



Executive  
Perspectives

# War in Ukraine: Perspective on Global Food Crisis

**BCG Global Advantage and Social Impact Practice Areas**

Prepared: 13 July 2022



# Introduction to this document

**The war continues to be first and foremost a humanitarian crisis**, and the top priority for all continues to be the safety and security of people

Moreover, the continuity of the war has resulted in profound economic impact, not only within Ukraine but globally — as supply chains face disruption, commodity prices rise, and unprecedented levels of sanctions take hold

We continue to examine the most pressing issues and questions on the minds of our clients and teams

This edition shares the latest update on the **global economic impact** of the war, as well as its exacerbating effect on the **global food crisis**. The document outlines the challenges for the global food system, specific public and private sector impacts, and implications for leaders to strengthen food system resilience

# War in Ukraine: Global Update and Global Food Crisis

## AGENDA

### Perspective on Global Food Crisis

- Global Food Crisis trends
- Public & private sector impact
- Implications for leaders



# Summary | Unprecedented food system crisis unfolding in three waves

## Global Food Crisis trends

The War in Ukraine is precipitating a **food system crisis over three waves**, impacts could last as long as **3-5 years**

**W1: Humanitarian crisis** | Food insecurity, price spikes; 1.6B people could not get enough to eat, increasing by 440M people in 2022

**W2: Mid-term negative loop** | Lower fertilizer availability leads to reduced yields; risks compounded by protectionist measures, now impacting 5.5% of global calories; concentrated production & trade flows limit flexibility of response

**W3: Long-term impact** | Reduced systemic resilience and widening investment gap to meet global nutrition needs

The War has become a **tipping point** for a fragile, concentrated food system, already suffering from **recent shocks**: (A) **climate disruption** through extreme weather events, (B) **COVID-19 spending** leading to reduced budgetary flexibility to increase or reallocate public sector funds

## Public & private sector impact

**The disruption is uneven** across countries, with MENA most affected, and value chain sectors

**Public sector** | Five country archetypes based on self-sufficiency and hunger levels help policymakers identify response & resilience-building actions; humanitarian aid & fertilizer subsidies are key solutions for most impacted

**Private sector** | Ripple effects can impact the whole value chain and consumer markets through shortages, higher costs & prices (inputs, food, and transport) and potential barriers to global trade

## Implications

**Public, private and social sector** need to act now to prevent negative long-term impacts: from short-term relief and technical assistance to longer-term incentives, trade agreements, supply diversification and productivity investments

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# The War in Ukraine is precipitating a food system crisis in three waves

## WAVE 1



**Humanitarian crisis**  
food scarcity & high prices

**Unprecedented food humanitarian catastrophe:** 1.6B could not get enough to eat, increasing by 440M in 2022

**20M tons of grain trapped in Ukraine** (1/4 of 2021 annual production), 75M tons may be trapped by Fall 2022

Supply volatility leading to **global food insecurity & major price spikes**

## WAVE 2



**Mid-term negative loop**  
Trade & yields disruption

Fertilizer supply shortage **reduces availability, increases prices**

**Devastating impacts on yields** over next 2-4 years, likely to lead to **food price volatility** (above current inflation)

**Concentrated production & trade flows** challenge flexibility of global food system to respond

## WAVE 3



**Long-term impact**  
Reduced systemic resilience

Emergency spending likely to **displace long-term investments** in the agricultural sector and Sustainable Development Goals (SDGs)

This could result in further **decreases in food system resilience**



**Underlying challenges**

**A** Climate disruption

**B** Covid-induced fiscal stress



# Grain supply disruptions and higher prices are creating a global hunger crisis, with famine risk levels at all-time highs

## High reliance on Ukrainian grain

which is trapped in siloes along the Black Sea

**20M**

tons of grain trapped in siloes in Ukraine

**50%**

of wheat needed by the World Food Program is trapped in Ukraine

## Resulting high prices hurt poor consumers the most

particularly in low-income countries reliant on imports

**90%**

of wheat imports in East Africa come from Russia and Ukraine

**23%**

higher FAO<sup>1</sup> food price index than one year ago

## Food shortage and famine risk creating change

leading to an unprecedented humanitarian catastrophe

**1.6B**

people who could not get enough to eat

**49M**

people at risk of famine, an all-time high

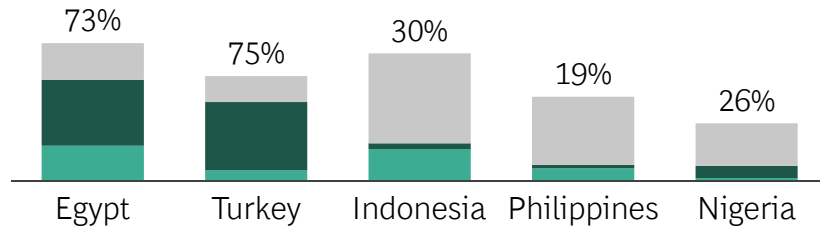
# MENA, China & South/SE Asia most dependent to direct War risk

