



Coming to grips with trade-offs in achieving human and planetary health in resource-constrained settings


Jess Fanzo PhD

Bloomberg Distinguished Professor of Global Food Policy and Ethics

The Johns Hopkins University

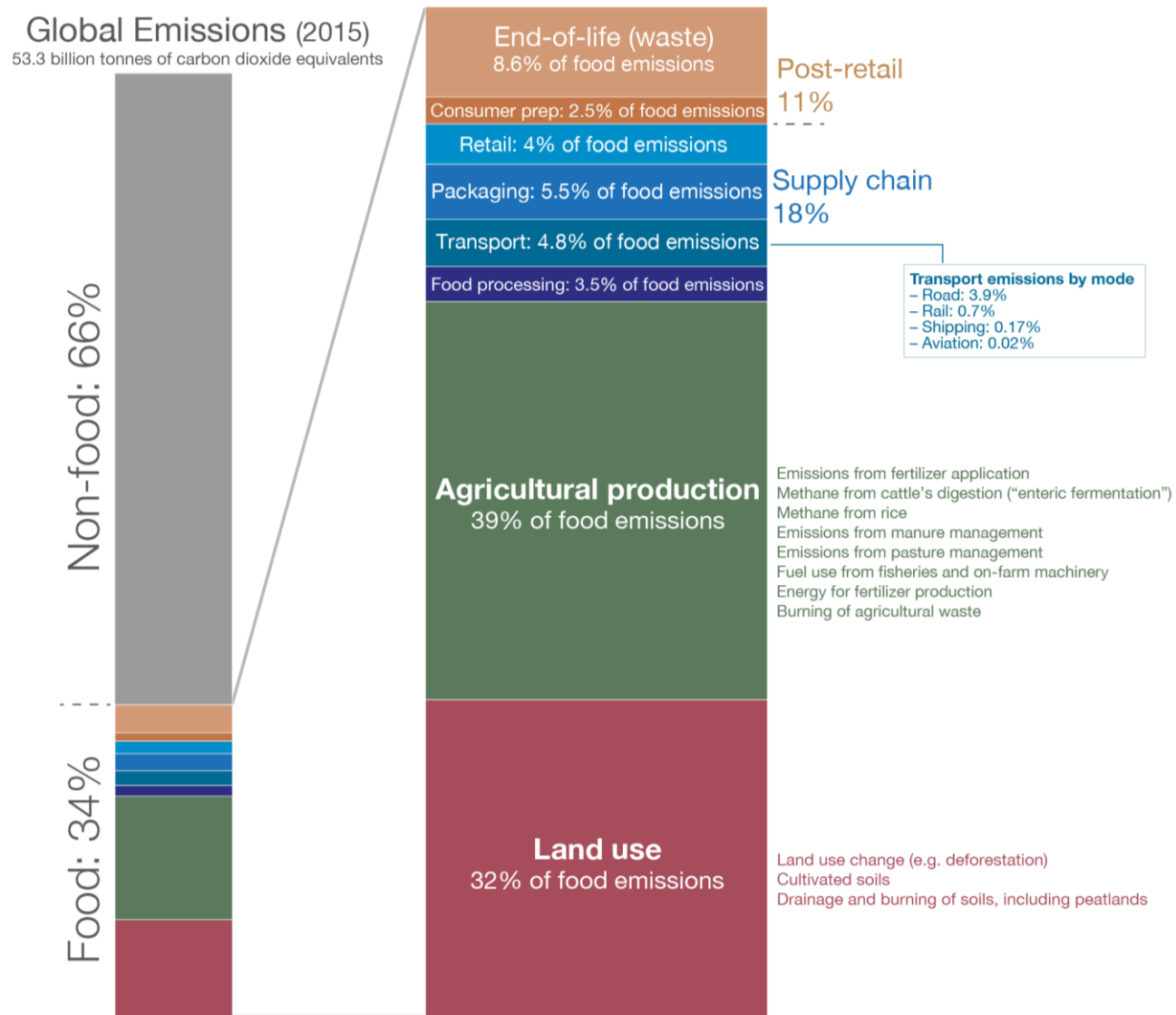


HEALTH • ENVIRONMENT • SOCIETY

An aerial photograph of a bustling outdoor market, likely in a developing country. The market is filled with numerous stalls, many of which are covered by colorful umbrellas in shades of blue, yellow, and red. Stacks of wooden crates and large sacks of goods are visible throughout the scene. People are seen moving through the market, and the background shows a dense urban area with many small buildings. The text "Why do we need a food transformation?" is overlaid on the left side of the image, underlined.

Why do we need
a food
transformation?

1. Because food systems contribute to GHG emissions



Food systems generate 21-37% of total greenhouse gas emissions

Agriculture uses 70% of all freshwater resources

1 million animal and plant species are now threatened with extinction

Of the 400,000 food species, 12 make up 75% of the food supply

60% of marine fish stocks are maximally sustainably fished

Food system has a big role to play in zoonotic spillover events

2. Because climate change will have significant impacts on human systems

Human systems	Impacts on water scarcity and food production				Impacts on health and wellbeing			
	Water scarcity	Agriculture/crop production	Animal and livestock health and productivity	Fisheries yields and aquaculture production	Infectious diseases	Heat, malnutrition and other	Mental health	Displacement
Global	+	-	○	-	-	-	-	-
Africa	-	-	-	-	-	-	-	-
Asia	+	+	-	-	-	-	-	-
Australasia	+	-	+	-	-	-	-	not assessed
Central and South America	+	-	+	-	-	-	not assessed	-
Europe	+	+	-	+	-	-	-	-
North America	+	+	-	+	-	-	-	-
Small Islands	-	-	-	-	-	-	-	-
Arctic	+	+	-	-	-	-	-	-
Cities by the sea	○	○	○	-	○	-	not assessed	-
Mediterranean region	-	-	-	-	-	-	not assessed	-
Mountain regions	+	+	-	○	-	-	-	-

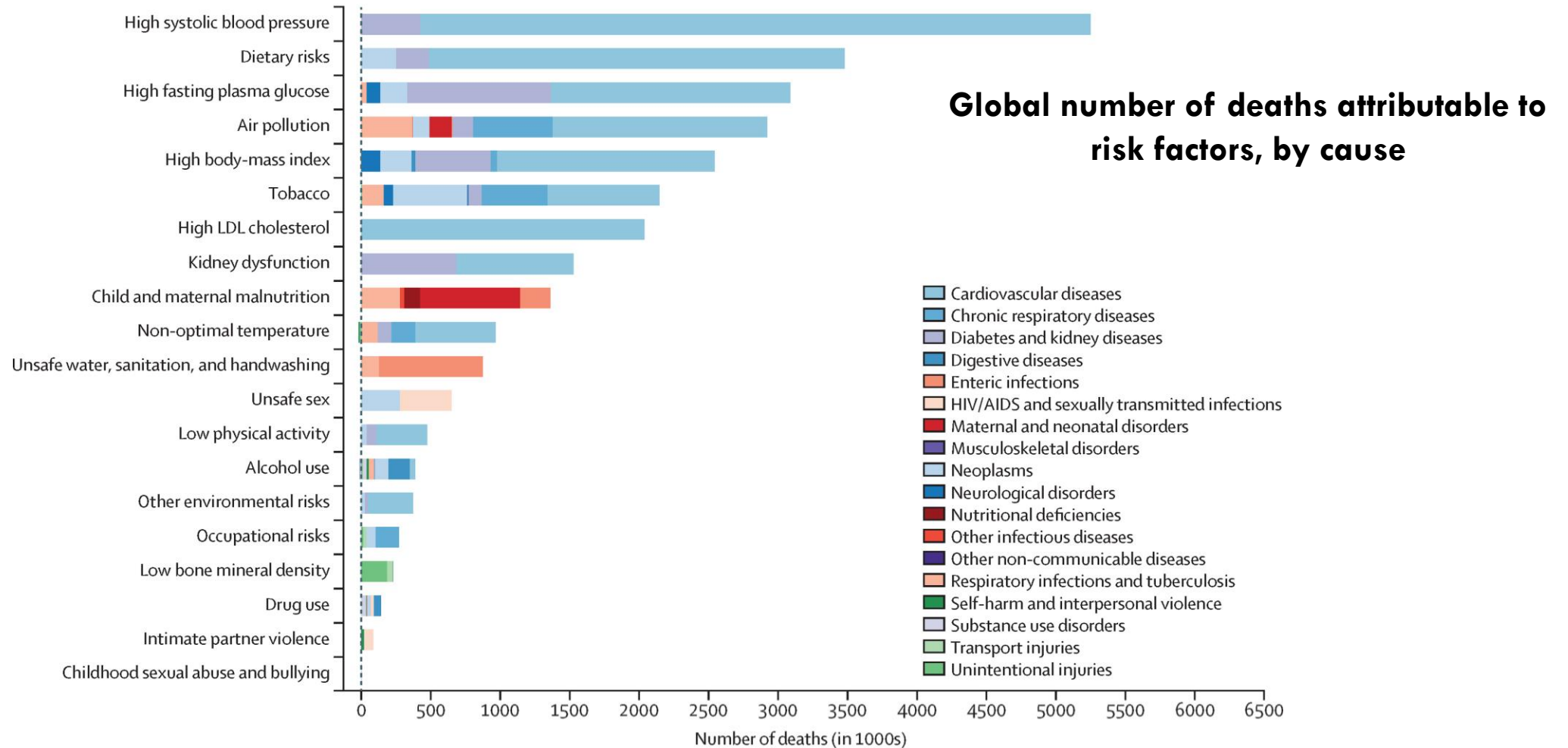
Confidence in attribution to climate change

