

# The World Today and the Food Security Challenge



Photo: Burniske

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# Defining Food Security

The four pillars of food security are: availability, access, utilization, & stability.



Photo: Burniske

Levels of food security: individual, household, national, regional, and global.

***"A situation that exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets dietary needs and food preferences for an active and healthy life." (FAO)***

Photo by Burniske

# Definitions of malnutrition indicators

- **Low birth weight**
  - Less than 2,500 grams
- **Underweight:** weight for age
  - Indicates short term malnutrition
- **Wasting:** weight for height
  - Indicates **acute** food shortages
  - Strong indicator of mortality
- **Stunting:** height for age
  - Indicates **chronic** malnutrition
  - Typically before two years old and irreversible
- **Mid-upper arm circumference - MUAC**



# Micro-Nutrient Deficiencies – Hidden Hunger

## Major issues

- Vitamin A deficiency (**VAD**)
- Iron Deficiency (**ID/A**)
- Iodine Deficiency (**IDD**)

## Also of concern

- Selenium
- Zinc
- Folic Acid
- B Vitamins
- Vitamin D

# Poverty



- **3.4 billion people** — still struggle to meet basic needs
- **1.9 billion people, or 26.2% of the world's population,** were living on less than \$3.20 per day in 2015
- **73% of global farms** are smaller than 1 ha; 85% are smaller than 2 ha
- **25% of the rural poor** are landless
- **12% of the rural poor** are composed of pastoralists/herders & fisherfolks

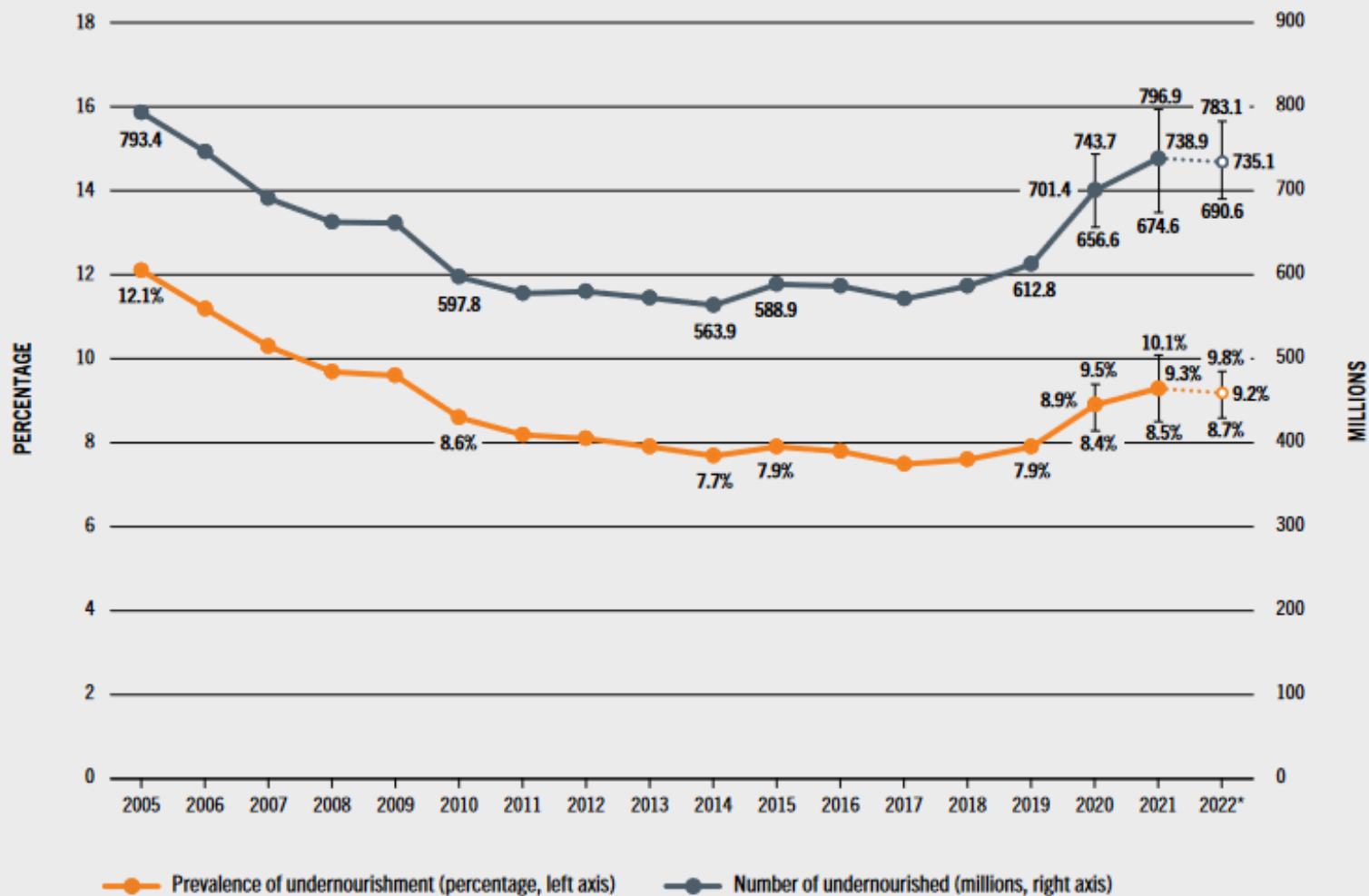
# The 3 C's – COVID, Conflict and Climate Change



# Impact of COVID-19 on Food Security and Poverty

- About a **half a billion people were pushed into poverty** just as the world experiences the worst economic fallout since the Great Depression.
- The World Bank stated that COVID-19 pushed an additional **100 million people into extreme poverty**.
- During the pandemic, nutrient-rich foods like eggs, fruits, and vegetables were 10 times more expensive than staple foods like rice or wheat in sub-Saharan Africa.
- Supply chains were disrupted on the ag input side, as well as the supply side. Markets were closed or severely restricted and people had difficulty accessing healthy foods. Consumption of highly processed foods skyrocketed.

**FIGURE 1** GLOBAL HUNGER REMAINED VIRTUALLY UNCHANGED FROM 2021 TO 2022 BUT IS STILL FAR ABOVE PRE-COVID-19-PANDEMIC LEVELS



NOTES: \* Projections based on nowcasts for 2022 are illustrated by dotted lines. Bars show lower and upper bounds of the estimated range.  
 SOURCE: FAO. 2023. FAOSTAT: Suite of Food Security Indicators. In: FAO. [Cited 12 July 2023]. [www.fao.org/faostat/en/#data/FS](http://www.fao.org/faostat/en/#data/FS)



# Take Home Points – COVID-19 AND FOOD SECURITY

- People who are already hungry and food insecure – an estimated 735 million people are suffering the most and on the brink of famine dimensions.
- People who are dependent upon informal sector have extremely high unemployment rates, and because they live “hand to mouth” are hardest hit by COVID-19, and are entering into a stage of extreme poverty and high food insecurity.
- Climate change, conflict and natural disasters are compounding the problem of food insecurity.
- The global prospects for a quick recovery are dim, and “the worst is yet to come” in terms of food insecurity.
- International assistance is critical to responding to the looming food crisis.