## Egypt, Turkey, China among countries most reliant on Russia & Ukraine

**Global UKR+RUS share** **Main importers** by total imports, 2019 \$B<sup>1</sup>  
% indicate proportion of total country imports

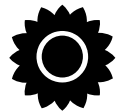


**25%**  
of \$39B global wheat exports

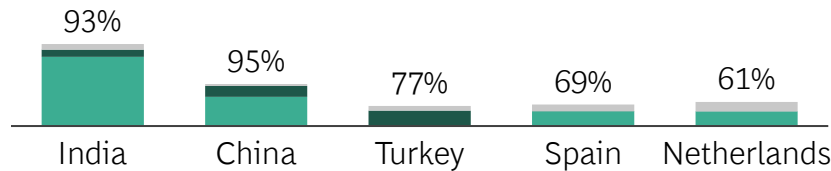


### Key developments

Ukraine 2022-2023 wheat exports set to fall 47%



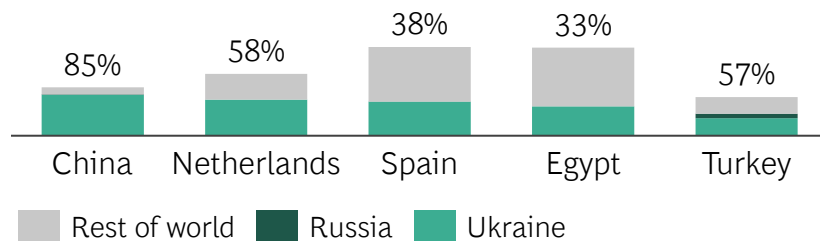
**56%**  
of \$10B global sunflower oil exports



90% of Ukraine sunflower oil exports shipped by sea



**16%**  
Of \$36B global corn exports



China to import corn from Brazil due to Russia blockade

Rest of world Russia Ukraine

## Geopolitical and local social tension risks

Food central to **geopolitical tensions**, e.g., Russia blocking Ukrainian key grain exports ports

**MENA most exposed** to immediate food **shortages**, potentially leading to **social unrest**

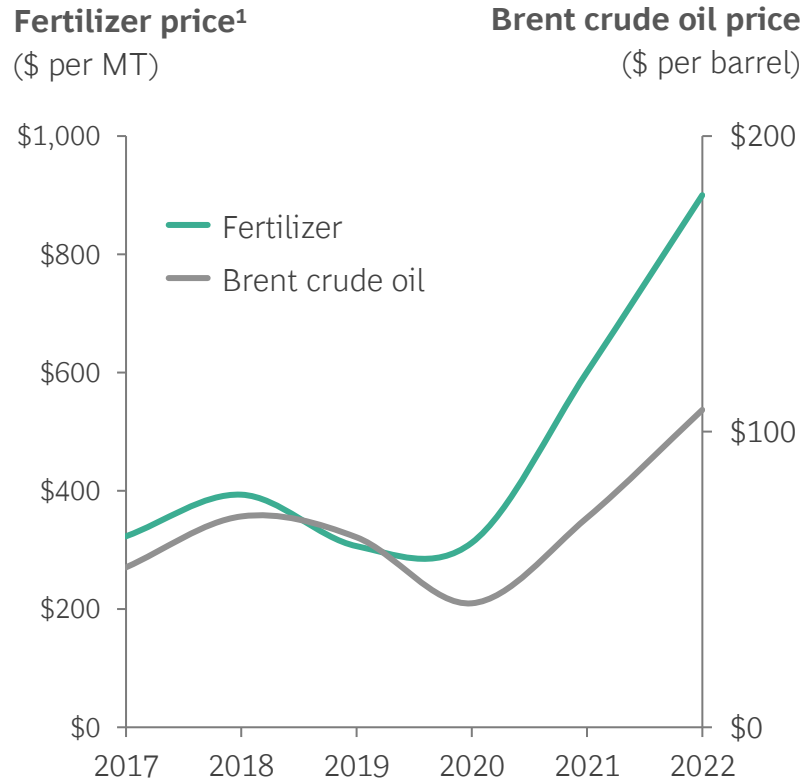
**West Africa and Sahel** already seeing increases in **hunger risks** due to import reliance and **low agricultural productivity**