- High or very high
- Medium
- Low
- Evidence limited, insufficient
- na Not applicable

Impacts to human systems in panel (b)

- Increasing adverse impacts
- ± Increasing adverse and positive impacts

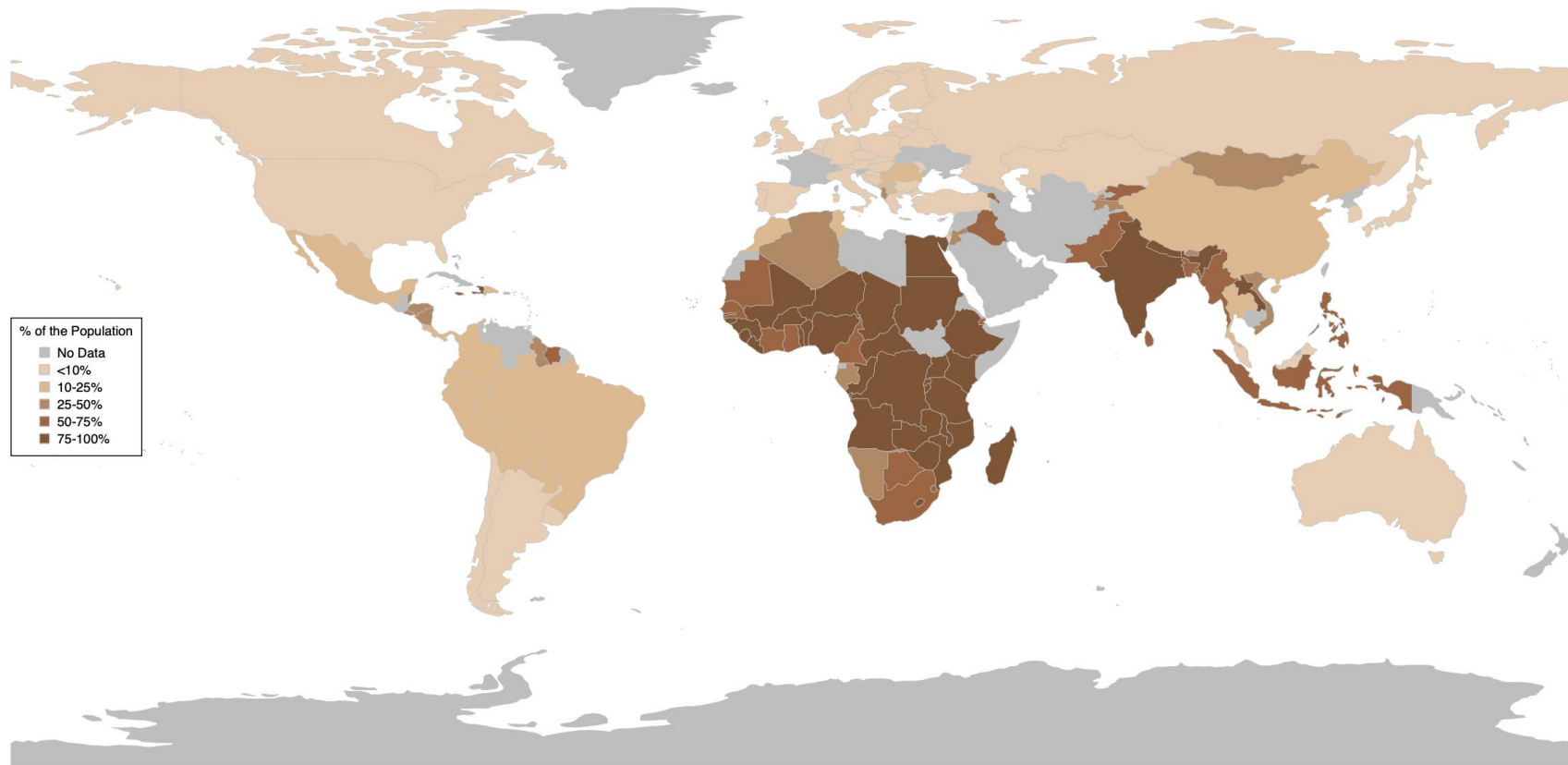
3. Because sub-optimal diets are a top risk factor of disease and death.



4. Inequities are deepening and plague progress

3 billion people cannot afford a healthy diet!

% of the population who cannot afford a healthy diet



5. Because of our diets, among other factors, malnutrition is largely getting worse

720 - 811 million (10%)

of the world's population are undernourished

149 million

children under five years of age are stunted

45 million

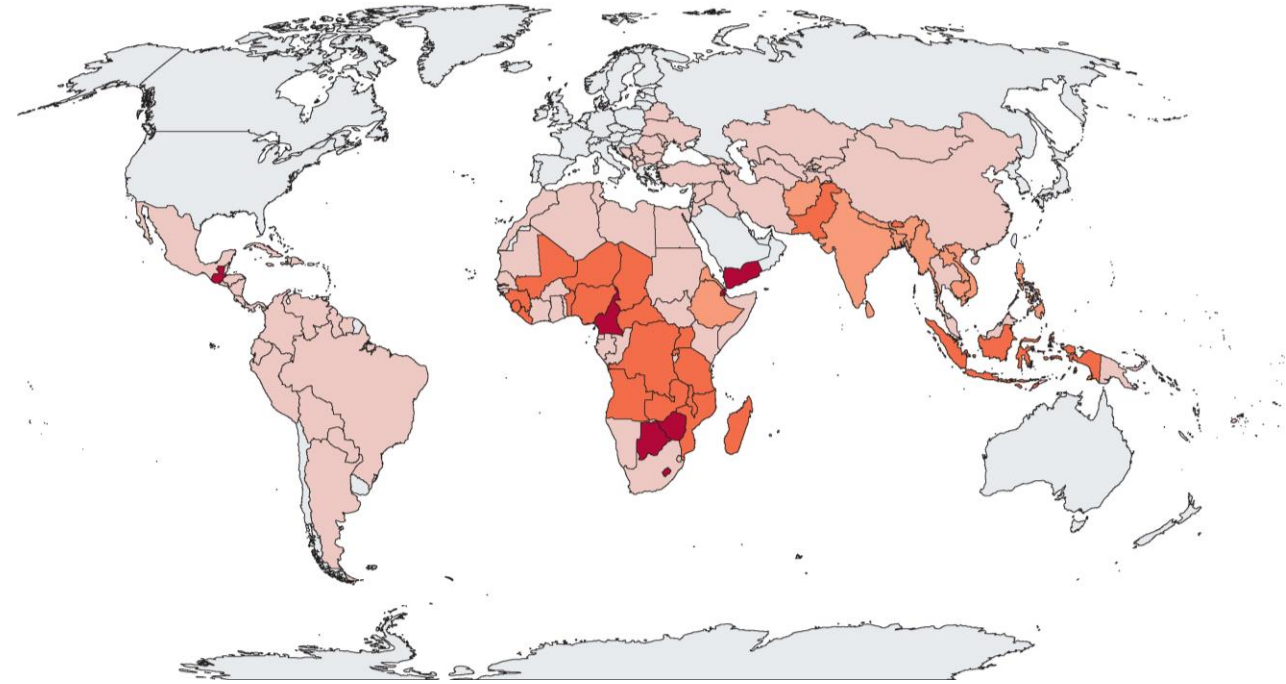
children under five years of age are wasted