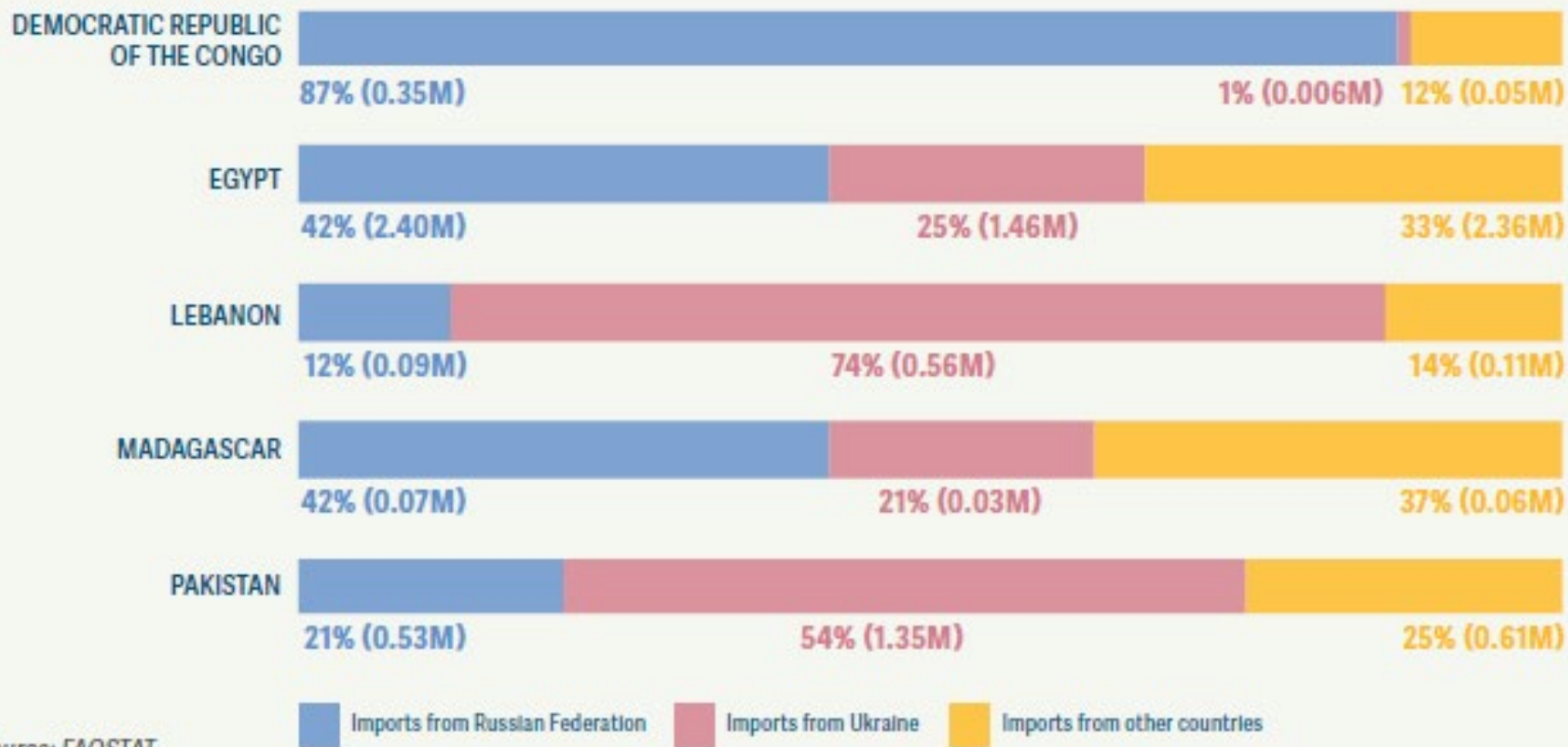
# Compounding Climate Change, COVID and the Russian-Ukraine Conflict on Food

- Escalating food prices globally.
- High energy costs along the food supply chain.
- Climate extremities – heat, drought, floods resulting in crop stress exasperated by pest outbreaks.
- Migration and labor shortages.
- Rising prices for agricultural inputs.
- Trade restrictions.

# Wheat Import Volumes from Select Countries



## Shares of wheat import volumes from the Russian Federation and Ukraine in 2021, tonnes



Source: FAOSTAT.



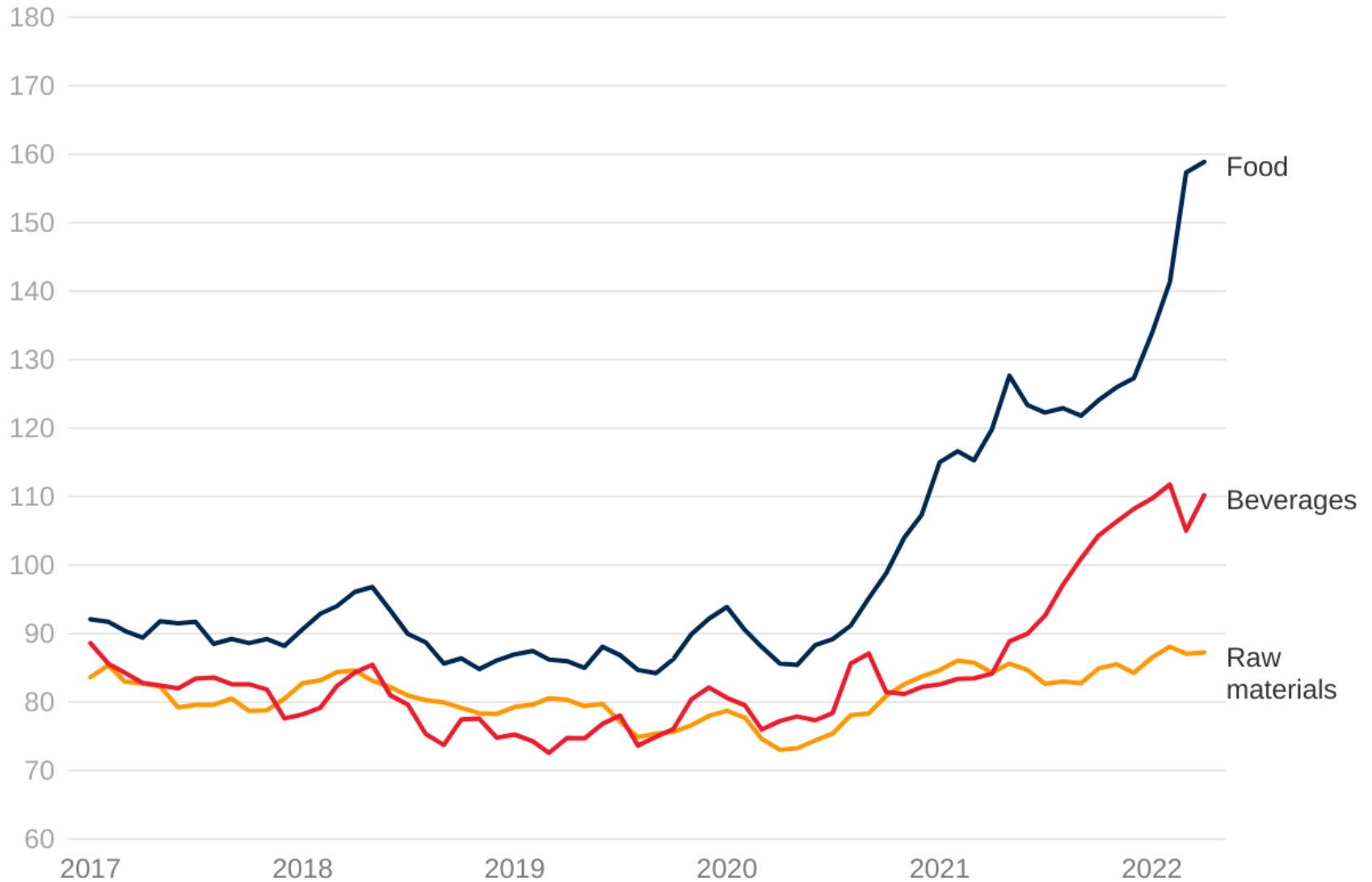
## Shares of sunflower oil import volumes from the Russian Federation and Ukraine in 2021, tonnes



Source: FAOSTAT.

