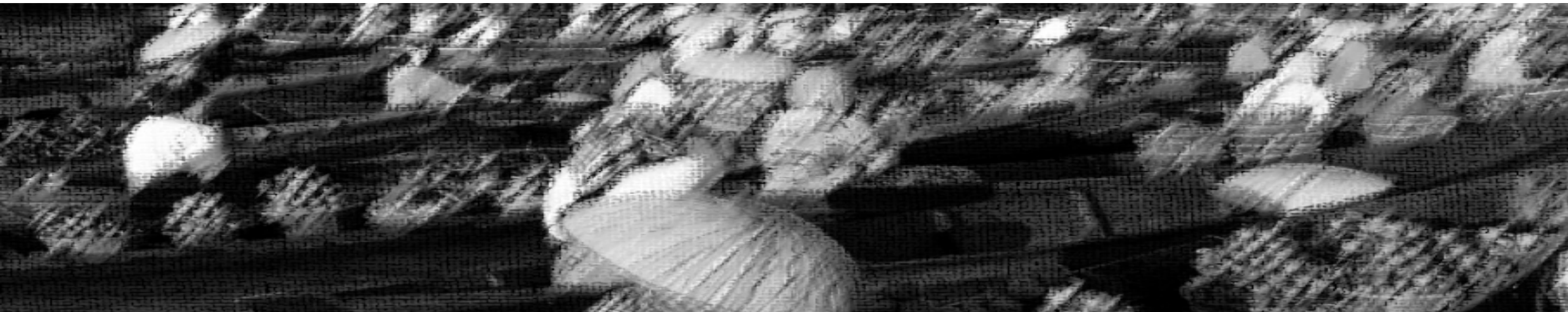


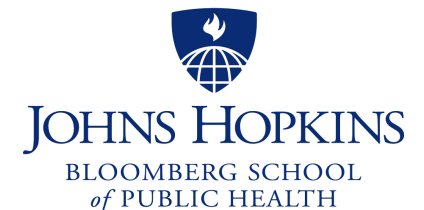
The EAT Lancet Commission: Achieving Planetary Health Diets for 10 Billion People By 2050



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Director of the Global Food Policy & Ethics Program



EAT-*Lancet* Commission approach

Define a healthy reference diet using the best available evidence (controlled feeding studies, long-term cohort studies, randomized trials).

Define planetary boundaries for 6 key environmental systems and processes (GHG, cropland use, water use, nitrogen and phosphorus application, extinction rate).

Apply a global food systems modeling framework to analyze what combinations of readily implementable measures are needed to stay within food production boundaries while still delivering healthy diets by 2050.

Outline Strategies to achieve the changes needed to meet the goal of healthy diets from sustainable food systems for all by 2050.

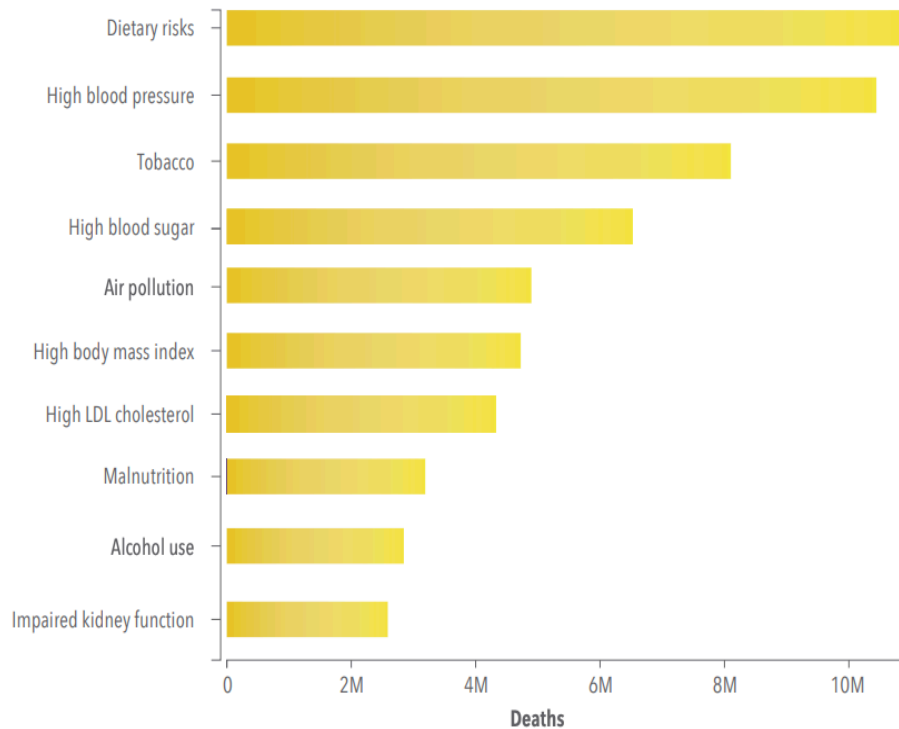
Target 1: Developing the Healthy Reference Diet Target