39 million

children under five years of age are overweight

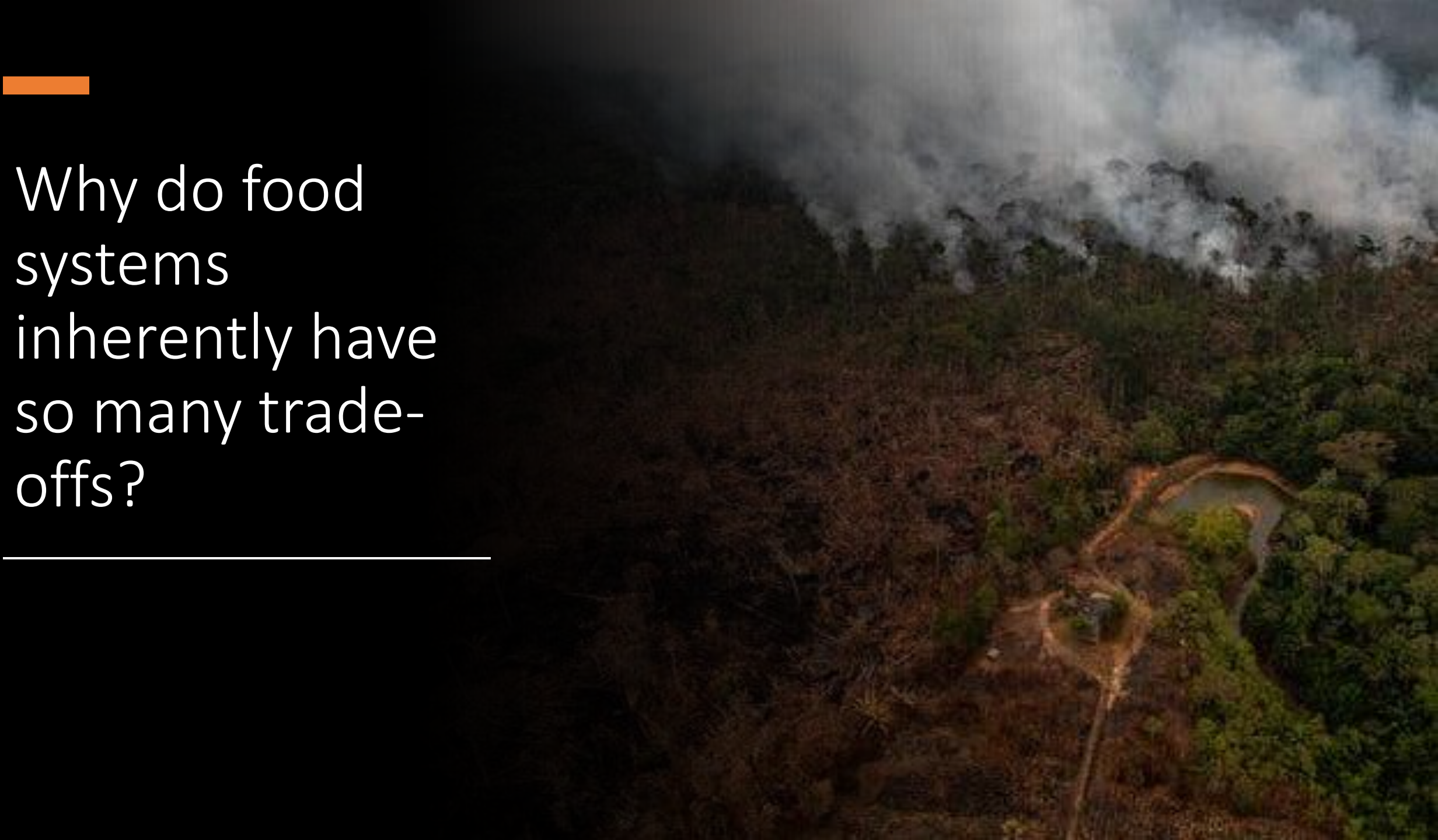
2.2 billion

adults are overweight or obese

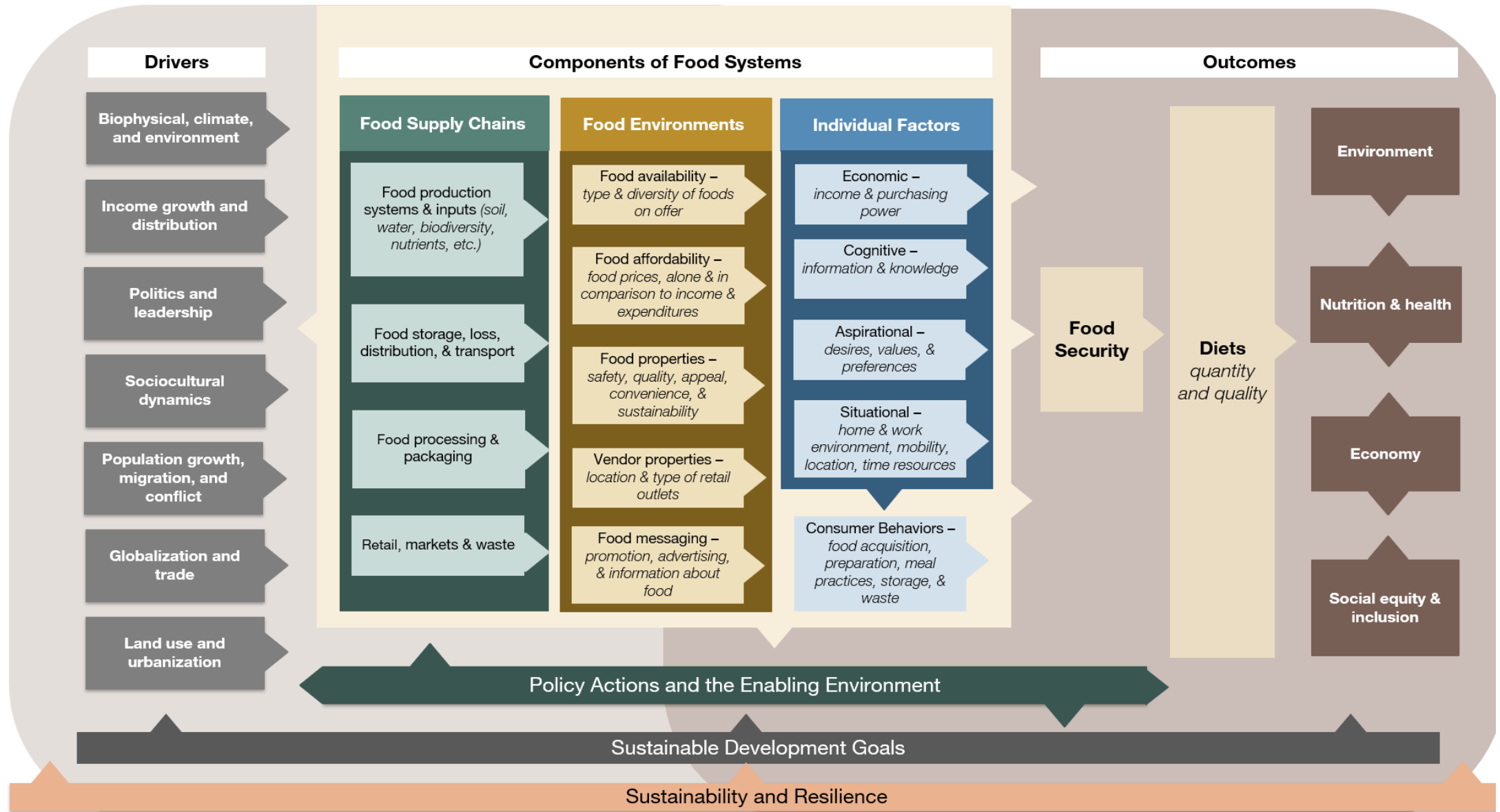




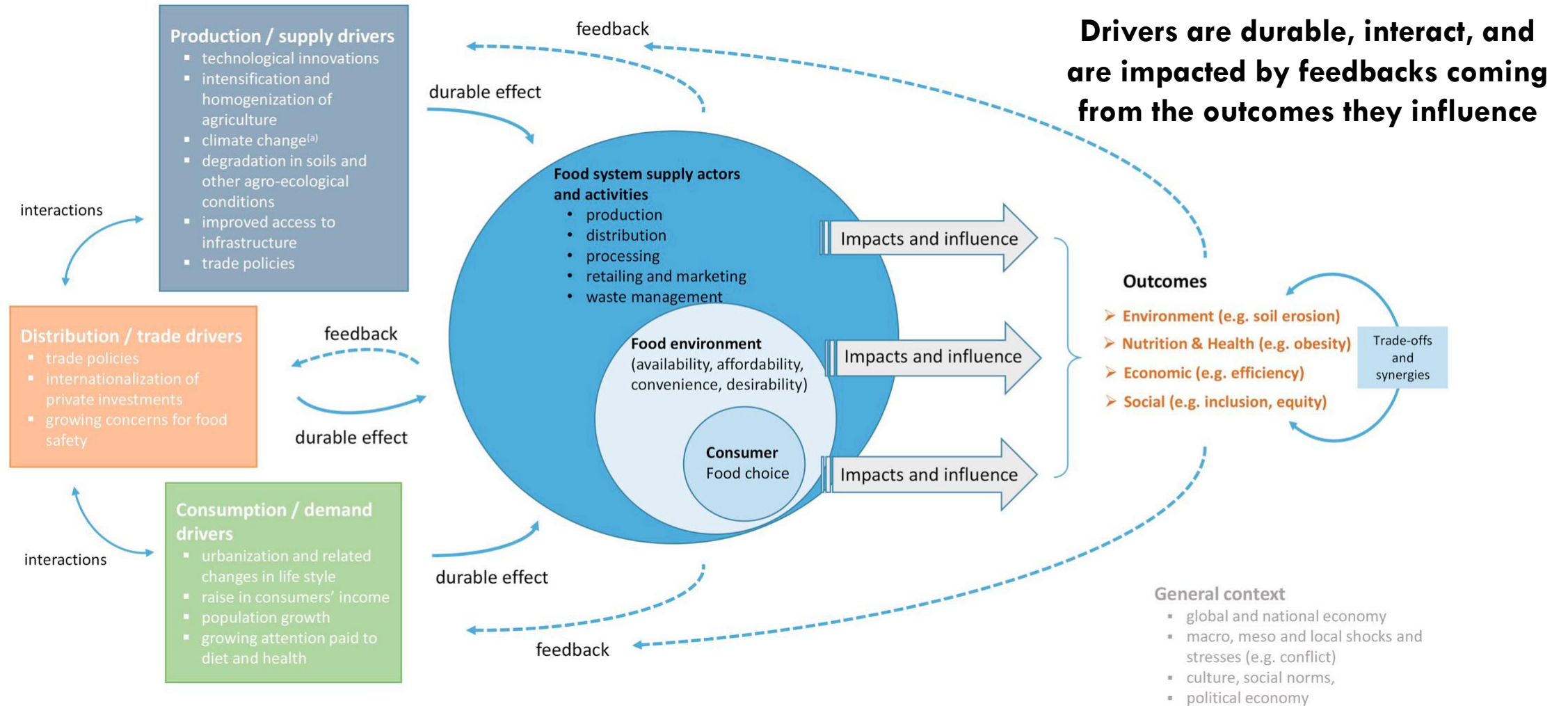
Why do food
systems
inherently have
so many trade-
offs?