# Agriculture price indexes

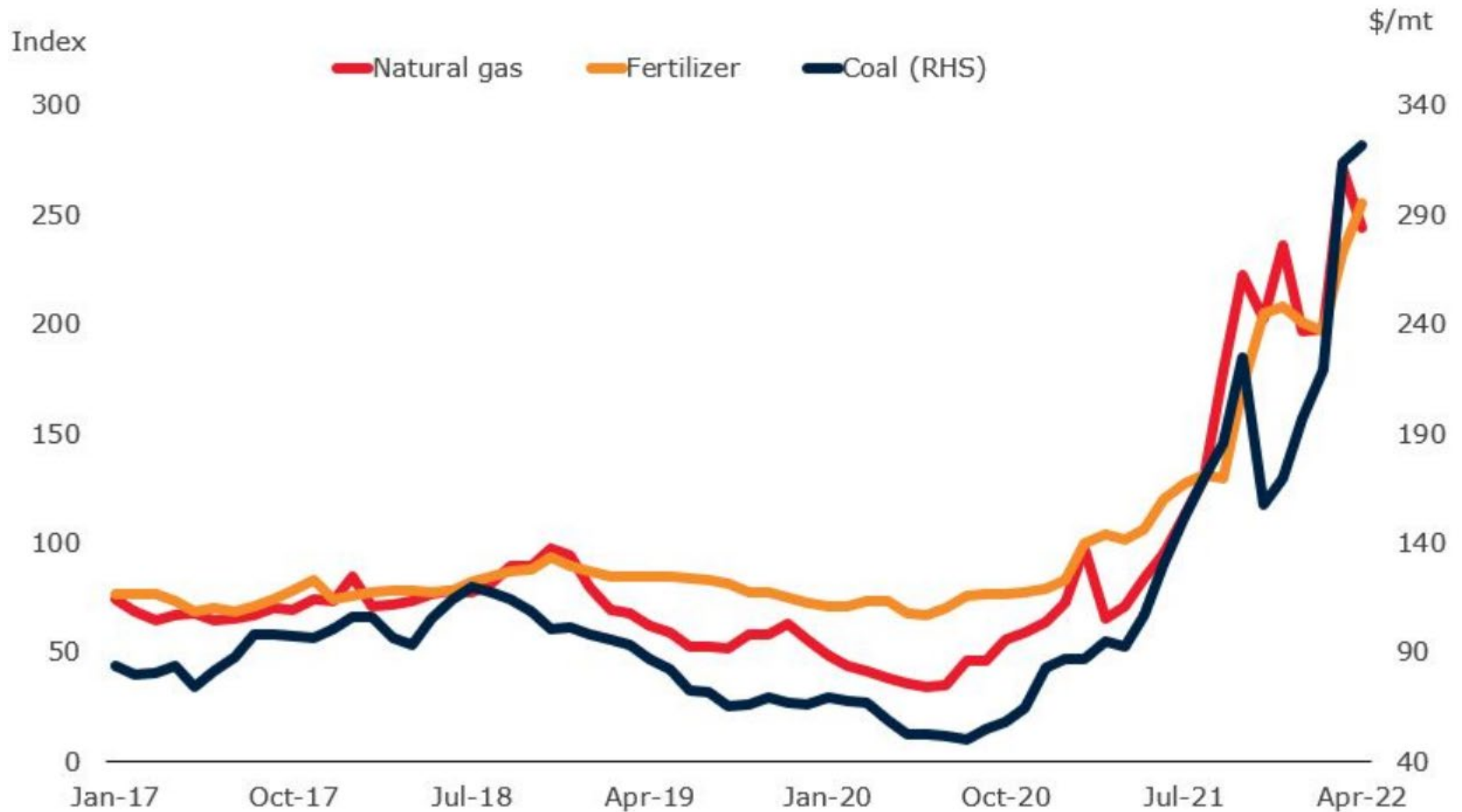
US\$ indexes, 2010 = 100



*Note: Last observation is April 2022.*

Source: World Bank.

## Agriculture input prices

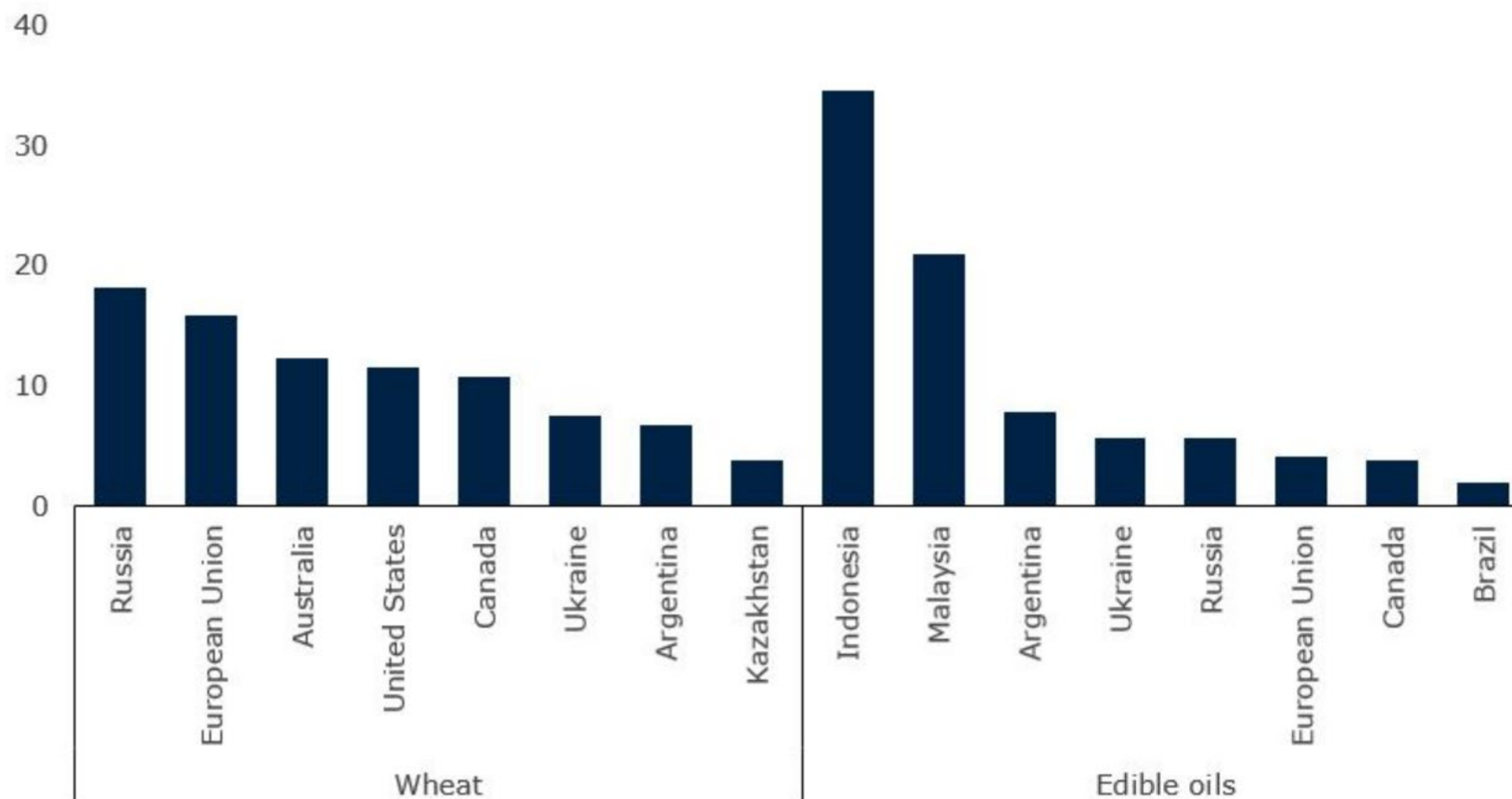


Note: Last observation is April 2022.

Source: World Bank.