Based on this assumption



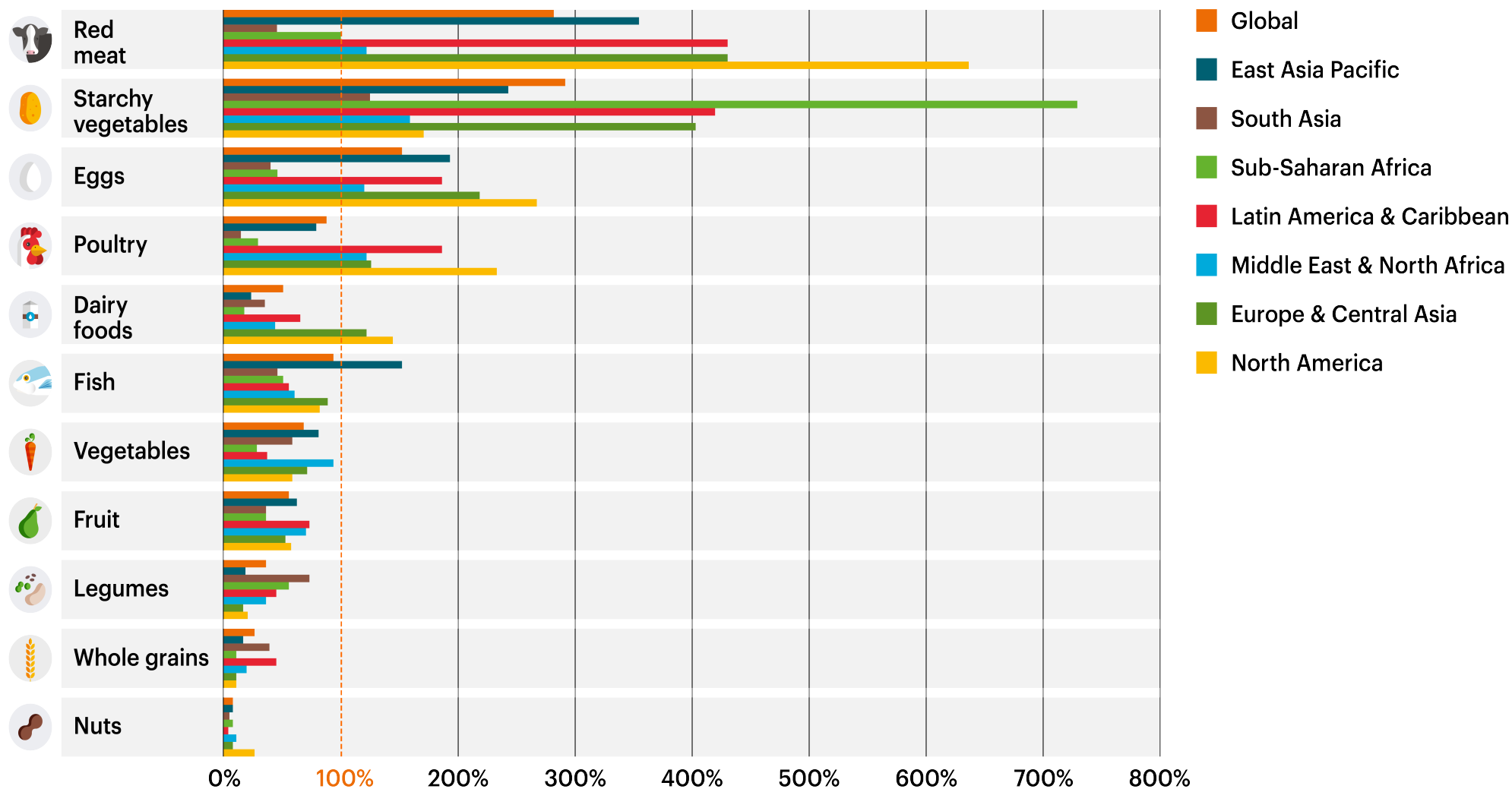
Made these recommendations

TOP 10 RISK FACTORS FOR DEATH, GLOBALLY, IN 2017

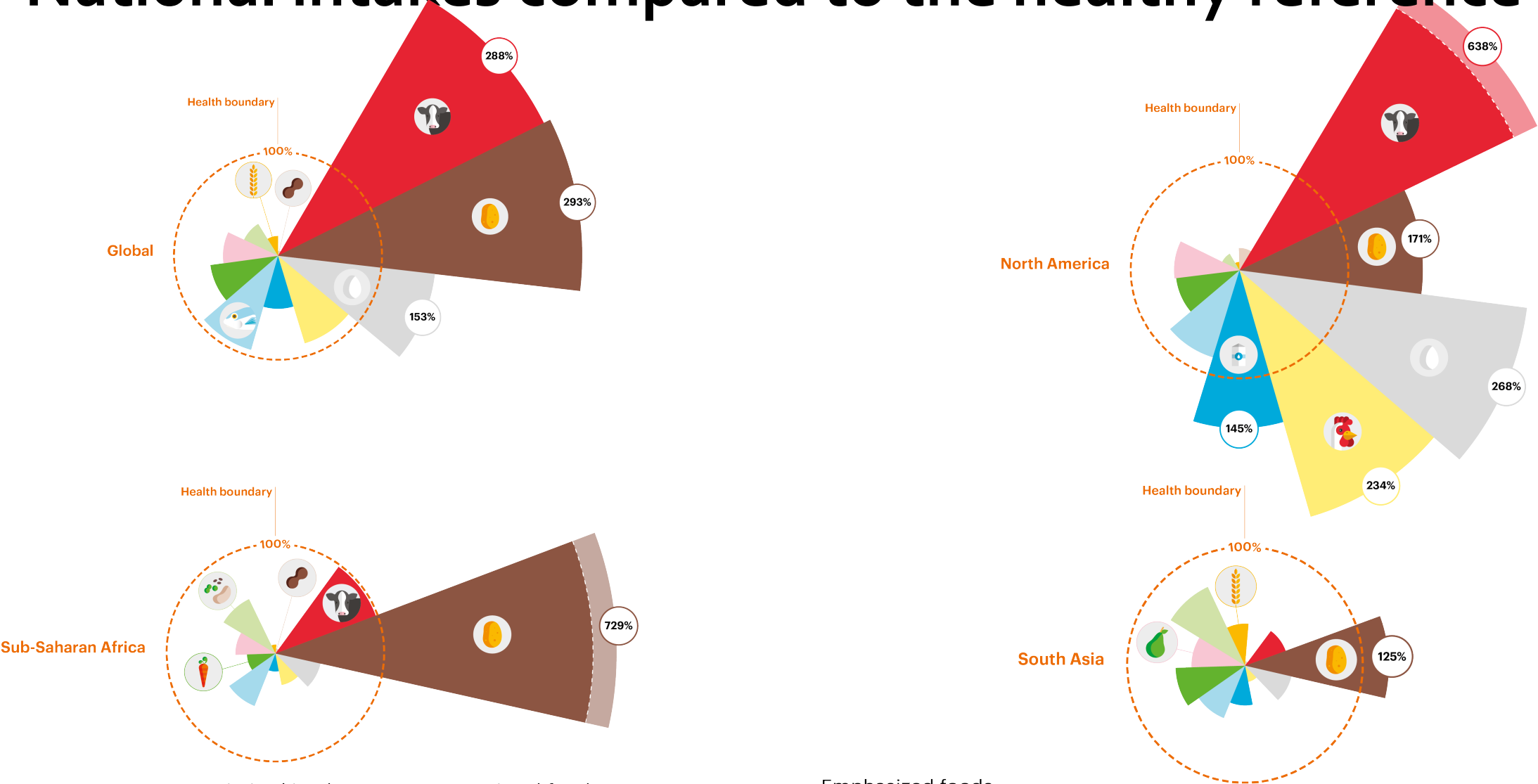


	Macronutrient intake grams per day (possible range)	Caloric intake kcal per day
 Whole grains Rice, wheat, corn and other	232	811
 Tubers or starchy vegetables Potatoes and cassava	50 (0–100)	39
 Vegetables All vegetables	300 (200–600)	78
 Fruits All fruits	200 (100–300)	126
 Dairy foods Whole milk or equivalents	250 (0–500)	153
 Protein sources Beef, lamb and pork Chicken and other poultry Eggs Fish Legumes Nuts	14 (0–28) 29 (0–58) 13 (0–25) 28 (0–100) 75 (0–100) 50 (0–75)	30 62 19 40 284 291
 Added fats Unsaturated oils Saturated oils	40 (20–80) 11.8 (0–11.8)	354 96
 Added sugars All sugars	31 (0–31)	120

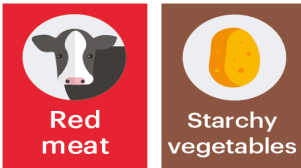
Regional consumption patterns vs Healthy Reference Diet