1. All values in USD  
Source: USDA; Eurasia Group; Financial Post; OEC; UN Comtrade; Reuters; BCG case experience & analysis



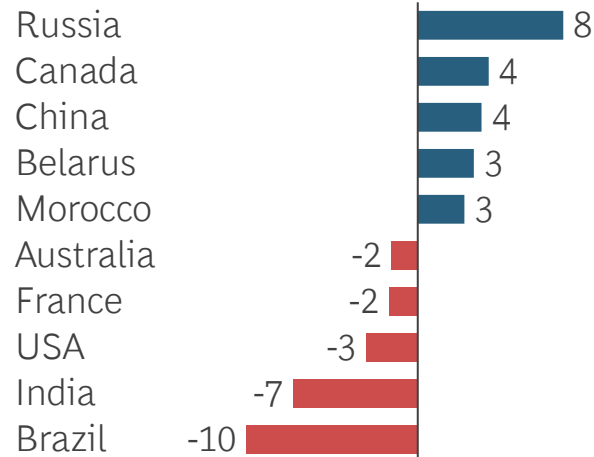
# Fertilizer and fuel supply challenged by war shock; crop yields at risk due to decreased input affordability and accessibility

**Fertilizer & fuel prices skyrocketing;**  
could risk yields for up to four years



Sanctions **impact key Russian & Belarusian fertilizer exports**

**Fertilizer trade balance** (exports minus imports), top & bottom 5 countries, 2019 \$B<sup>2</sup>



**17% share**

**Russia also led global exports of natural gas** in 2019, a key feedstock for the fertilizer industry

**Fertilizer export restrictions exacerbate global shortages**



### Vietnam

Raised export tax rate on fertilizers to cool domestic prices



### India

High fertilizer prices led to price caps on Di-Ammonium Phosphate purchases



### United States

Considering export restriction of crude oil to ease soaring domestic fuel prices

1. Fertilizer prices displayed are an average of DAP and Urea fertilizer prices; 2. Includes fertilizers in aggregate, where prominent fertilizers are urea (nitrogen), di-ammonium phosphate (phosphate) and potash (potassium)  
Source: World Bank; EIA; OEC; CIA World Factbook; UN Comtrade; BCG case experience & analysis



Mid-term negative loop

## Africa, Middle East & Asia net importers of significant Agrifoods & Cereals values

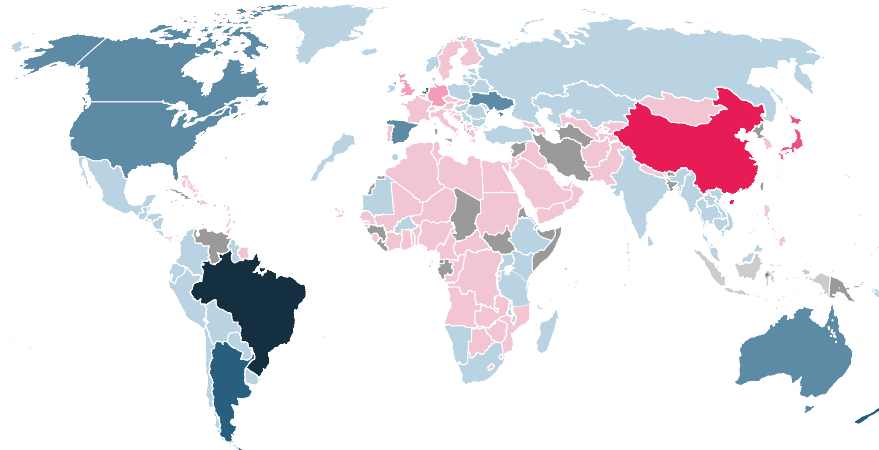
Net trade balance (exports minus imports), 2019 \$B<sup>1</sup>