## Top exporters of wheat and edible oils

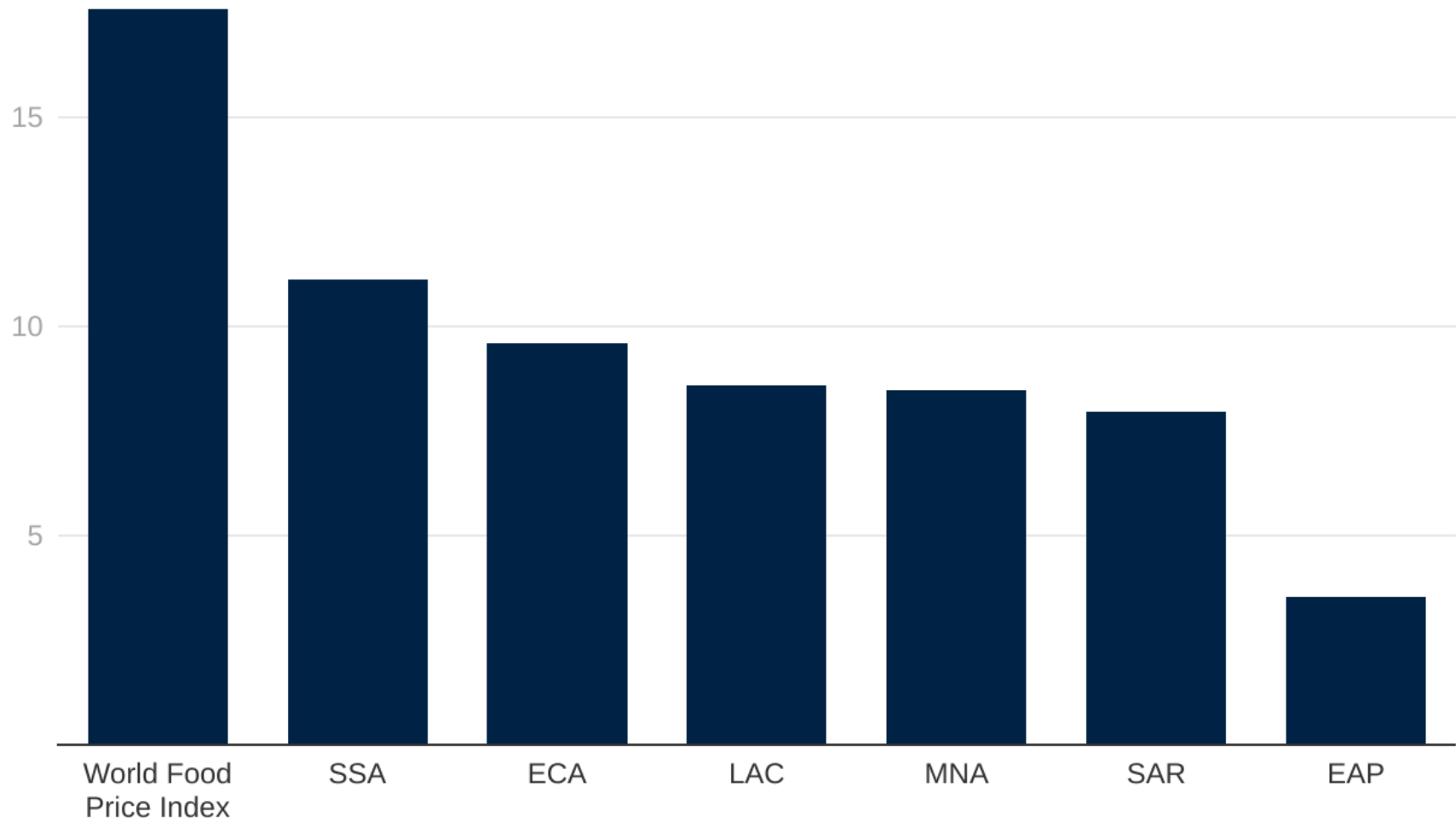
Percent of world exports



*Note: Largest eight exporters of wheat and edible oils, average 2020-2022.*  
**Source: U.S. Department of Agriculture; World Bank.**

# World and regional inflation on Food Prices

Percent, y/y



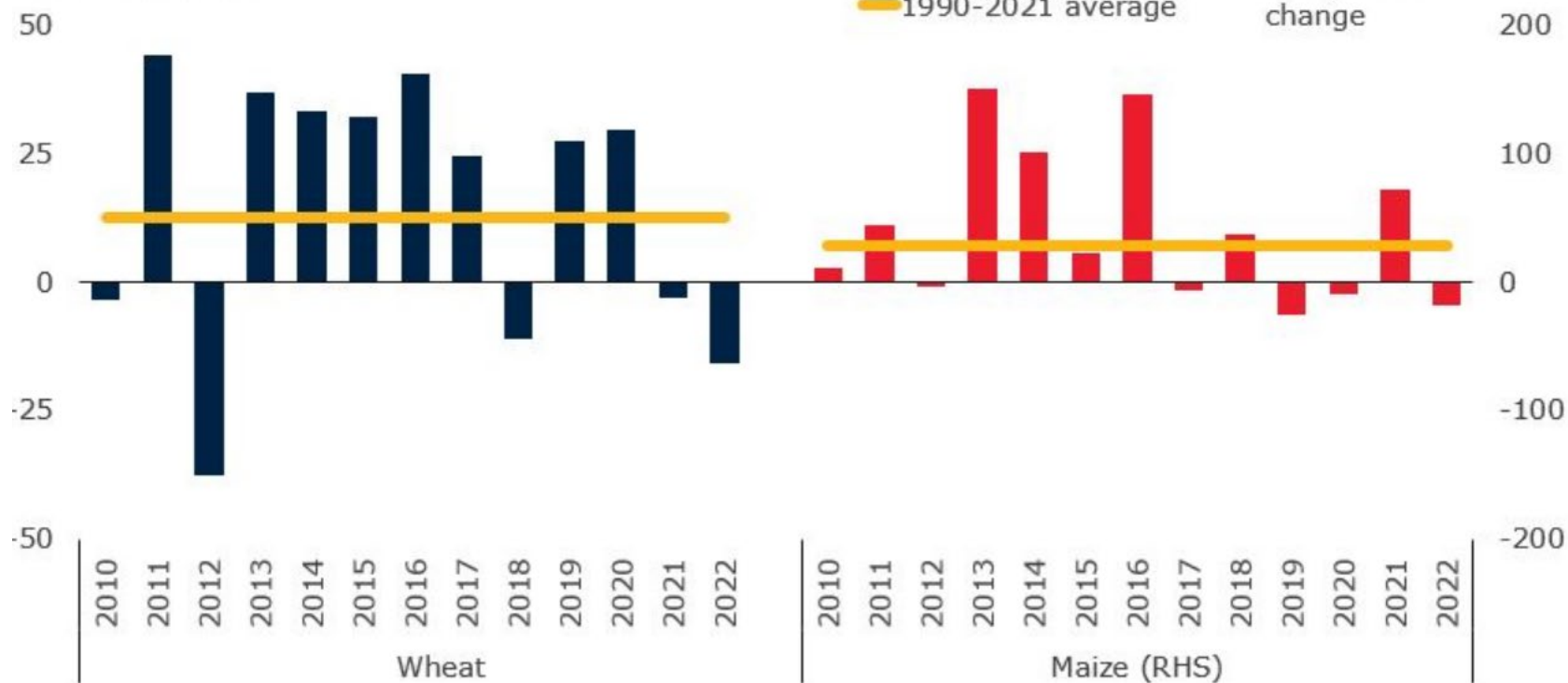
*Note: Bars denote year-on-year food price inflation (average of January-March 2022). EAP = East Asia and Pacific, ECA = Europe and Central Asia, LAC = Latin America and the Caribbean, MNA = Middle East and North Africa, SAR = South Asia, SSA = Sub-Saharan Africa; EMDEs = emerging markets and developing economies.*

Source: World Bank.