National intakes compared to the healthy reference diet



Limited intake



Optional foods



Emphasized foods



Substantial health benefits

Approach 1
Comparative Risk

19%

or

11.1 million
adult deaths per year

Approach 2
Global Burden of Disease

22.4%

or

10.8 million
adult deaths per year

Approach 3
Empirical Disease Risk

23.6%

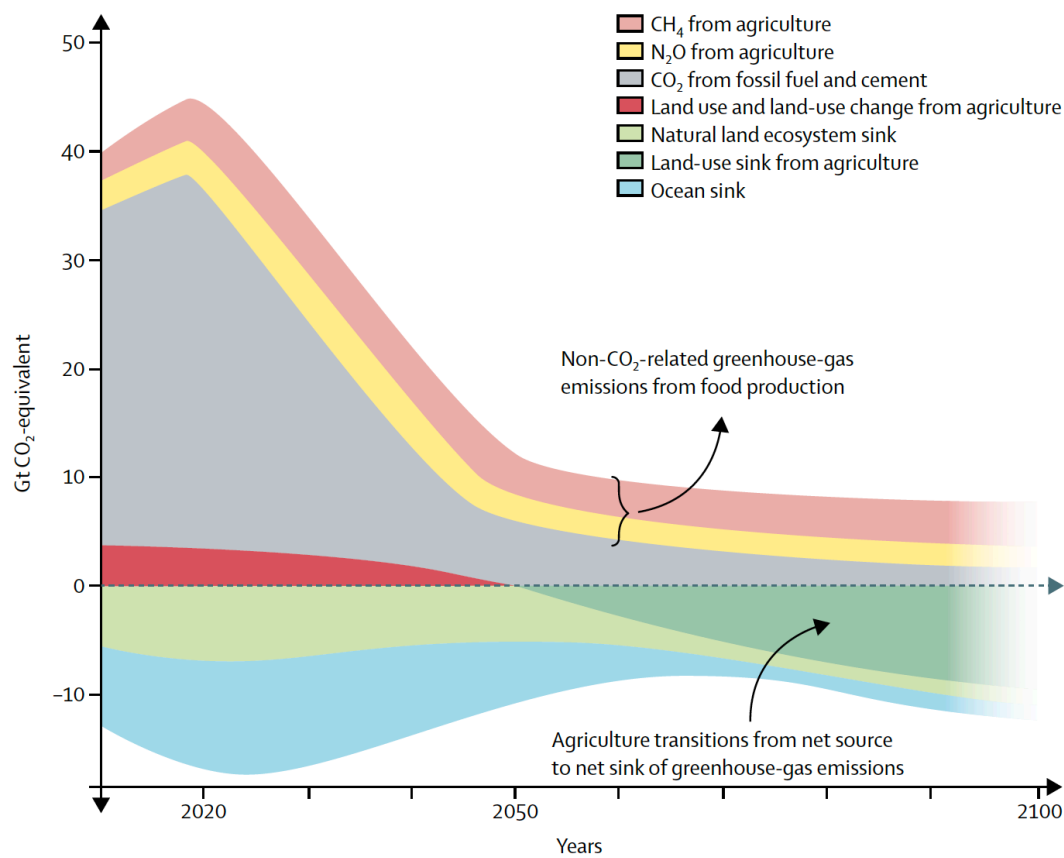
or

11.6 million
adult deaths per year

Target 2: Developing Sustainable Food Production Targets

Based on this assumption

Made these recommendations



Earth system process	Control variable	Boundary (Uncertainty range)	Global Implication
Climate change	GHG emissions	5 Gt CO ₂ -eq yr ⁻¹ (4.7 – 5.4 Gt CO ₂ -eq yr ⁻¹)	No new emissions from Agriculture
Land-system change	Cropland use	13 M km ² (11–15 M km ²)	0 land expansion
Freshwater use	Water use	2,500 km ³ yr ⁻¹ (1000–4000 km ³ yr ⁻¹)	>30% flows in basins
Nitrogen cycling	N application	90 Tg N yr ⁻¹ (65–90 Tg N yr ⁻¹) * (90–130 Tg N yr ⁻¹)**	Pollution <1 – 2.5 mg N L ⁻¹
Phosphorus cycling	P application	8 Tg P yr ⁻¹ (6–12 Tg P yr ⁻¹) * (8–16 Tg P yr ⁻¹)**	Pollution <50- 100 mg P m ⁻³
Biodiversity loss	Extinction rate	10 E/MSY (1–80 E/MSY)	50% land intact by ecoregion

Achieving planetary health diets

Actions	Description
Dietary shift Planetary health diet	Planetary health diet – as outlined in Table 1.
Halve waste Reduced food loss and waste	Food losses and waste reduced by half, in line with SDG target 12.3.
PROD Improved production practices Standard level of ambition	Closing yield gaps to about 75%; rebalancing N and P application; improving water management; implementation of agricultural mitigation options; and land is expanded first into secondary habitat and then to intact forests to minimize impacts on biodiversity.
PROD+ Improved production practices High level of ambition	Closing yield gaps to 90%; a 30% increase in N use efficiency and 50% recycling rates of P; phase-out of first-generation biofuels; implementation of available bottom-up options for mitigating GHG emissions; and optimizing land-use across regions to minimize impacts on biodiversity.