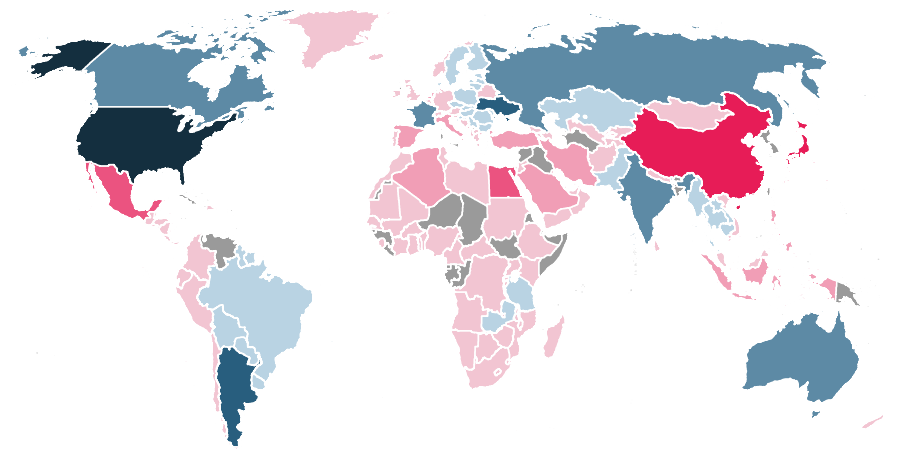
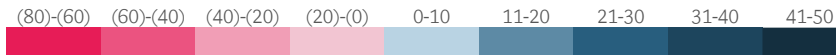
### Overall Agrifoods<sup>1</sup>



### Cereals deep-dive<sup>2</sup>



Net trade balance (\$B)



Net trade balance (\$B)



Ensuing protectionism and export restrictions to create further volatility in an interconnected global food system

## Exporters considering and imposing export bans to protect local food markets

Current protectionist measures affect 5.5% of global calories



### India

Hot weather led to wheat and sugar export bans, reversing earlier pledge to boost shipments



### Argentina

Blocked soybean oil, livestock and soybean meal exports as prices skyrocket



### Indonesia

Temporarily banned palm oil product & palm kernel exports, mandating producers to set aside 20% of supply for local buyers



# Food system funding will come under further pressure

The funding gap to achieve SDGs, including a resilient food system, was high before the war

**\$17.9T**

Gap in financing needed to meet the **UN's Sustainable Development Goals** in the period 2020-2025

“

We **risk going from having a gap** to achieve the SDGs to **having an abyss.**”

— UNCTAD Secretary General

Many additional urgent priorities will also need to be addressed by donor funds

**\$2.2B**

EBRD<sup>1</sup> package announced in March to support the **Ukrainian private sector**

**\$1.4B**

IMF support for Ukraine to cope with **economic shock** caused by War

**\$4.5B**

G7 commitment to addressing **global food security** in 2022

**\$170B**

Response envelope under consideration by the WBG<sup>2</sup> for **developing countries** facing **compounding crises**



# The War is a tipping point for an already fragile food system characterized by underlying challenges

## WAVE 1

 **Humanitarian crisis**  
food scarcity & high prices

## WAVE 2

 **Mid-term negative loop**  
Trade & yields disruption

## WAVE 3

 **Long-term impact**  
Drag on systemic resilience

## **Underlying challenges**

- A Climate disruption:** Extreme weather events lead to reduction in yields & potential impacts on distribution
- B Covid-induced fiscal stress:** Depleted treasuries & borrowing capacity, with many countries facing distress



# Agricultural yields are deteriorating and upcoming harvests face risk from extreme weather events, exacerbating War impacts

## Climate risks challenge agriculture

### Extreme events

**Extreme weather** (e.g., heatwaves, floods, hurricanes) have **wiped out crops**, worsening yield uncertainty

**Water scarcity** has reduced agricultural productivity in markets that **must ration water**; California harvests to suffer

### Agricultural impact

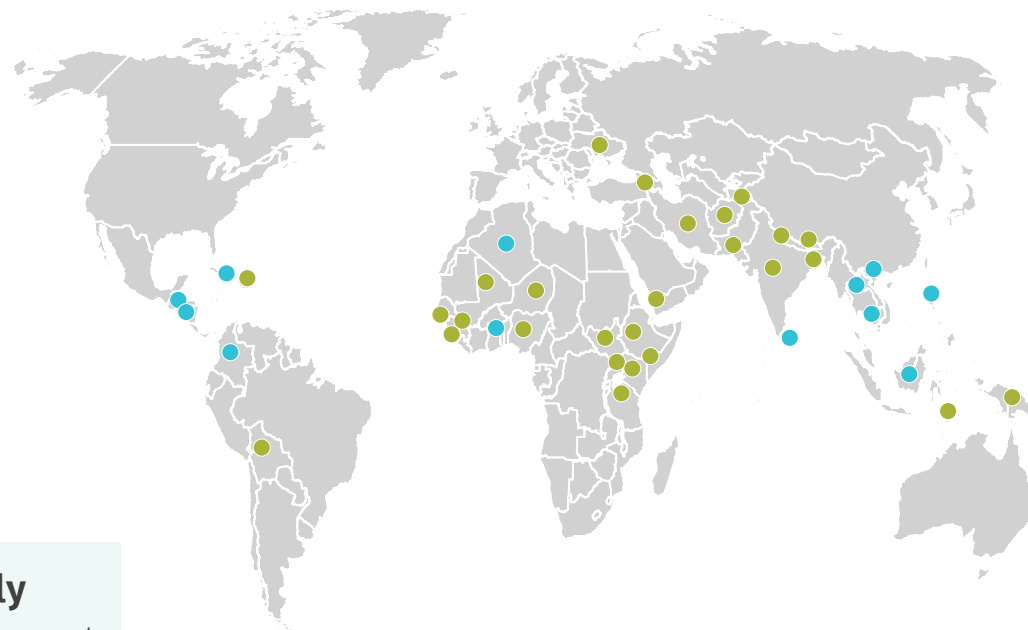
**Annual food yields** have seen 5.3% lower growth since 1961; **yields set to fall** 10-25% for each degree of warming