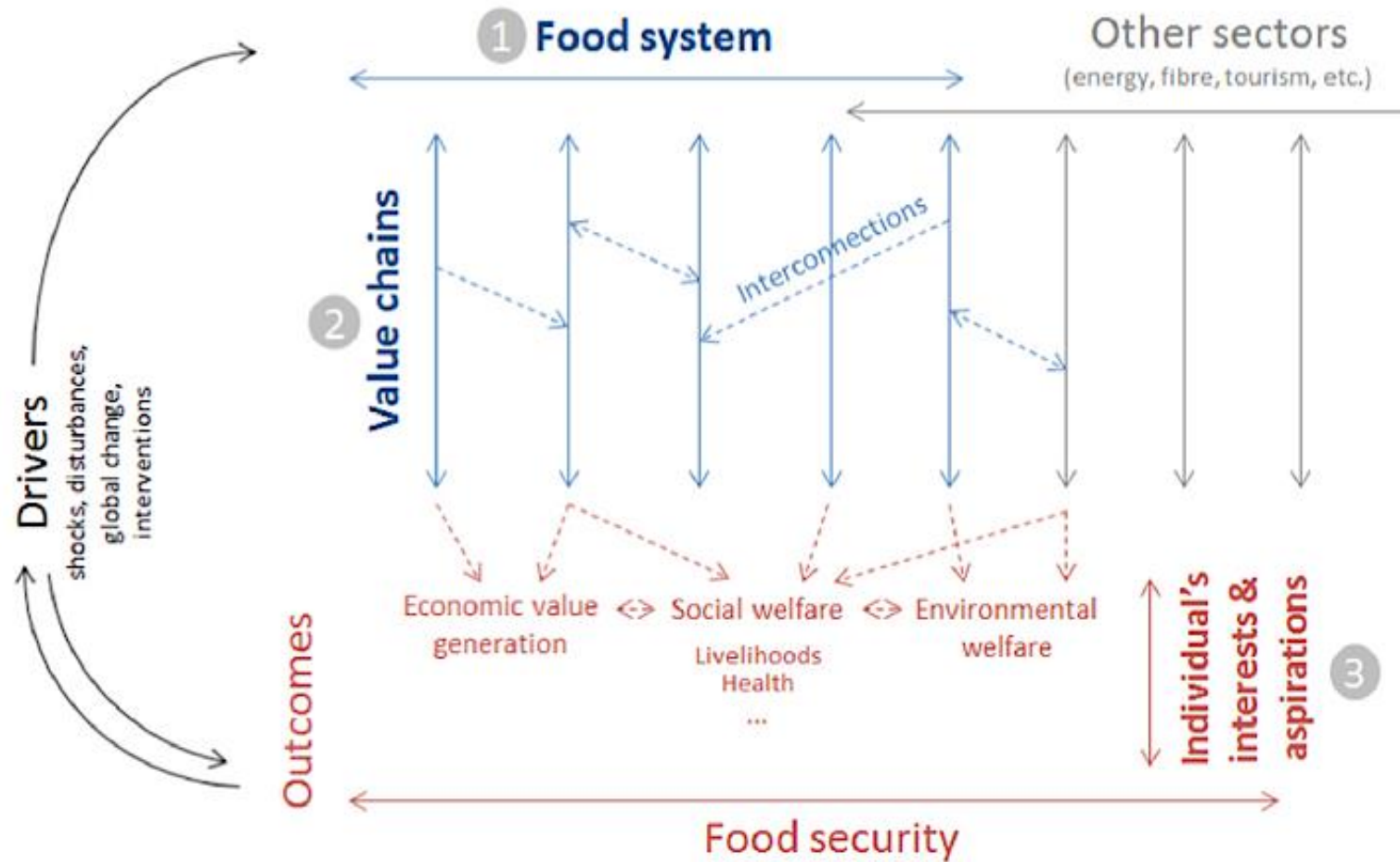
Because food systems are complex



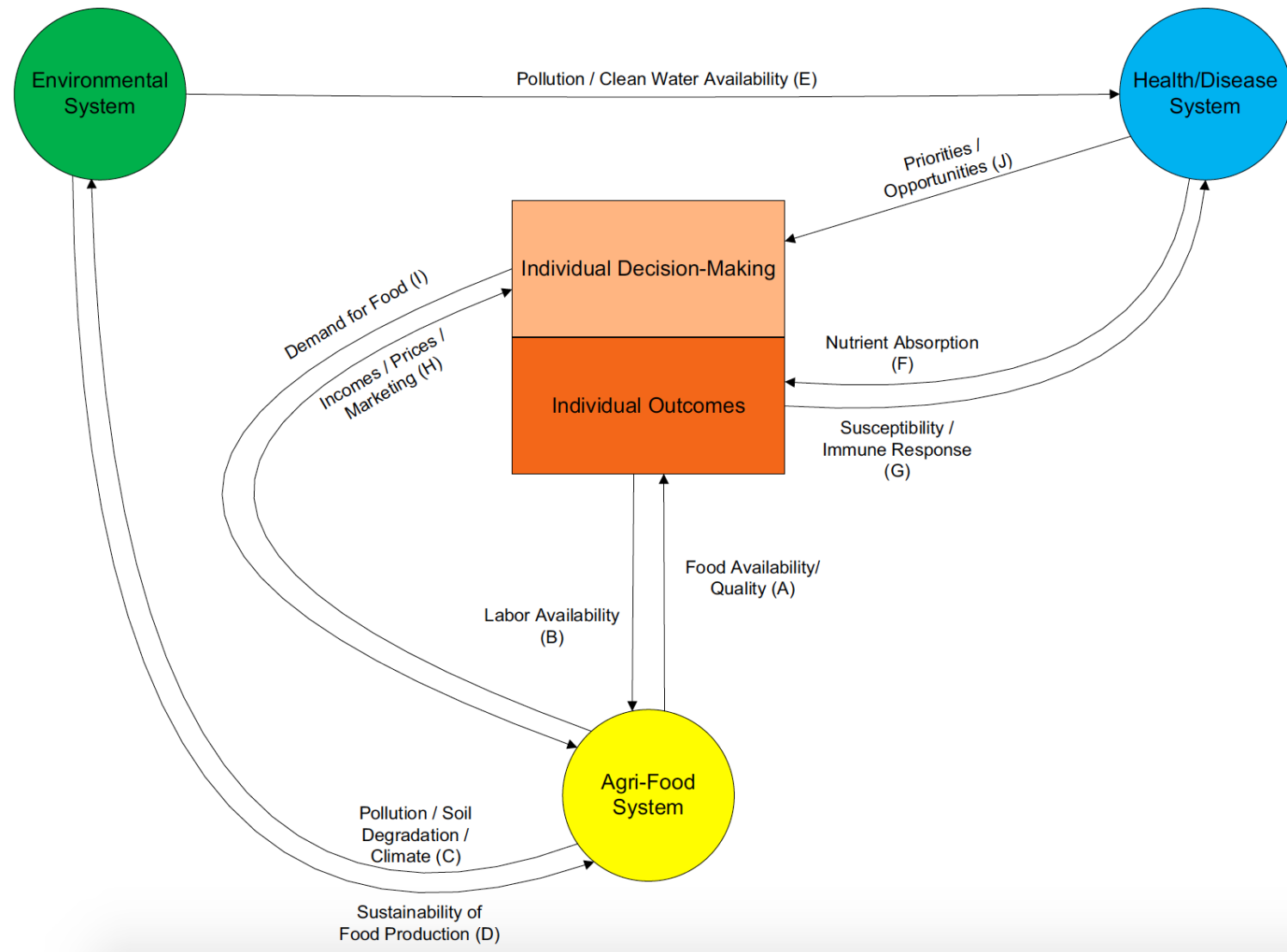
Because food systems are shaped by drivers that push and pull



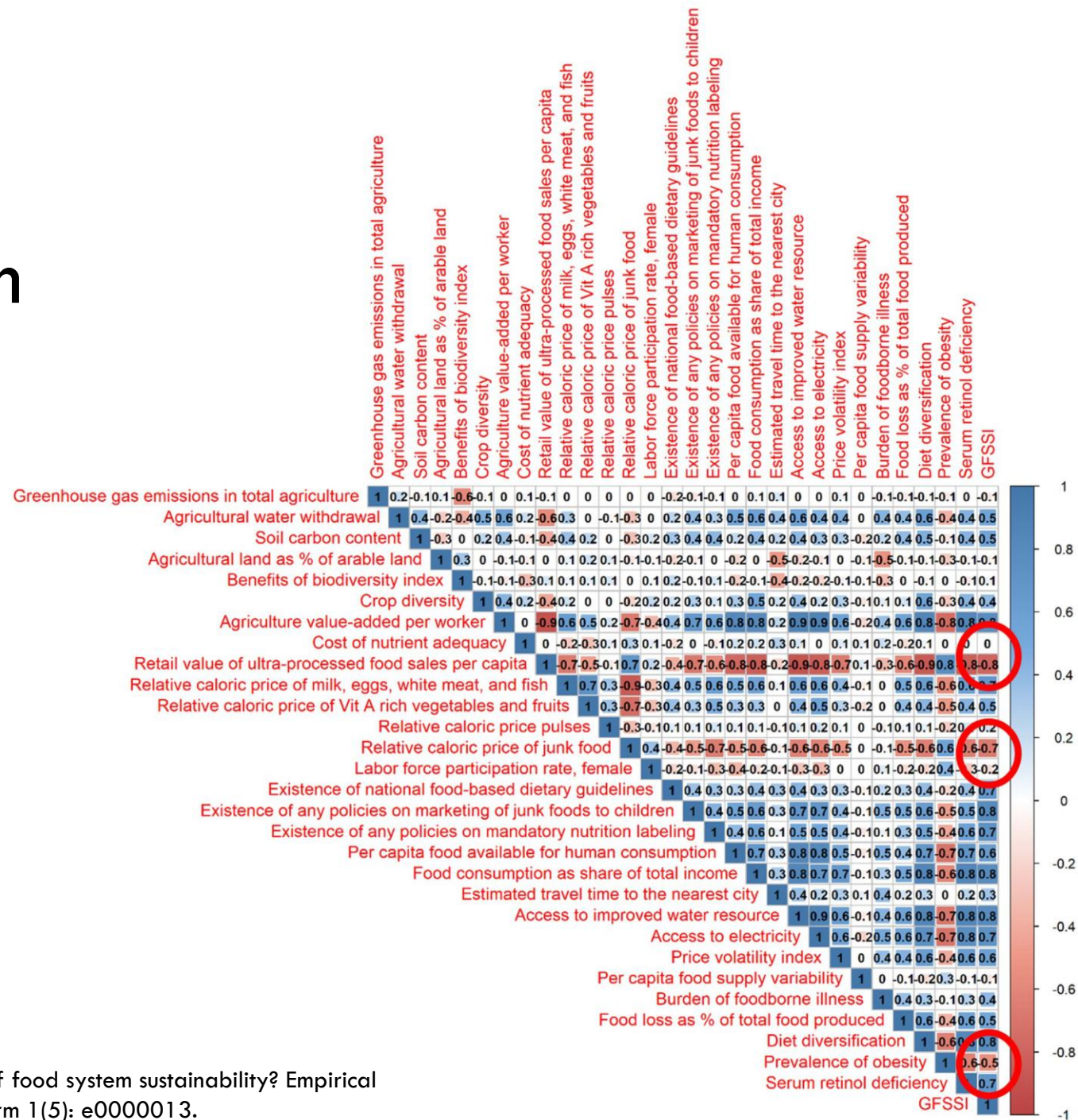
Because food systems act across multiple levels + actors




Because food systems interact with other systems



The global food system sustainability index



Bene C, Fanzo J, Achicanoy HA, Lundy M (2022) Can economic development be a driver of food system sustainability? Empirical evidence from a global sustainability index and a multicountry analysis. PLOS Sustain Transform 1(5): e0000013.



What can we do
to achieve
human and
planetary
health?