Environmental effects of food

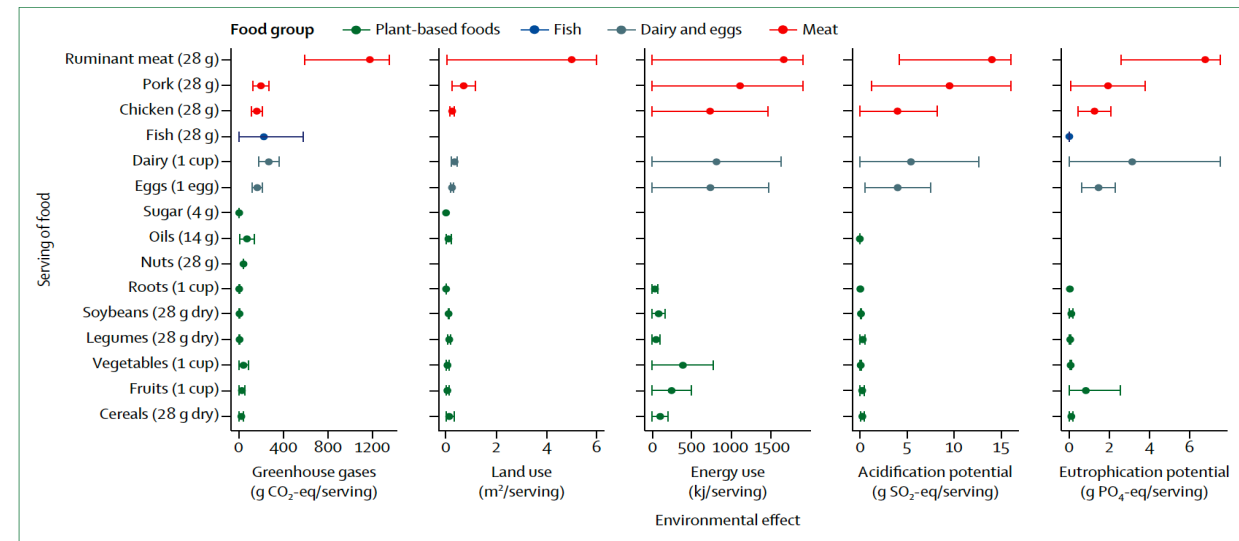
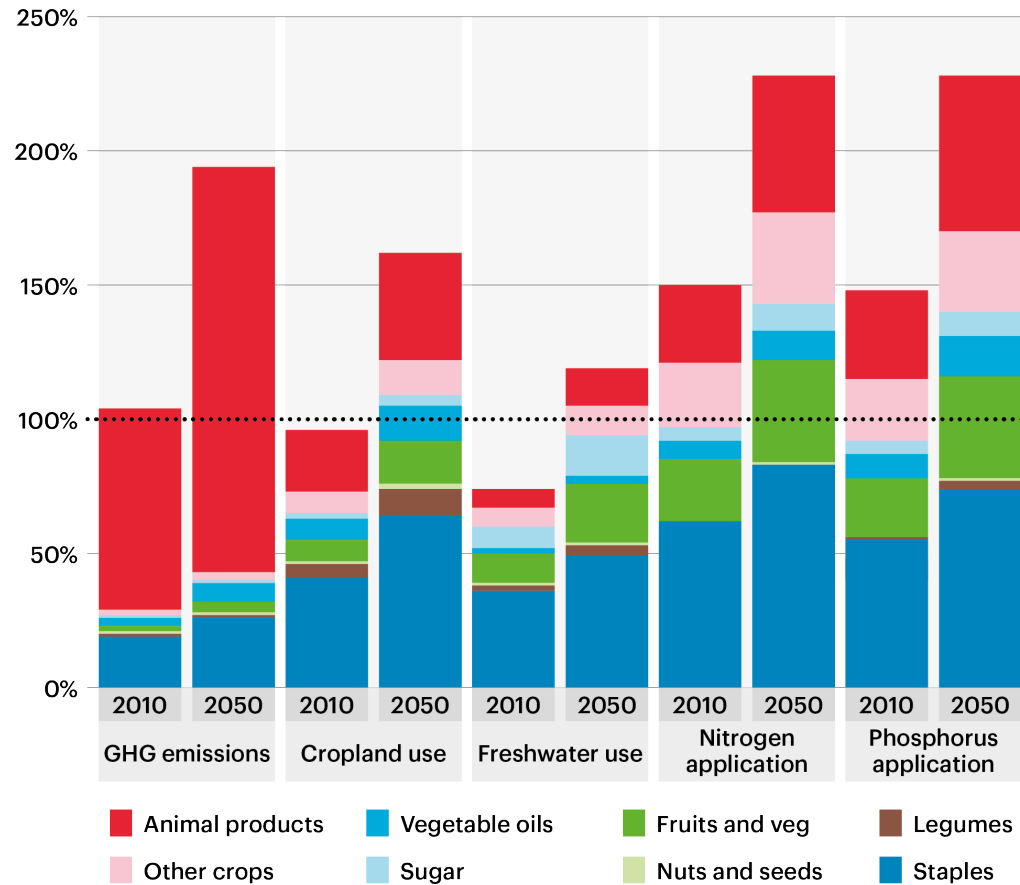
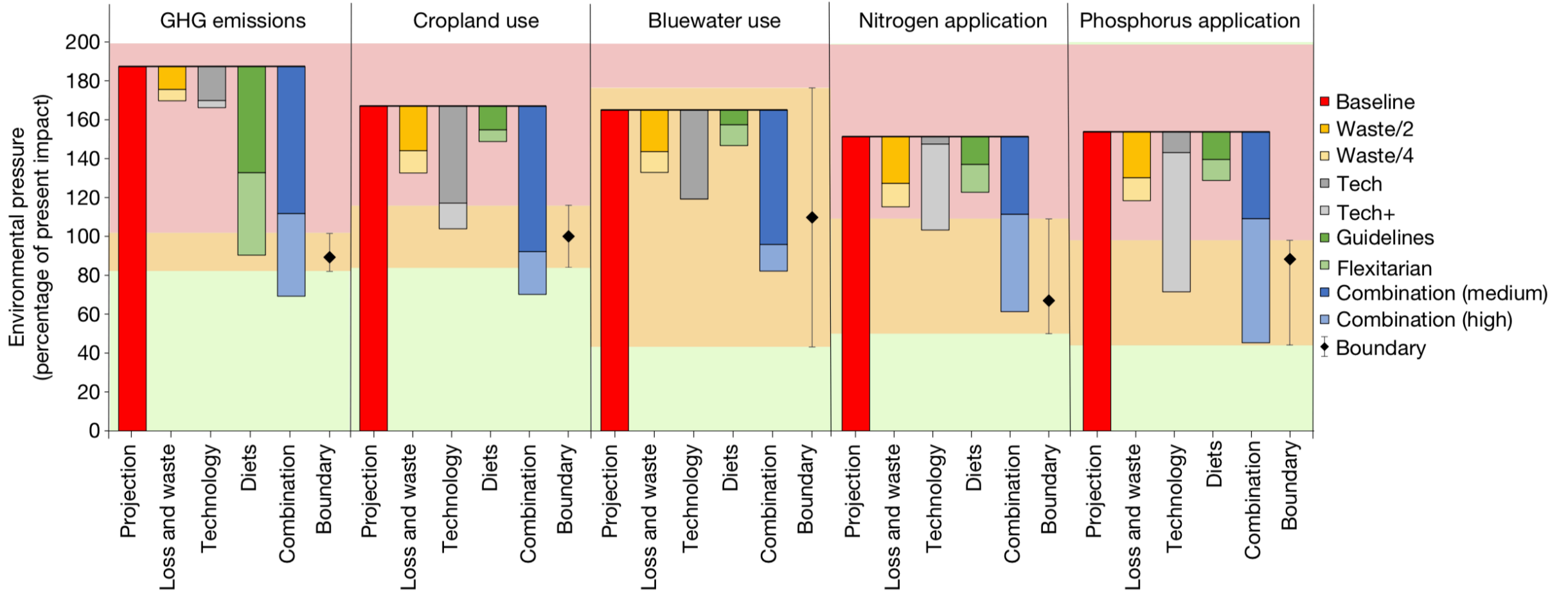


Figure 4: Environmental effects per serving of food produced
 Bars are mean (SD).^{5,216} Some results are missing for fish due to lack of data for some impact categories (eg, land use stemming from plant-based feeds in aquaculture). This was, however, accounted for in the global food systems modeling framework used in Section 3. CO₂=carbon dioxide. Eq=equivalent. PO₄=phosphate. SO₂=sulphur dioxide.

Source: Springmann, M., Clark, M., Mason-D'Croz, D., Wiebe, K., Bodirsky, B.L., Lassaletta, L., De Vries, W., Vermeulen, S.J., Herrero, M., Carlson, K.M., Jonell, M., Troell, M., DeClerck, F., Gordon, L.J., Zurayk, R., Scarborough, P., Rayner, M., Loken, B., Fanzo, J., Godfray, H.C.J., Tilman, D., Rockström, J., Willett, W., n.d. Options for keeping the food system within environmental limits. *Nature*. doi:10.1038/s41586-018-0594-0

Modeling Out the Scenarios



What the EAT Lancet did do...