**Arable land & productivity** reduced due to droughts; **share of land affected to triple** by 2050

## Extreme weather conditions to hit resource-poor countries the hardest

**Extreme variability** in rainfall observed in **over 27 countries<sup>1</sup>**

- Significant rainfall or vegetation deficit
- Significant excess rainfall



**3.3-3.6B** people **highly vulnerable** to climate impacts

**Hotspots** concentrated in South Asia, Central / South America, & sub-Saharan Africa

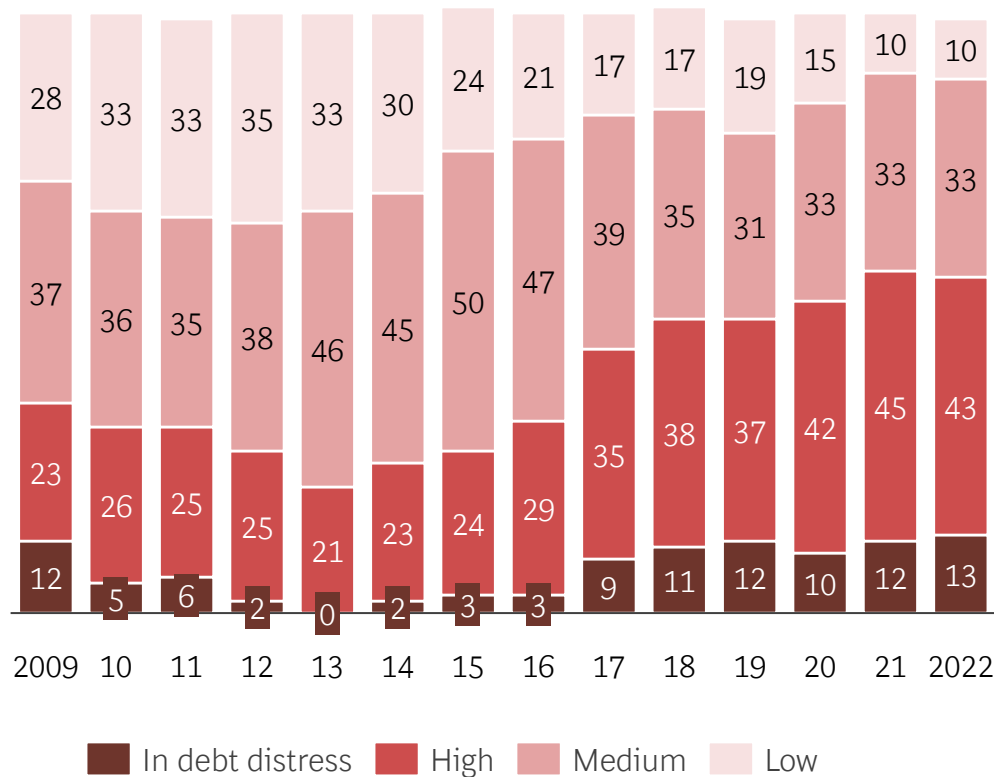
1. 'Significant excess rainfall' is defined as current rainfall (3-month average) more than 30% above normal (20-year average). 'Significant rainfall or vegetation deficit' is defined as current rainfall (3-month average) more than 20% below normal (20-year average) OR current vegetation deficit defined by Normalized Difference Vegetation Index (NDVI) more than 10% below normal. Source: IPCC; Eurasia Group; BCG case experience & analysis