1. Who suffers the consequences of world diet choices?

The poor

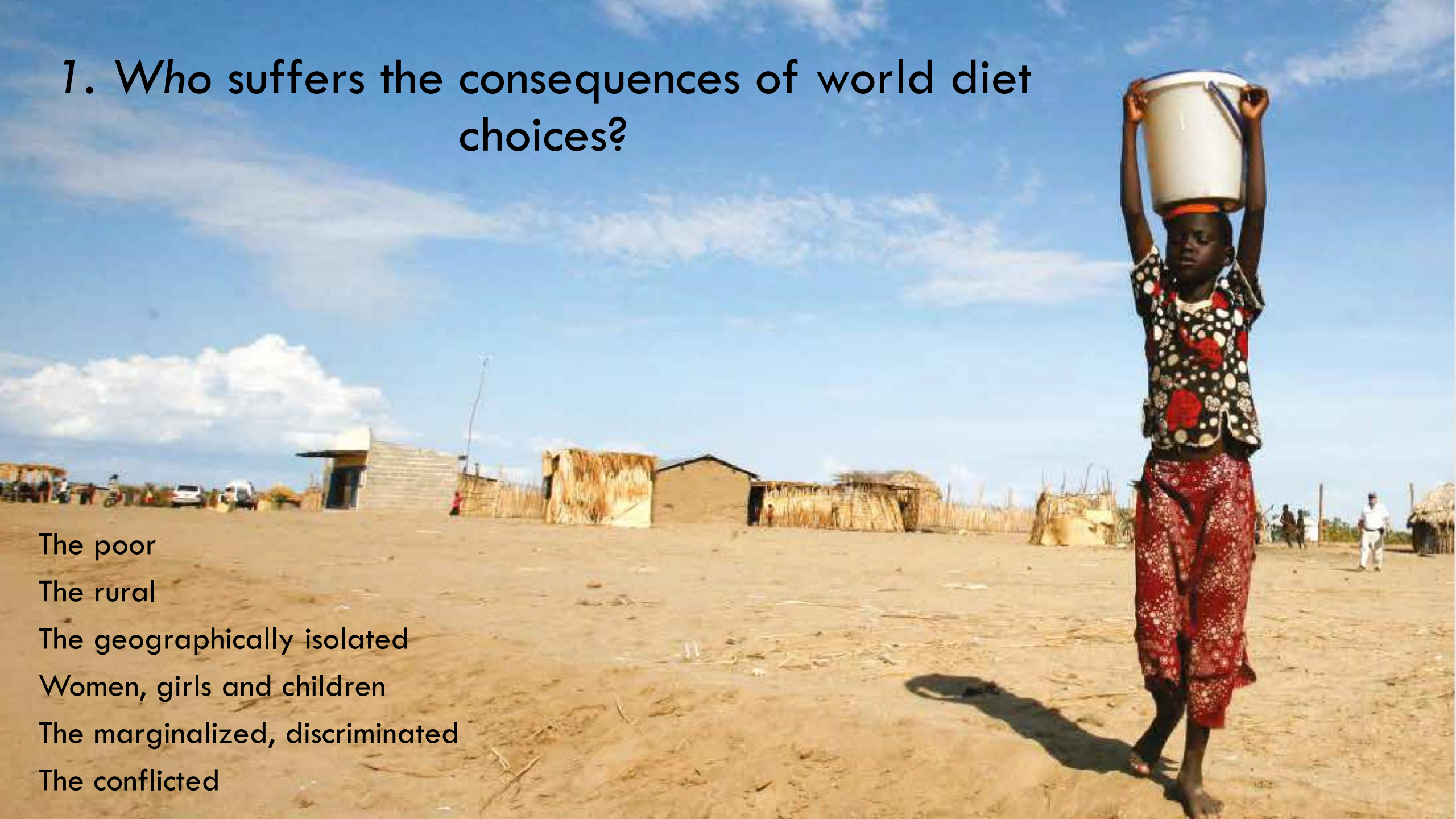
The rural

The geographically isolated

Women, girls and children

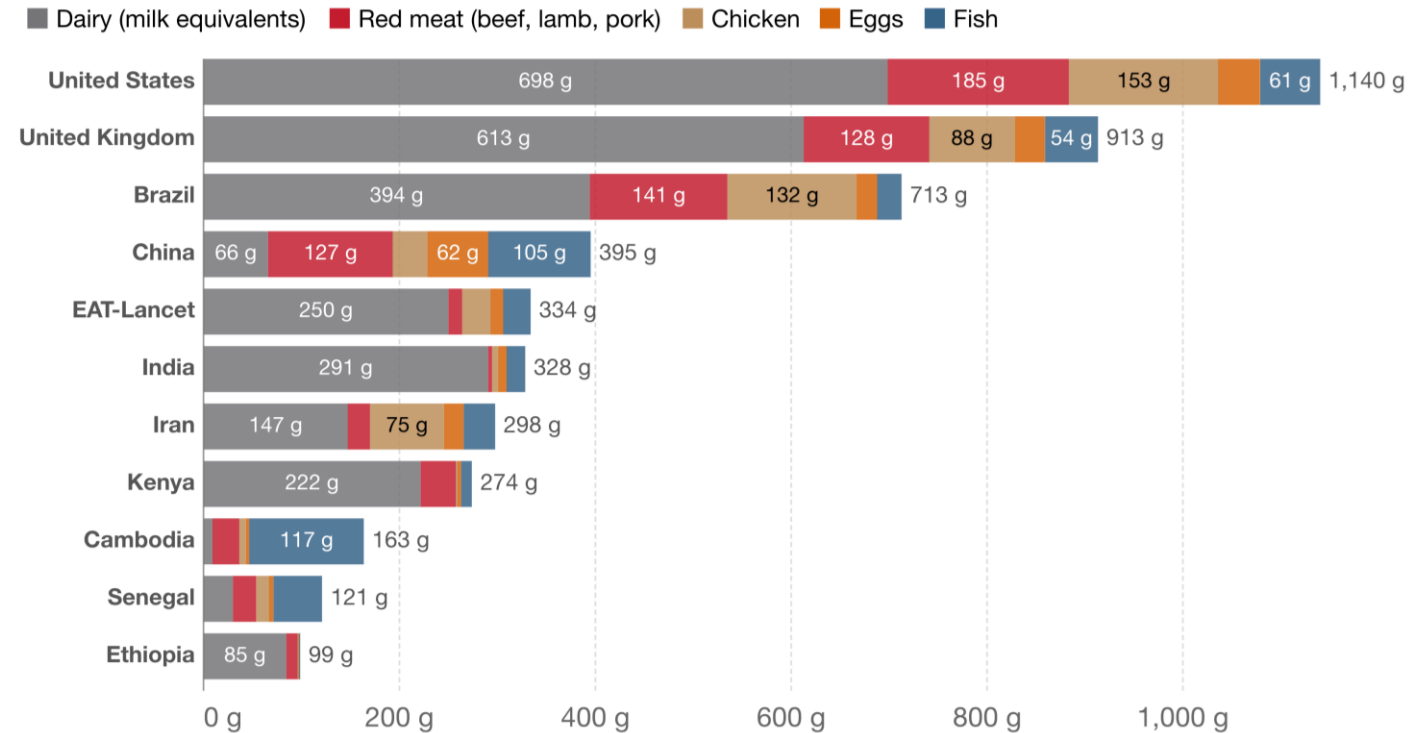
The marginalized, discriminated

The conflicted



Some countries/individuals will need to make bigger changes

Energy intensive lifestyles and dietary choices of those living in high-income countries are significant anthropogenic contributors to climate change.