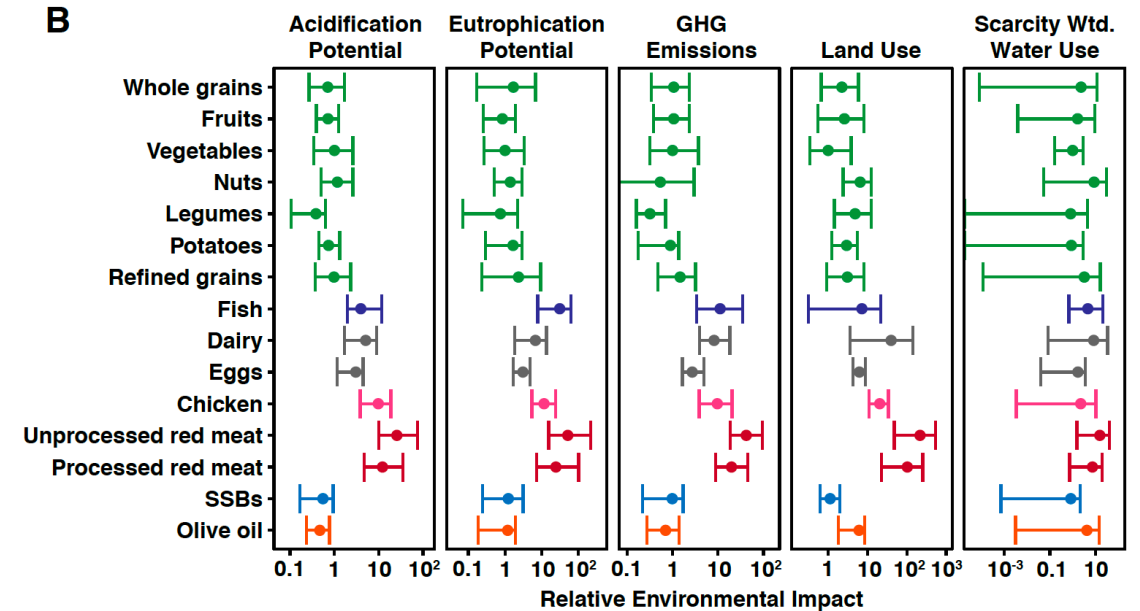
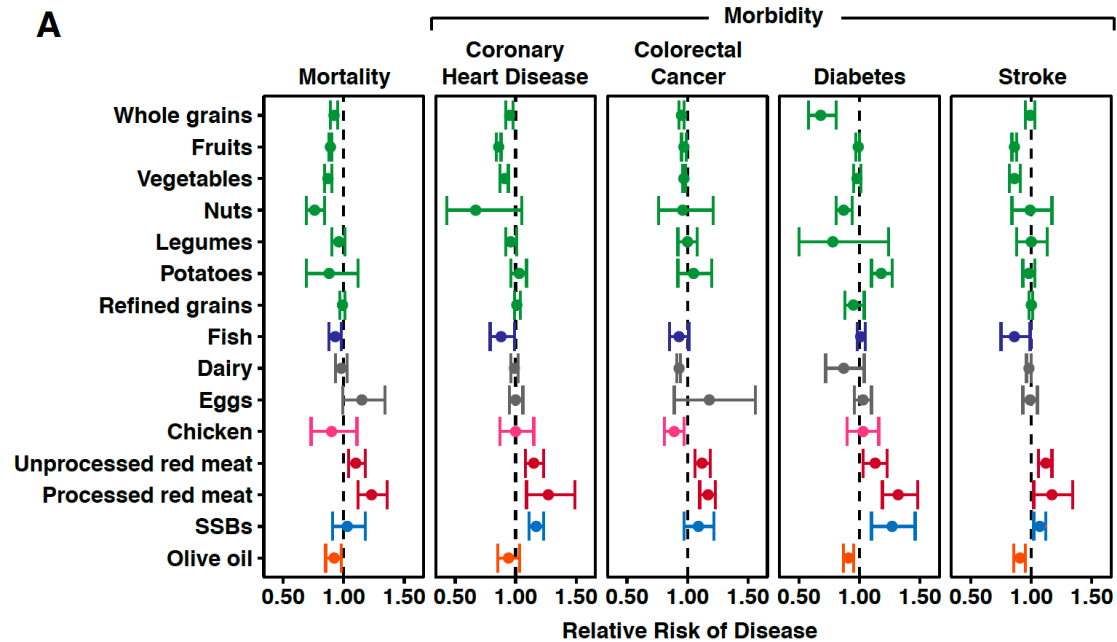
- Established some reasonable consensus among 37 very different experts.
- Set scientific targets that deal with both sustainable human health and planetary health.
- Sparked a scientific and political debate.
- Aspired more work in the space and organizations looked to developing their own strategies and responses.
- Got people thinking about their diets.
- Highlighted the notion that context is everything.
- Made some industries nervous.



What the EAT Lancet did NOT do...