# Wheat and maize supply growth

mmt, annual change



Note: Years represent crop seasons (for example, 2019 refers to 2019-20). Supply is the sum of beginning stocks and production.  
 Source: U.S. Department of Agriculture; World Bank.

# Global Report on Food Crisis 2023

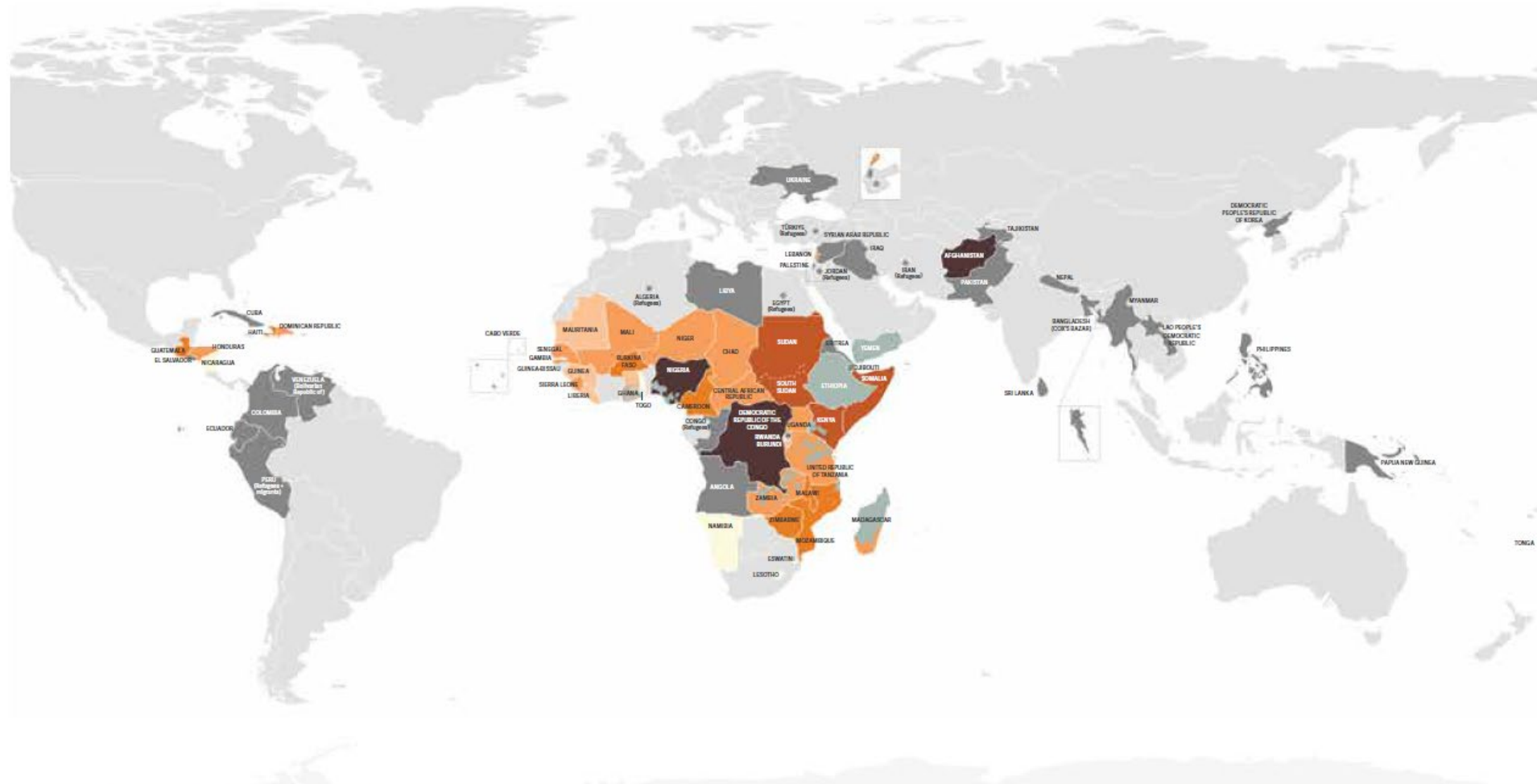
## IPC/CH acute food insecurity phase description and response objectives

IPC – Integrated Phase Classification system

Phase	Phase description and priority response objective
Phase 1 <b>None/Minimal</b>	Households are able to meet essential food and non-food needs without engaging in atypical and unsustainable strategies to access food and income. <b>Action required to build resilience and for disaster risk reduction.</b>
Phase 2 <b>Stressed</b>	Households have minimally adequate food consumption but are unable to afford some essential non-food expenditures without engaging in stress-coping strategies. <b>Action required for disaster risk reduction and to protect livelihoods.</b>
Phase 3 <b>Crisis</b>	Households either: <ul style="list-style-type: none"><li>• Have food consumption gaps that are reflected by high or above-usual acute malnutrition; <i>or</i></li><li>• Are marginally able to meet minimum food needs but only by depleting essential livelihood assets or through crisis-coping strategies.</li></ul> <b>URGENT ACTION required to protect livelihoods and reduce food consumption gaps.</b>
Phase 4 <b>Emergency</b>	Households either: <ul style="list-style-type: none"><li>• Have large food consumption gaps which are reflected in very high acute malnutrition and excess mortality; <i>or</i></li><li>• Are able to mitigate large food consumption gaps but only by employing emergency livelihood strategies and asset liquidation.</li></ul> <b>URGENT ACTION required to save lives and livelihoods.</b>
Phase 5 <b>Catastrophe/Famine</b>	Households have an extreme lack of food and/or other basic needs even after full employment of coping strategies. Starvation, death, destitution and extremely critical acute malnutrition levels are evident. (For Famine classification, area needs to have extreme critical levels of acute malnutrition and mortality.) Famine and Famine Likely classifications are equally severe, the only difference is the amount of reliable evidence available to support the statement. <b>URGENT ACTION required to revert/prevent widespread death and total collapse of livelihoods.</b>