# Covid-induced high debt levels across ~60% of low-income countries limit fiscal capacity to respond to food challenges



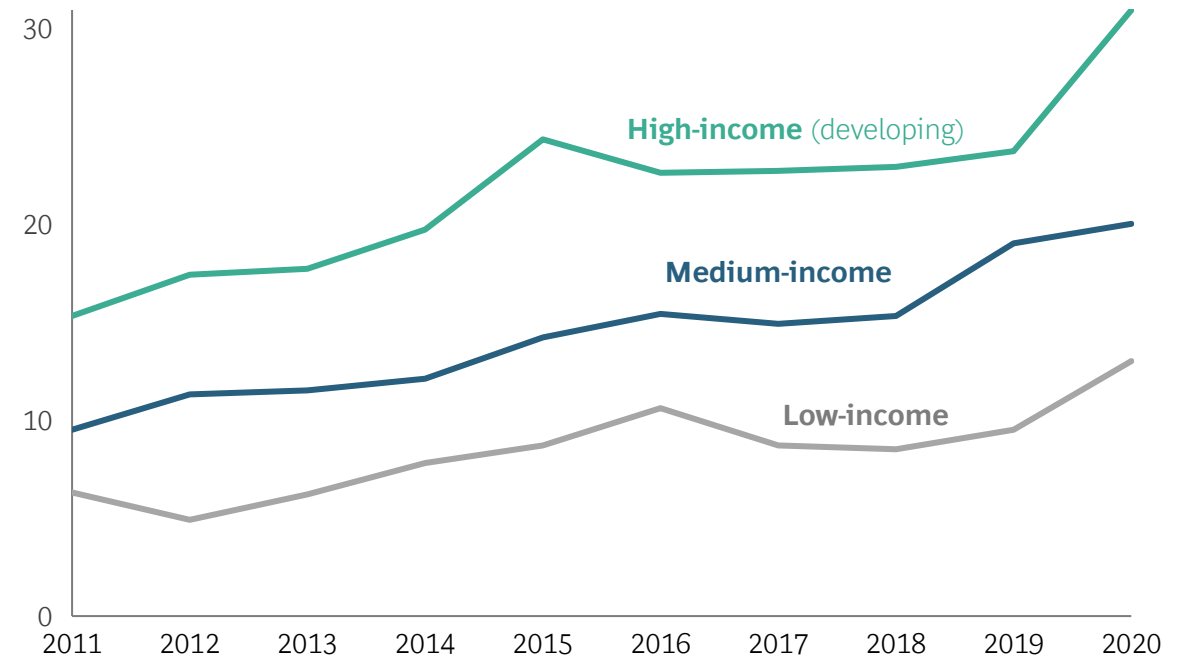
## Low-income countries<sup>1</sup> in debt distress or at high risk doubled to ~60% since 2015

Low-income countries indebtedness (%)



## Cost of debt servicing rises for developing countries<sup>2</sup>

External debt service as a share of exports, developing countries by income group (%)



At least **100 countries will have to reduce spending on social programs to meet debt payments<sup>1</sup>**

1. According to the World Bank Atlas method, countries with Gross National Income of \$1,085 or less in 2021. Source: IMF; UNCTAD; BCG case experience & analysis