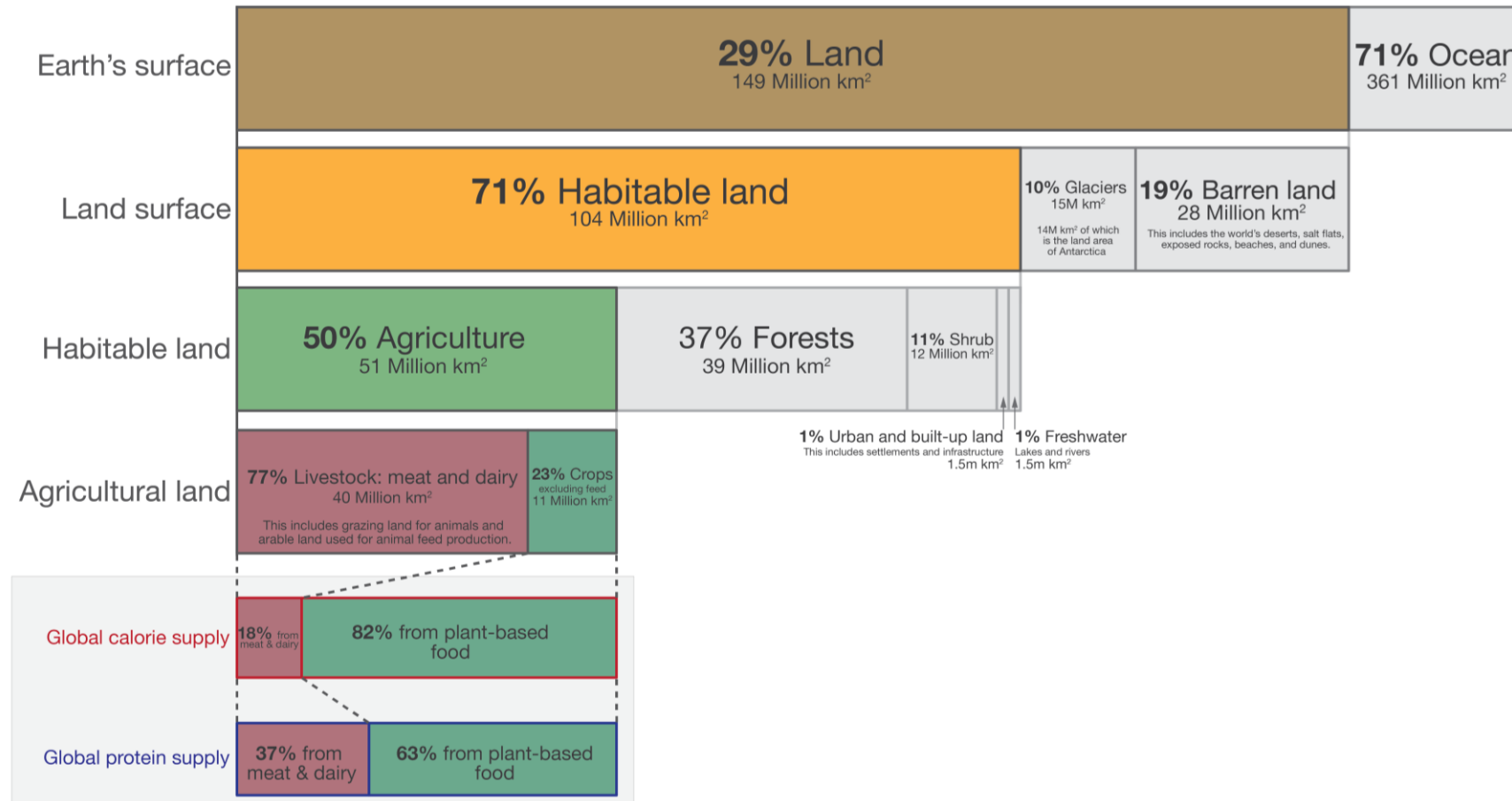


Source: Food and Agriculture Organization of the United Nations; EAT-Lancet Commission
Note: Diets by country are given as food supply – this is higher than actual intakes because it does not correct for consumer waste.



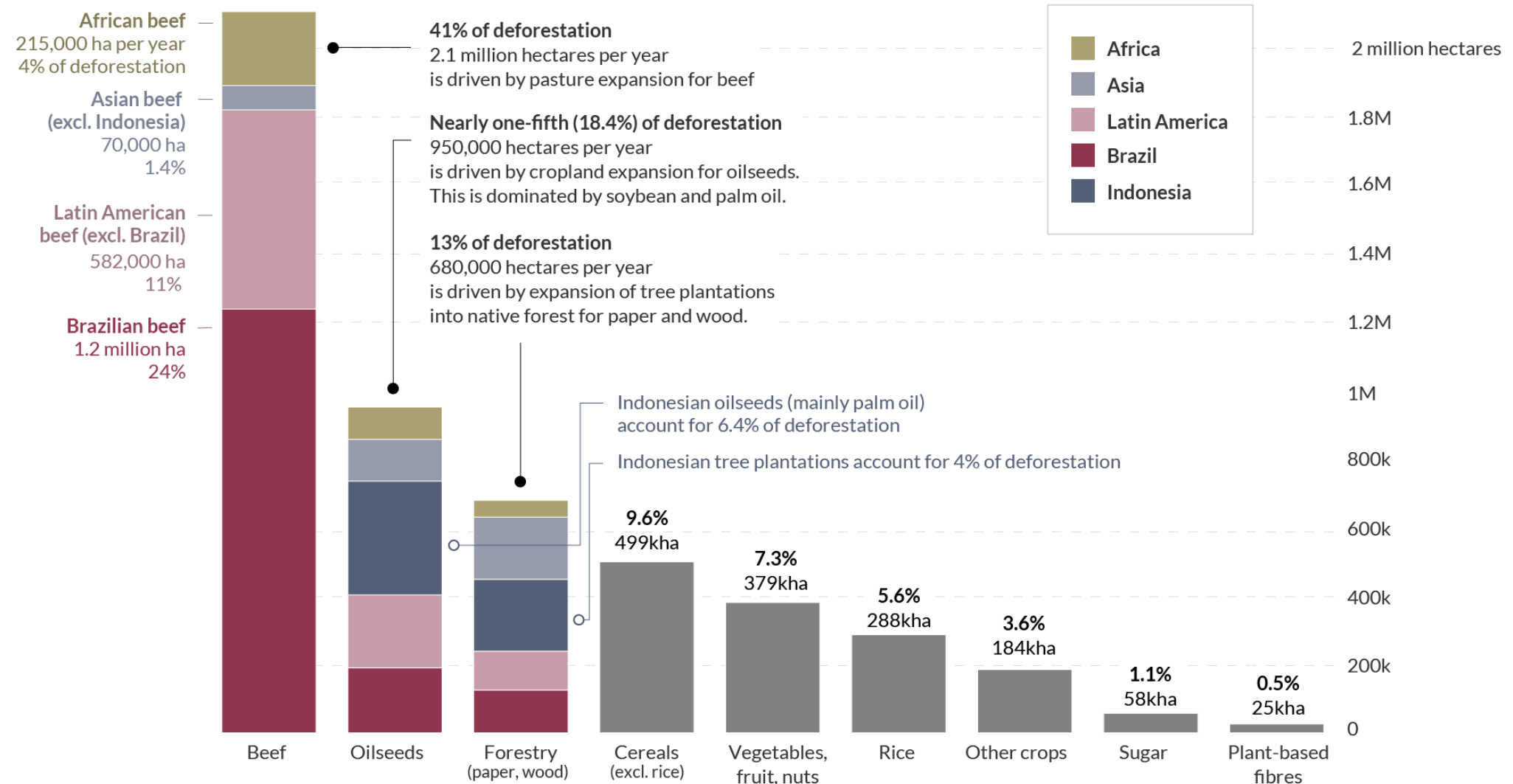
Some people will rely on food assistance and social protection
in the near and potentially long term

2. What kind of food should be grown that is ethically permissible when we have people who are going hungry?



What are the drivers of tropical deforestation?

Nearly all of global deforestation occurs in tropical and subtropical countries. 70% to 80% is driven by conversion of primary forest to agriculture or tree plantations. Shown is the breakdown of these drivers averaged over the years 2005 to 2013. Further observations since 2013 suggest that drivers have not changed substantially over this period.