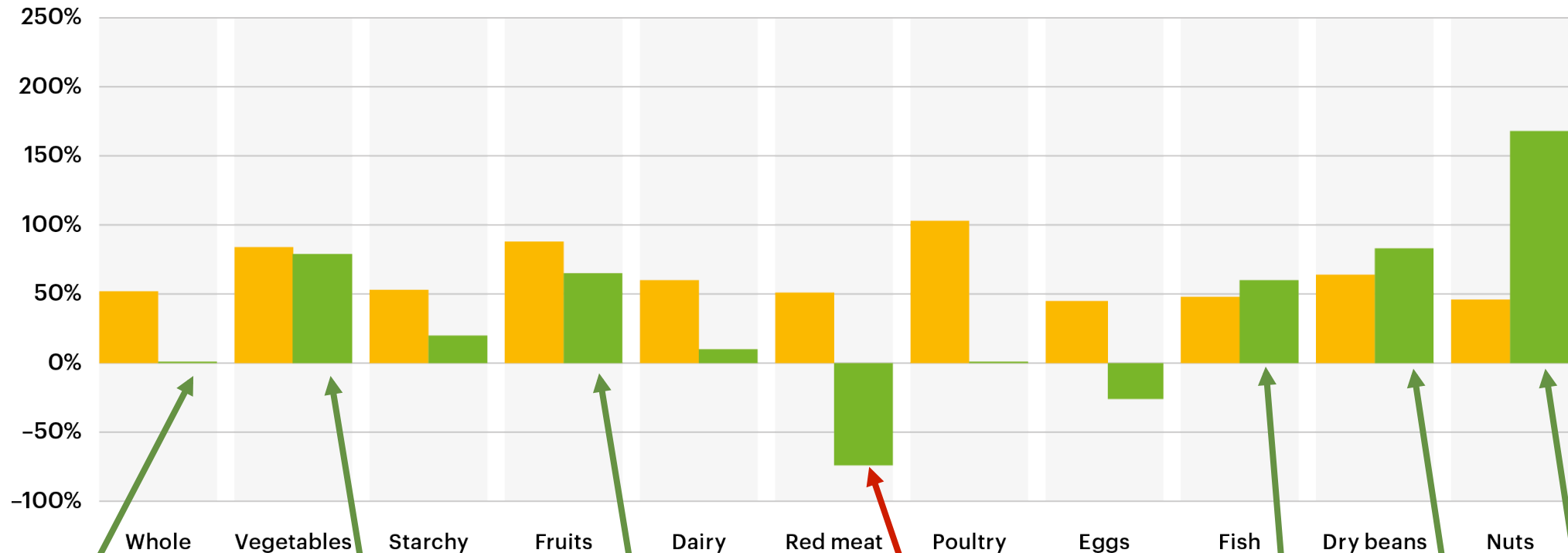
- Did not provide specifics on how countries would take on these lofty global targets and transformation. It did not provide much in the way of the **local context, social determinants and tradeoffs** countries face.
- Set no time frame and no cost on how to accomplish the targets.
- Did not take on the **entirety** of food systems – only the two “ends” of the system.
- Did not tackle the **inequities** of accessing healthy diets within food system and their transitions – i.e. who is “being left behind.”
- Did not closely examine or consider **actor behavior**, especially consumers, and what drives their dietary choice (taste, price and convenience).
- Did not focus on **who** will feed us, their livelihoods, and the economic pay-off or consequences.
- Did not mention **women’s empowerment or agency**. Not once. Shame on me.
- Did not address **confusion** of sustainable diets and the epidemiology to support the claims.
- Did not adequately address the **land constraints** in taking on a flexitarian diet particularly if the world is to take on a “Half Earth” approach.

Are all animal source foods bad enough to restrict so much?



Changes in food production to deliver the planetary health diets. Possible?

2050 BAU + full waste 2050 planetary health diet + halve waste



Almost no increase
in cereal production

Vegetables +75%

Fruits >50%

Red meat production >65%

Protein sources

Fish >50%

Legumes >75%

Nuts >150%

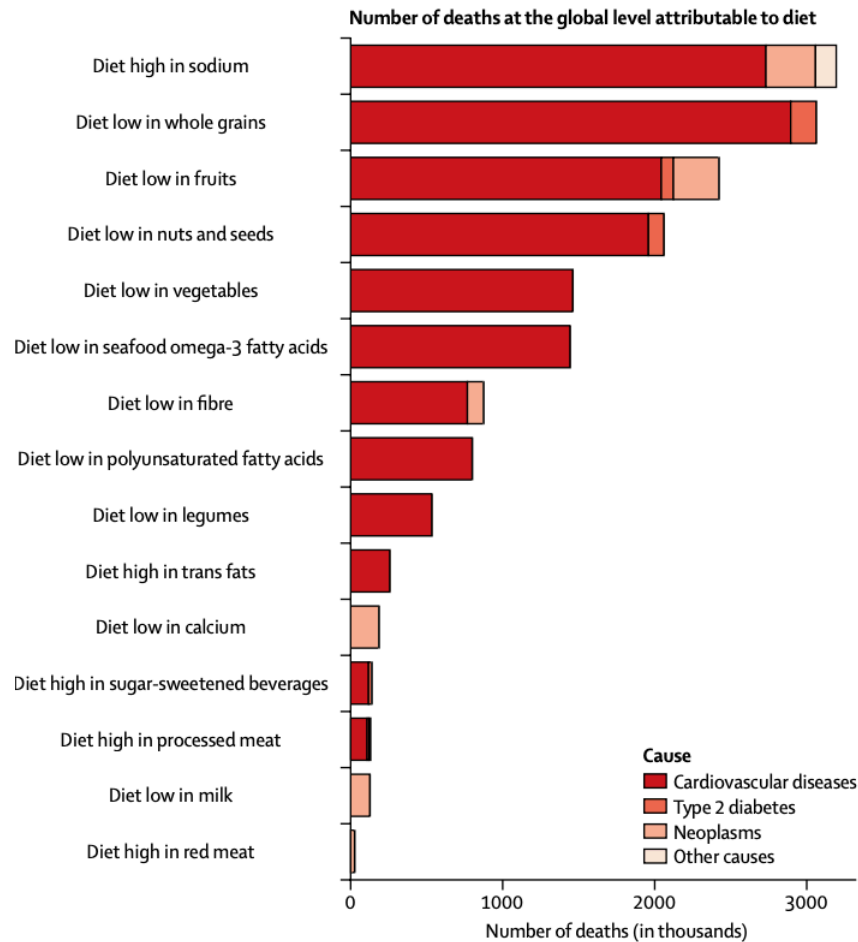
Thank you!