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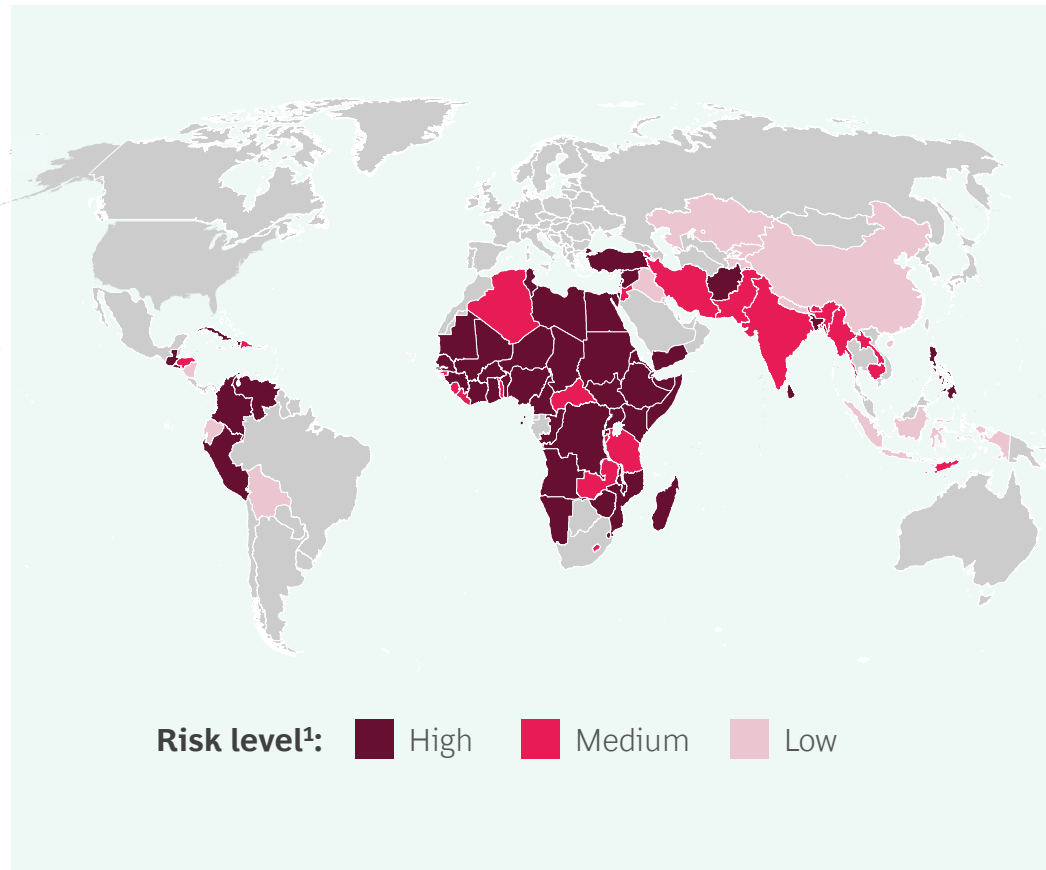
> Global Food Crisis trends

> **Public & private sector impact**

> Implications for leaders

# The disruption is uneven, leading to different implications

## 51 countries severely exposed to the impacts from the current food crunch



### Public sector perspective

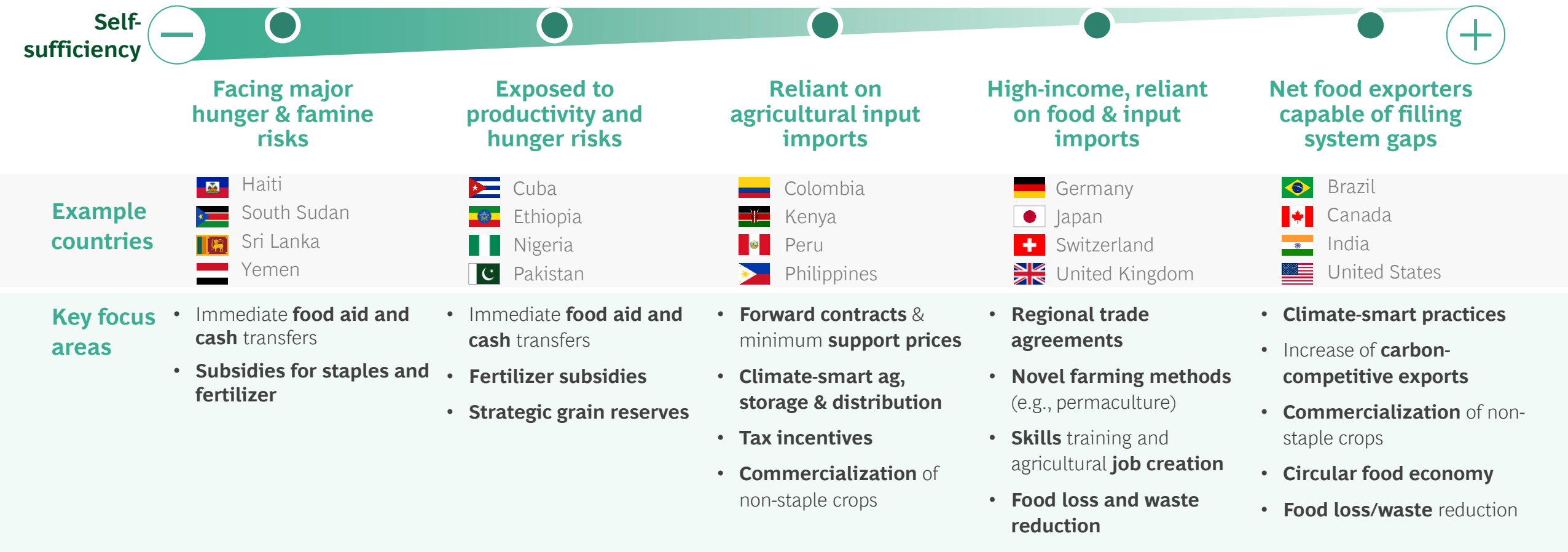
## Interconnected impacts across global value chains, for upstream, downstream & financial sector players