# Global Report on Food Crisis 2023

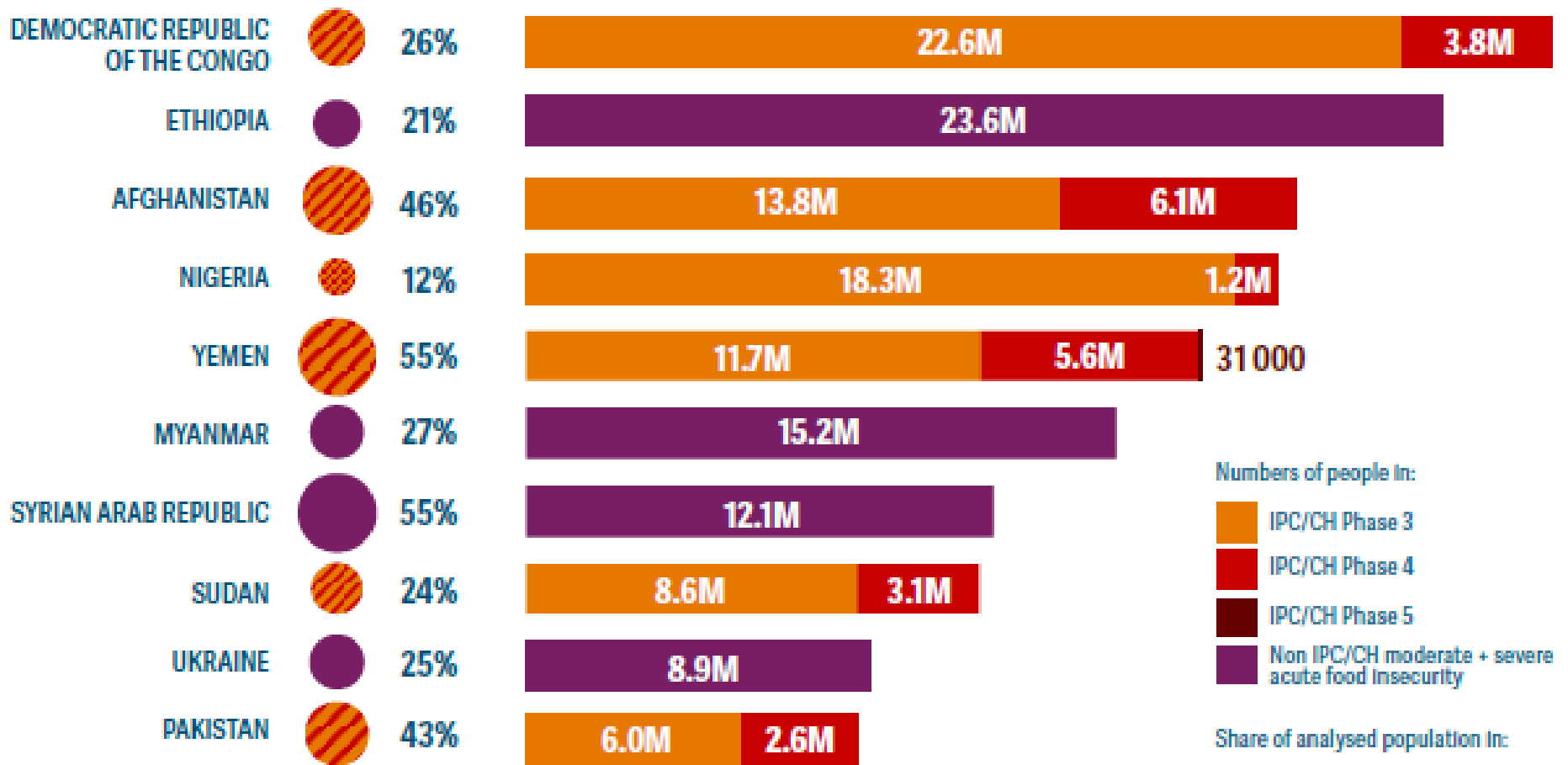
Numbers of people projected to be in Crisis or worse (IPC/CH Phase 3 or above) or equivalent in 38 countries/territories in 2023



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Final status of the Abyei area is not yet determined.

Source: FSIN, GRFC 2022.

# Countries/territories with the highest numbers of people in IPC/CH Phase 3 or above or equivalent in 2022 and the share of analysed population in these phases



Numbers of people in:

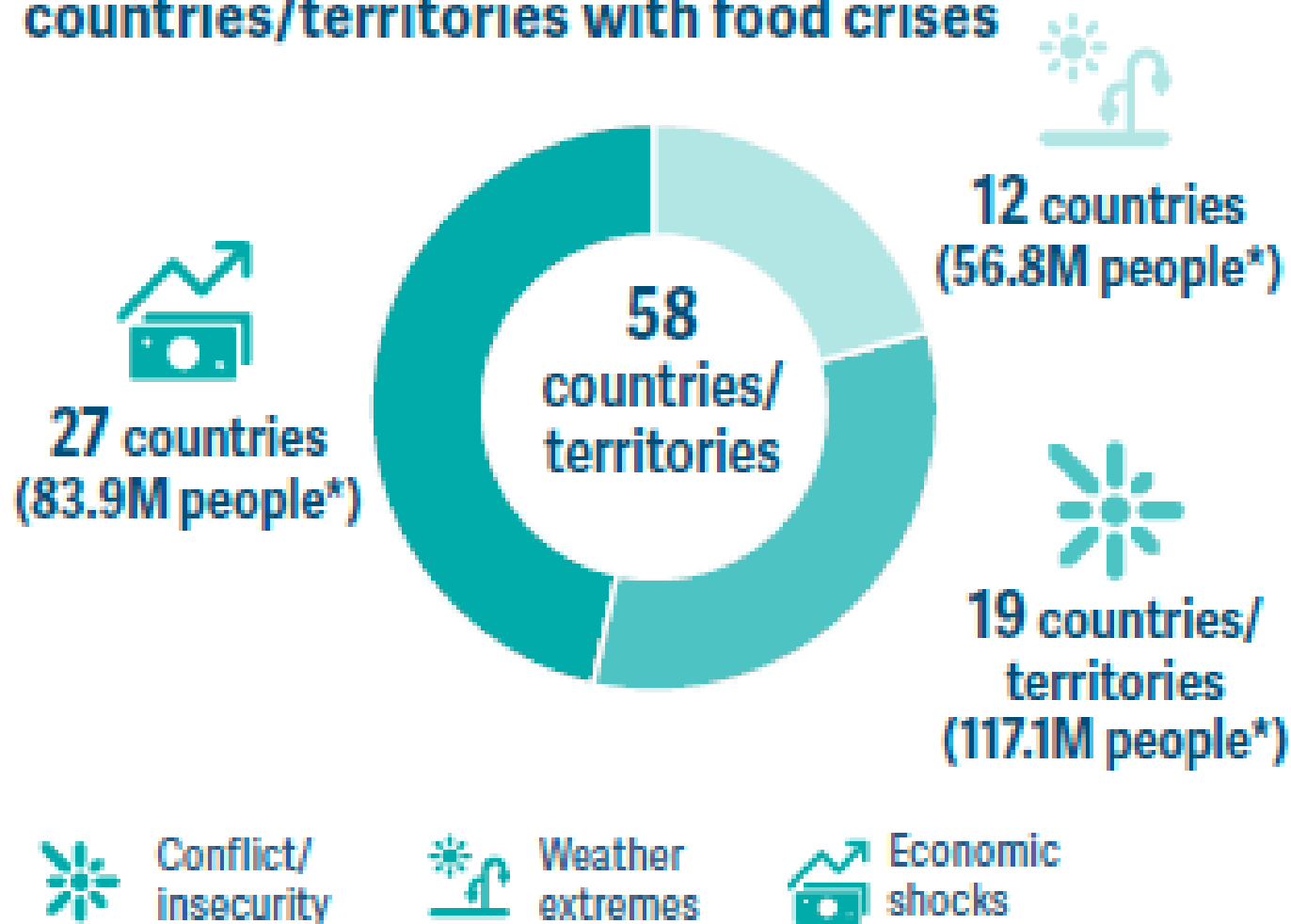
- IPC/CH Phase 3
- IPC/CH Phase 4
- IPC/CH Phase 5
- Non IPC/CH moderate + severe acute food insecurity

Share of analysed population in:

- IPC/CH Phase 3+
- Non IPC/CH moderate + severe acute food insecurity

Source: IPC TWGs, 2022; HNO, 2022 and 2023; CH; and REACH 2023.