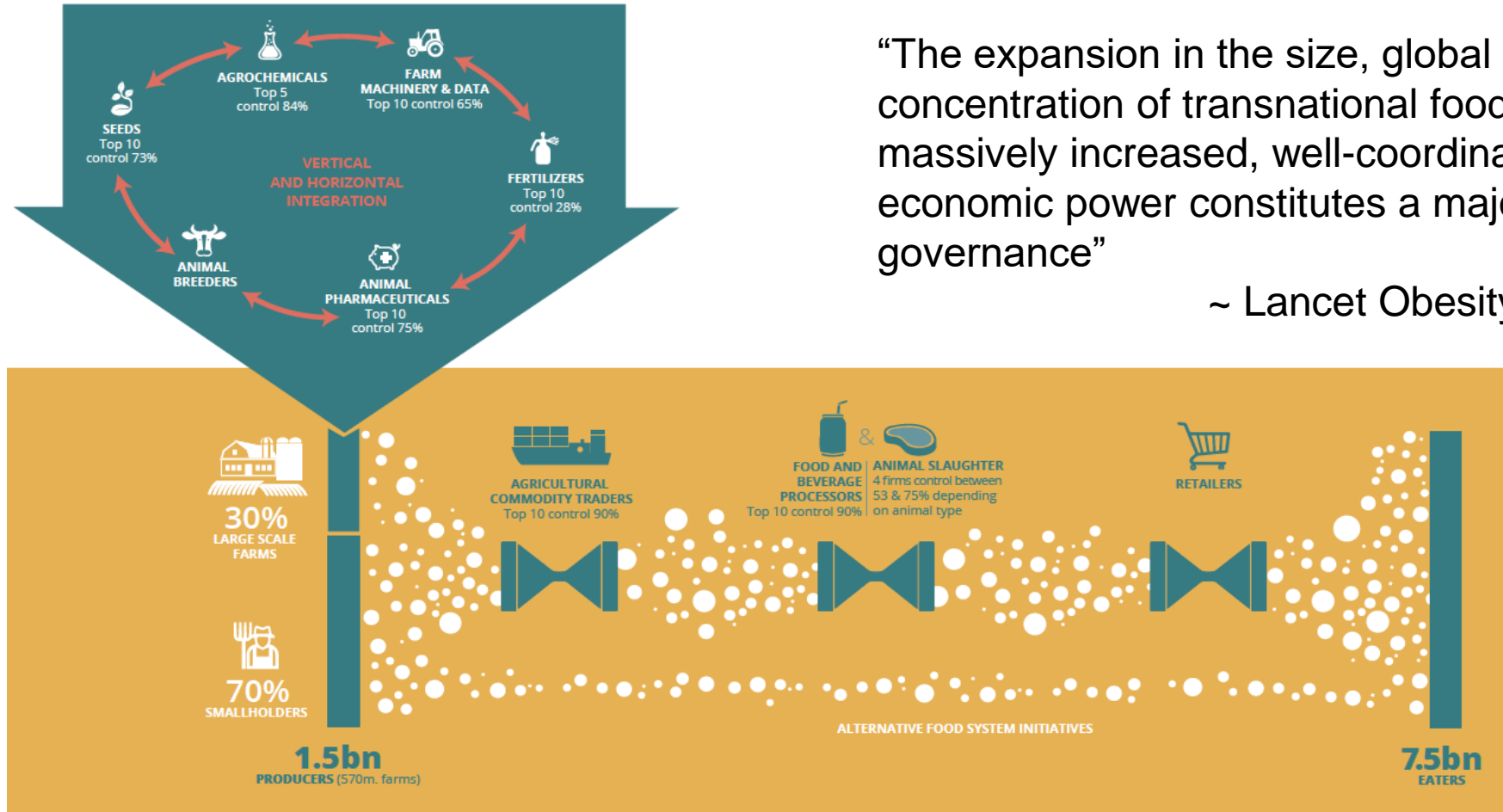
Data source: Florence Pendrill et al. (2019). Deforestation displaced: trade in forest-risk commodities and the prospects for a global forest transition.

OurWorldinData.org – Research and data to make progress against the world's largest problems.

Licensed under CC-BY by the author Hannah Ritchie.

3. Who shapes and "governs" food systems?

CONCENTRATION IN THE AGRI-FOOD SUPPLY CHAIN



“The expansion in the size, global reach, and concentration of transnational food corporations and their massively increased, well-coordinated, political and economic power constitutes a major challenge to governance”

~ Lancet Obesity Commission, p27

Advocate for stronger governance of food systems & actors

- Increase food availability, affordability and access to diverse and nutritious food at local levels and in public institutions
- Introduce regulations to incentivize sustainable food choices through lower prices and disincentivize unhealthy and unsustainable foods through taxation
- Implement policy measures and awareness programs to engage and involve consumers to encourage healthy and sustainable diets

53 countries have introduced a tax on SSBs

90 countries have a food-based dietary guideline

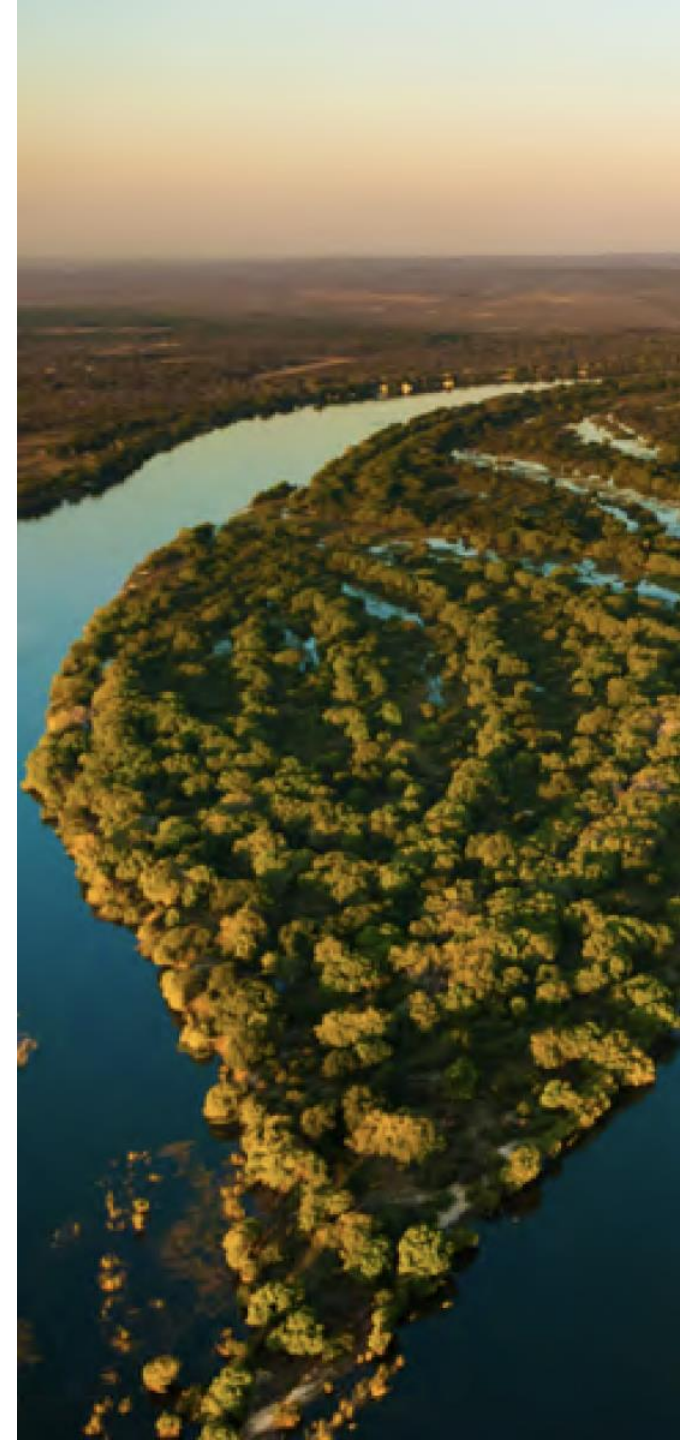
85 countries have a school meal program



4. *Who will feed the world?*

“Twelve thousand years have passed since we began to transform from forager: to settled farmer. It took several thousand years of learning and culture before the transition was nearly complete. The twists of nature that human ingenuity devised have ratcheted up, step by step, our dominance as farmers on the planet. **Now we are transforming from farmers to urbanites. Our newest experiment-to feed massive numbers of people from the work of a few-is just beginning. The outcome is yet to be seen.**”

— *Ruth DeFries, The Big Ratchet*



Support of & innovate for food system actors

- For small-scale farmers and other food actors, support and provide innovation to produce nutritious foods and get them to markets
- For large-scale actors, incentivize them to produce nutritious, sustainable, cheap and convenient foods
- Invigorate youth to work and invest in food systems



Average age of the world's farmer = 62

Number of people who work in food = 4 billion

Thank you!

@foodpolicy_JHU

jfanzo1@jhu.edu

JESSICA FANZO

Can Fixing Dinner Fix the Planet?



JOHNS HOPKINS
WAVELENGTHS

GLOBAL FOOD SYSTEMS, DIETS, AND NUTRITION

Linking Science, Economics, and Policy



Jessica Fanzo
Claire Davis