<p><b>Inputs</b> </p> <p>Volatility in input supply (e.g., fertilizer) <b>increases prices</b> (as much as 300%)</p> <p>Supply <b>crunch for customers</b>, higher <b>earnings</b> (50%+ above expectations) for companies</p>	<p><b>Production</b> </p> <p>Input costs, prices received lead to <b>planting decisions to minimize disruption</b></p> <p>Canadian farmers are planting 6% more wheat, 13% more durum at the expense of canola, down 7%</p>	<p><b>Trade/Aggregation</b> </p> <p>Net-exporters expected to <b>fill gap</b> left by Russia and Ukraine (e.g., Turkey, Brazil, India)</p> <p>However, <b>protectionism and export bans</b> hinders international business</p>
<p><b>Distribution</b> </p> <p><b>Truck freight prices increased</b> 25.8% between June 2021 and May 2022</p> <p>~20% of <b>container vessels trapped</b> at congested ports, creating supply challenges for distributors</p>	<p><b>Consumer/Retail</b> </p> <p>CPG companies exposed to <b>one-time costs</b> due to <b>withdrawal from Russia</b></p> <p><b>Long-term supply risks</b> (e.g., environmental impact of using palm oil over Ukrainian sunflower oil)</p>	<p><b>Investors &amp; Banks/Funds</b> </p> <p><b>Concessional capital likely to decline</b> with inflation increase (2022 projections: 6.7% globally)</p> <p><b>Other asset classes more appealing</b> with market volatility driving increased <b>diversification</b></p>

### Private sector perspective

1. Includes analysis of current food insecurity levels, ongoing conflict, climate risks, debt-to-GDP ratio, import reliance, and other measures of fiscal health and humanitarian need  
 Source: [AgriCensus](#); [Winsight](#); BCG case experience & analysis

# Public sector | Impact varies across country archetypes; food aid & monetary subsidies key solutions for most adversely affected countries





# Private sector | Significant, long-term impacts for entire value chain demonstrated by three key indicators

## Food availability

Ukraine/Russia supply **12% of traded calories**, disrupting food availability

War not only risks **harvested** crops but also produce most **recently planted and upcoming seasons**

**Fertilizer price pressure** leads to producers planting fewer crops, different crops or skipping fertilizer — cumulatively **impacting global food availability** in the medium term

Consumer and industrial companies relying on food commodities face increasing pressure to **diversify sourcing**

## Food prices

Prices for key consumer staples have **skyrocketed**, esp. grains & oilseeds, and could continue to do so

Downstream businesses and processors face **cost increases** and decision to pass down to consumers

Food **affordability challenges household spending** in durables and long-term resilience-building

Some **producers and net exporters benefit** from short-term price hikes that can support investment decisions

## Transport prices

**Bottlenecks** in the Turkish Straits, a critical **chokepoint, impact global transport**

The Ukraine war, climate disruptions, and underinvestment in Black Sea infrastructure has resulted in **skyrocketing shipping costs**

With Ukrainian airspace closed and airlines avoiding Russian airspace, **air freight rates are also spiking**

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- Global Food Crisis trends
- Public & private sector impact

### ➤ Implications for leaders

# Implications for public, private, and social sector leaders

## Public sector



- Support **humanitarian assistance** efforts
- Develop **resilience plan to direct resources** (e.g., **budget priorities and allocation**)
- Strengthen plans for **just energy transition and agricultural climate goals**
- Increase **volume and carbon competitiveness** of key exports (e.g., wheat)
- Support **commercialization of alternatives to staples** (e.g., indigenous whole grains)
- Revisit key agricultural incentives** (e.g., tax exemptions, timebound subsidies, etc.)

## Private sector



- Develop **resilience plan** to identify **chokepoints**, and **map resources** to adapt during times of uncertainty
- Balance** near-term profits with market potential in **Global South** and long-term gains
- Diversify value chains**, especially sourcing, and types of commodities, where possible
- Invest in reducing food loss and waste**, especially in the downstream segments
- Accelerate **climate-smart practices** to stabilize prices and increase traceability

## Social sector



- Deliver **humanitarian assistance** & provide technical assistance to capacity building
- Advocate for **increases in climate-related aid, debt restructuring, and coordination of climate action**
- Support **strengthening of food & fertilizer import** facilities in highly exposed locations
- Advocate for **innovative trade policies** (e.g., duty free protocols in regional blocs) and financial mechanisms to increase capital flows



# Teams across BCG are actively monitoring impact

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