Balance Sheet to measure annual fluctuations in the per capita food supply (kcal), represented as the standard deviation over the previous five years per capita food supply. Food supply variability results from a combination of instability and responses in production, trade, consumption, and storage, in addition to changes in government policies such as trade restrictions, taxes and subsidies, stockholding, and public distribution.	FAOSTAT
	% population experiencing moderate or severe food insecurity	The prevalence of moderate or severe food insecurity is an estimate of the percentage of people in the population who live in households classified as moderately or severely food insecure. The assessment is conducted using data collected with the Food Insecurity Experience Scale (FIES) or a compatible experience-based food security measurement questionnaire. A household is classified as moderately or severely food insecure when at least one adult in the household has reported to have been exposed, at times during the year, to low quality diets and might have been forced to also reduce the quantity of food they would normally eat because of a lack of money or other resources.	FAOSTAT
	% population who cannot afford a healthy diet[a]	Proportion of the population whose food budget is below the cost of a healthy diet. The food budget is defined as 52% of household income, based on the average share of income that households in low-income countries spend on food. Income data are provided by the World Bank's Poverty and Inequality Platform. A value of zero indicates a null or a small number rounded down at the current precision level.	FAOSTAT
Food prices and cost of diet	Changes in food prices	The changes in food prices was calculated for 4 food items (1. eggs; 2. vegetable oil (sunflower and cotton); 3. rice (milled superior, regular milled, well milled, paddy, premium, special); 4. Beans (mung, green fresh, string).	Economic: Prices-Dataviz WFP – VAM[b]
Food prices and cost of diet	Change in daily cost of diet (energy only and nutritious)	The Cost of Diet (CoD) is a method to model the cost of a theoretical, simulated diet (food basket) which satisfies recommended energy requirements of a household of specific composition of interest (e.g. breastfed child, lactating mother, and other members) at the minimal possible cost, based on the availability, price, and nutrient content of local foods.	WFP[b]
Food expenditure, income and food sales	Per capita food expenditure share	Consumer Expenditure on Food and Non-Alcoholic Beverages: Food products and non-alcoholic beverages purchased for consumption at home.	Euromonitor
Food expenditure, income and food sales	Cost of living index	Cost of Living Index by Income (internationally comparable) is a price index that measures relative cost of living over time in a chosen income decile. Cost of Living Index is a weighted average of Index of Consumer Prices by category and consumer expenditure by income deciles, adjusted to Price Level Index.	Euromonitor
Food expenditure, income and food sales	Income	Disposable income is gross income less social security contributions and income taxes.	Euromonitor
Food expenditure, income and food sales	Food sale (volume per capita)	This indicator was created using the data in Euromonitor International database https://www.euromonitor.com/. Market research data on food sales was downloaded and food groups were categorized into standard Diet Quality Questionnaire (DQQ) food groups. Classification as NCD-risk and NCD-protect food groups was done based on the Global Dietary Recommendations (GRD) guideline. 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).	Euromonitor
Food security and diets	Food consumption score	This indicator is associated with household food access, and is therefore a proxy for household food security. The FCS is used to classify households into three groups: poor, borderline or acceptable food consumption. These food consumption groups aggregate households with similar dietary patterns - in terms of frequency of consumption and diversity - and access to food.	WFP[b]

[a] Estimated data
[b] Country level data

Prepared by ❖ D i k o d a