# Key drivers of acute food insecurity in countries/territories with food crises

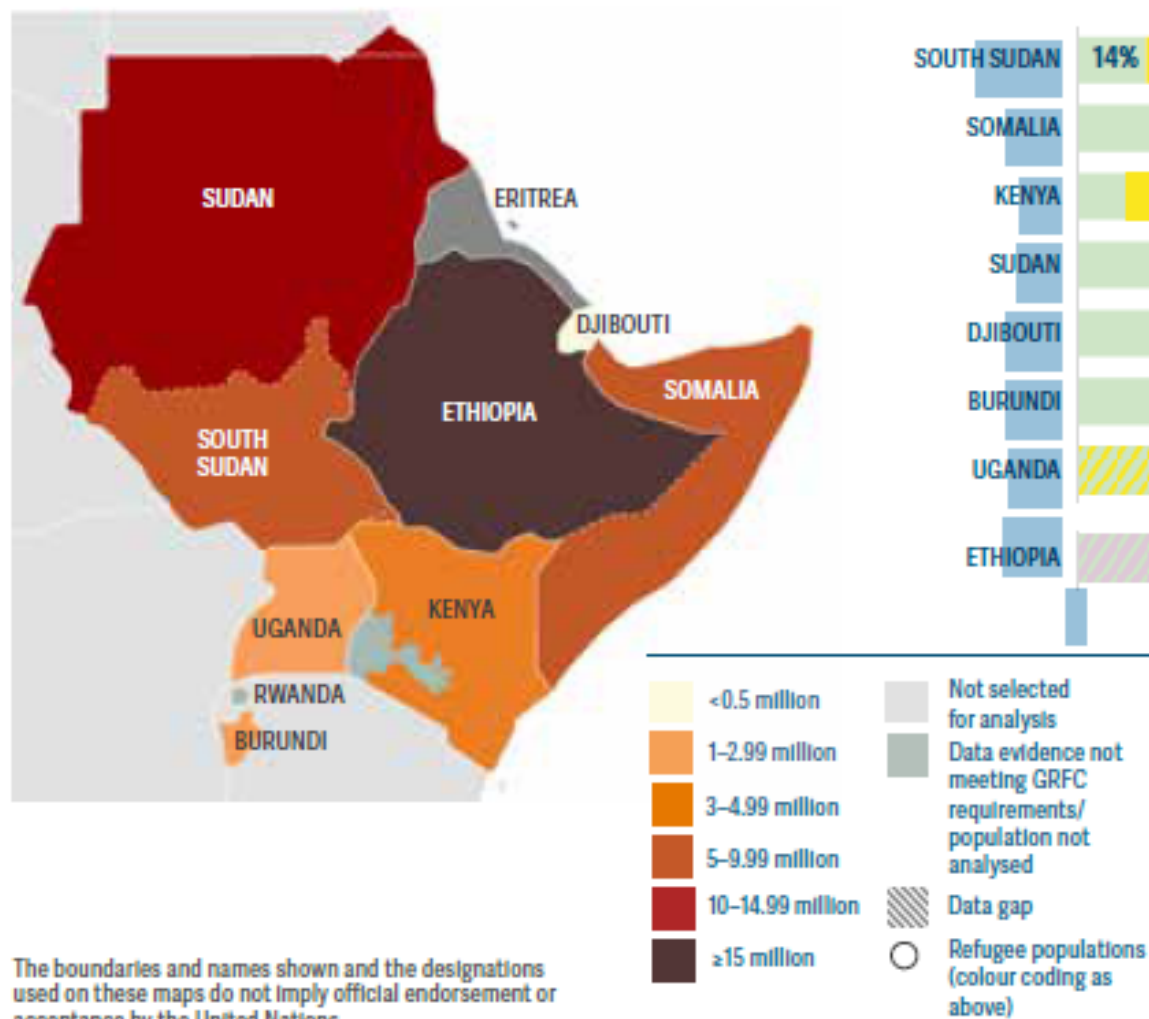


Food crises are the result of multiple drivers. The GRFC has based this infographic on the predominant driver in each country/territory.

\* Number of people in IPC/CH Phase 3 or above or equivalent.

Source: FSIN, GRFC 2023.

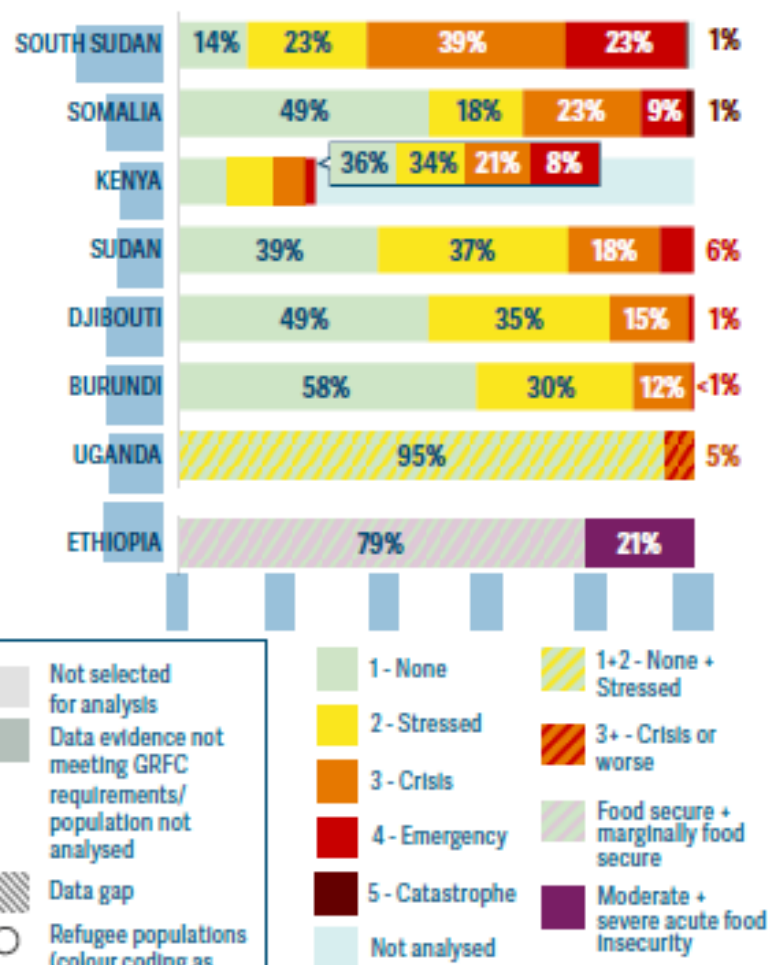
## Number of people in IPC Phase 3 or above, or equivalent, 2022



The boundaries and names shown and the designations used on these maps do not imply official endorsement or acceptance by the United Nations.

Source: IPC TWGs, HRP (Ethiopia), FEWS NET (Uganda).

## Share of analysed population by phase of acute food insecurity, 2022 peak



# Qoloji IDP Settlement – Babile Woreda, Somali Region Ethiopia



Photo: Burniske

**Women and Girls – most vulnerable to food insecurity**



Photo: Burniske



# Overgrazing during the drought – livestock suffer and consequently herders suffer



Photo: Burniske

**Children are the most vulnerable to water and food insecurity**



**Photo: Burniske**

# Climate Change and Food Security

- Poor households are found on the most marginal land and are more vulnerable to the impacts of severe weather caused by climate change.
- Agriculture contributes to climate change: 30% of GHG annual emissions (17.4% forest destruction; 13.5% agriculture production).
- Small Scale Fishing & Aquaculture (SSFA) is impacted by the degradation of water quality in addition to rising sea levels and severe weather events.
- Livestock occupies 70% of the world's agricultural land. Overgrazing deteriorates grassland, cattle contributes methane to the atmosphere.
- Biodiversity and ecosystem services are being greatly diminished.
- Rainfall patterns are becoming more volatile – oscillating between intense rain and prolonged drought.
- Heat and humidity are making agricultural work more unbearable.
- New pests and disease on crops, livestock and humans are emerging.

# Pest Outbreaks – a consequence of Climate Change – Locusts & Fall Armyworm in Africa



# Rice Paddies – Emits 12% of the annual Global Methane emissions



# Climate Change Induced Disasters

## Flooded Agricultural Land in Colombia

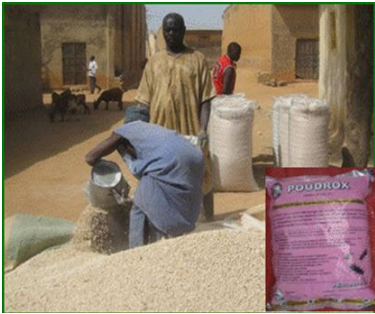


# Building Resilience

- Reducing food waste
- Climate Smart Agriculture
- Small Scale Fisheries and Aquaculture
- Urban agriculture, including hydroponics
- Virtual platforms connecting farmers to customers
- Crop insurance – index based
- Diversifying small holder production systems – agroecology, agroforestry, silvopastoral systems
- Halt forest degradation and deforestation
- Get youth interested in agriculture

# Reducing food waste

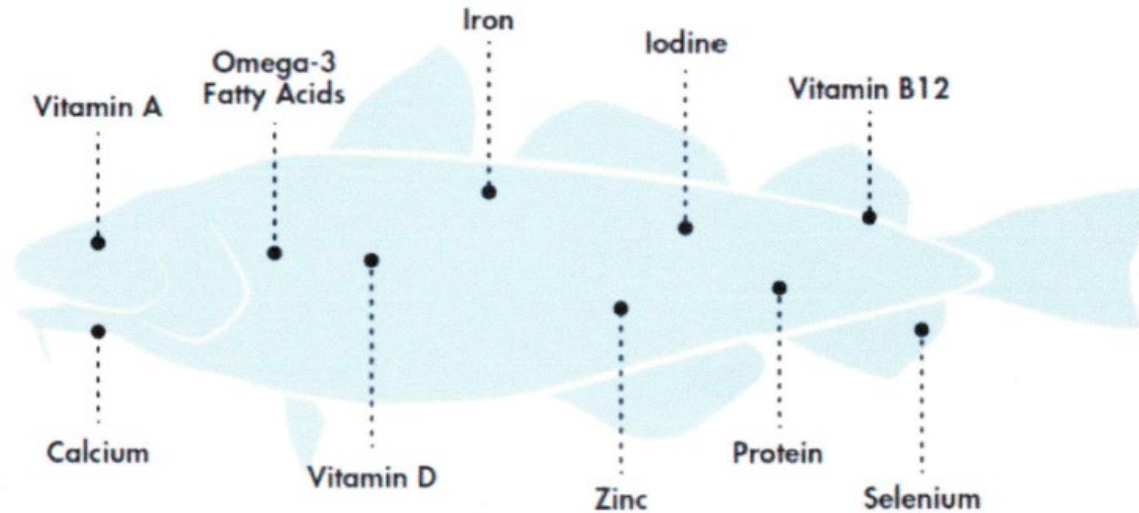
## Solutions to grain storage challenges



**PICS Technology- a solution**



# Nature's superfood



## LONG CHAIN OMEGA-3 FATS

Mainly found in fish and fishery products, these fatty acids are essential for optimal brain development.



## IODINE

Seafood is in practice the only natural source of this crucial nutrient. Iodine serves several purposes like aiding thyroid function. It is also essential for neurodevelopment.



## VITAMIN D

Another nutrient crucial for mental development, this vitamin also regulates the immune system function and is essential for healthy bones.



## IRON

During pregnancy, iron intake is crucial so that the mother can produce additional blood for herself and the baby.



## CALCIUM, ZINC, OTHER MINERALS

Diets without dairy products often lack calcium, and zinc deficiency slows a child's development.

# Hydroponics system in Urban Environments



# Virtual Platforms for Connecting Producers to Market – Twiga Example



## Revolutionizing African Retail

In sub-Saharan Africa, 90% of retail is informal, highly inefficient and characterized by layers of intermediaries.

Twiga simplifies the supply chain between fresh food producers, FMCG manufacturers and retailers through a B2B e-commerce platform. This removes the need for many intermediaries, significantly lowering the cost of food for consumers. Twiga has over 100,000 registered customers and delivering to 10,000 every day.

By creating this closed eco-system in this \$700bn industry in sub-Saharan Africa, Twiga will revolutionize retail.

[Our Story >](#)



# Kenya Livestock Insurance Program (KLIP)



ILRI NEWS

🕒 5 min.



**Building the evidence case for scaling up drought risk financing in East Africa**

- Index-based livestock insurance model
- Uses satellite data to generate an index for grazing conditions so that payments are triggered early in the drought
- Eliminates the need for insurance agents to be out in the field monitoring forage and animals
- Ensures timely payouts to pastoralists
- As of 3 years ago, 30,000 vulnerable households participated with total premiums of US\$5 million, and insurance companies have paid claims amounting to US\$7.2 million – benefiting about 100,000 people

# SILVOPASTORAL SYSTEMS





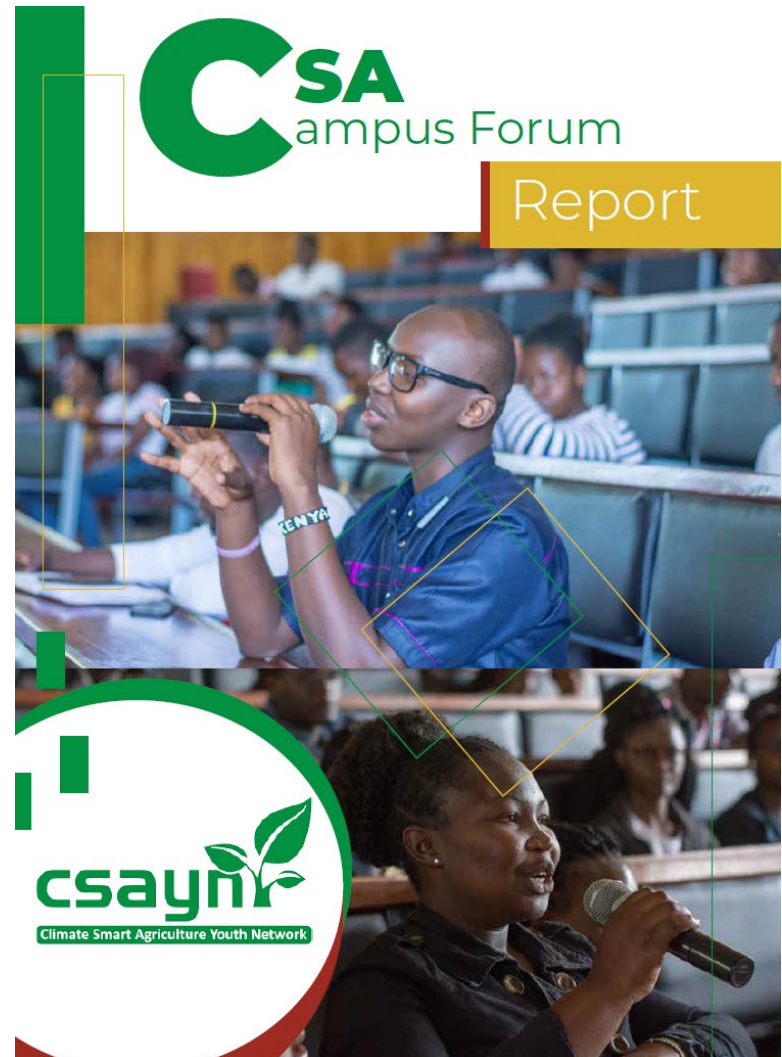
Slash and Burn

# Climate Smart Agriculture Youth Network CSAYN

Kenya National Youth in Agriculture Dialogue  
UN Food Systems Summit (UNFSS)



Proposed Date: 20/05/2021



# Conclusions

- Challenges that humankind faces is a multitude of inter-related factors:
  - Climate Change
  - COVID-19
  - Conflict
- The poor are the most vulnerable and most heavily impacted
- There are no silver bullets – a multitude of approaches are needed
  - Measures suggested to build resilience
  - Peace and stability are essential
  - With climate change – competition for resources and pandemics will intensify – humankind must pull together to help one another
- Global and national policy frameworks can provide guidance, but it is up to citizens to take action.
- We have an urgent need to get youth involved in agriculture.
  - Global Youth Institute – Borlaug Dialogue
  - Climate Smart Agriculture Youth Network - CSAYN