@jessfanzo

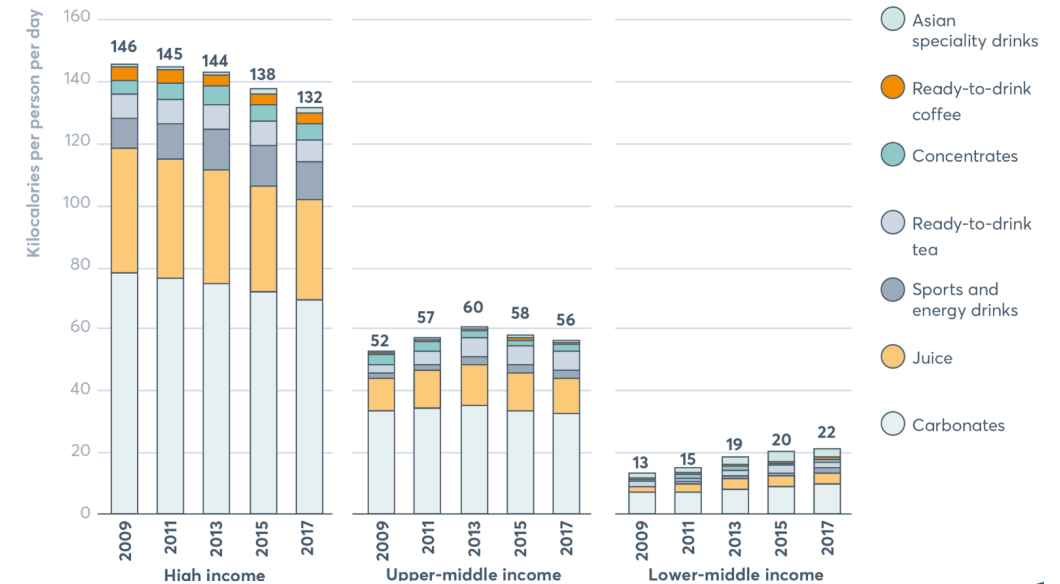
Diet space is complex...and so is disease burden

11 million deaths are attributable to dietary risk factors



69% packaged foods aren't aligned with healthy diets

Trends in energy purchased from sugar-sweetened beverage categories, by country income level

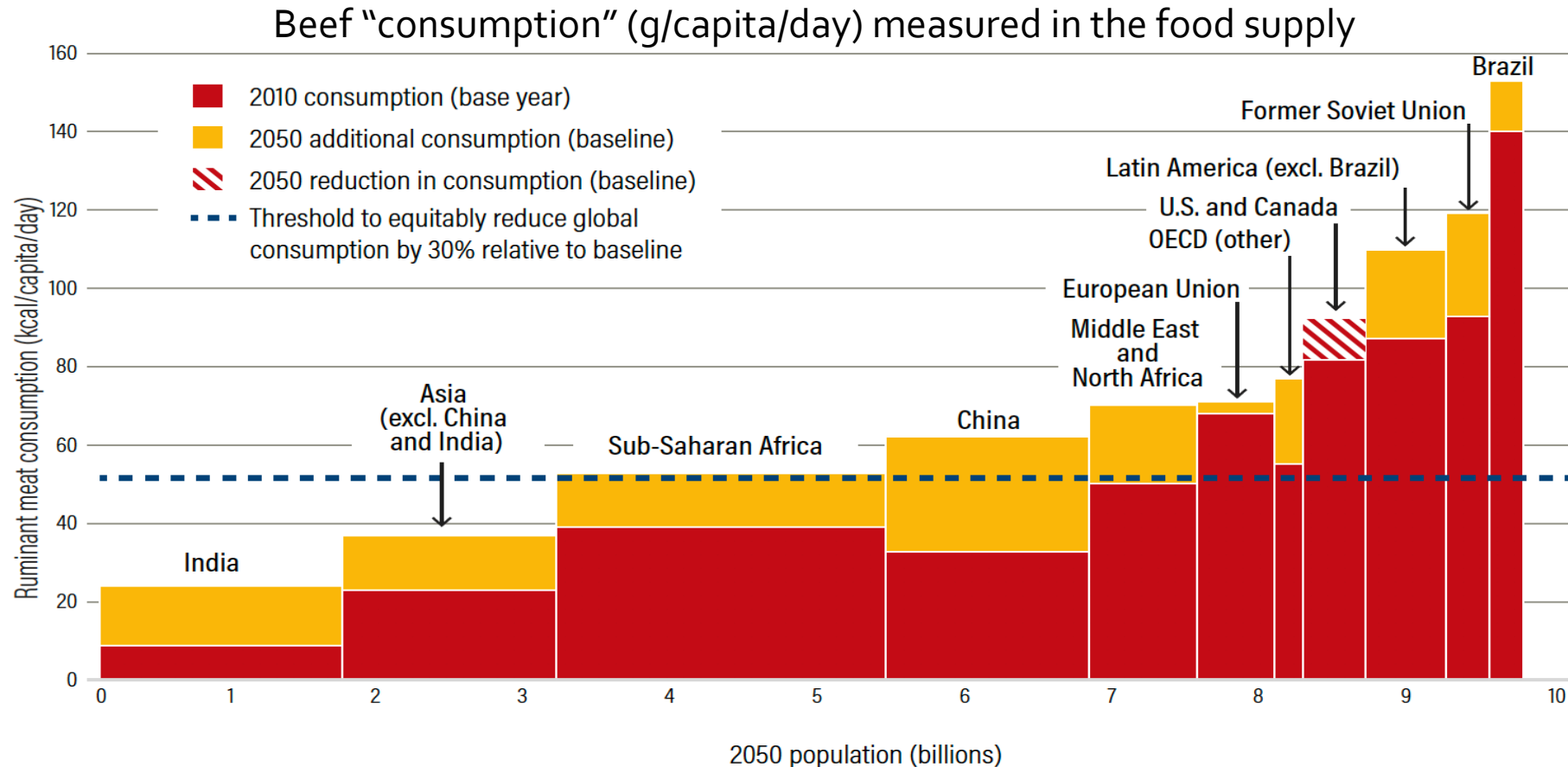


Source: GBD 2017 Diet Collaborators. Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet. In Press.* Development Initiatives, Global Nutrition Report 2018.

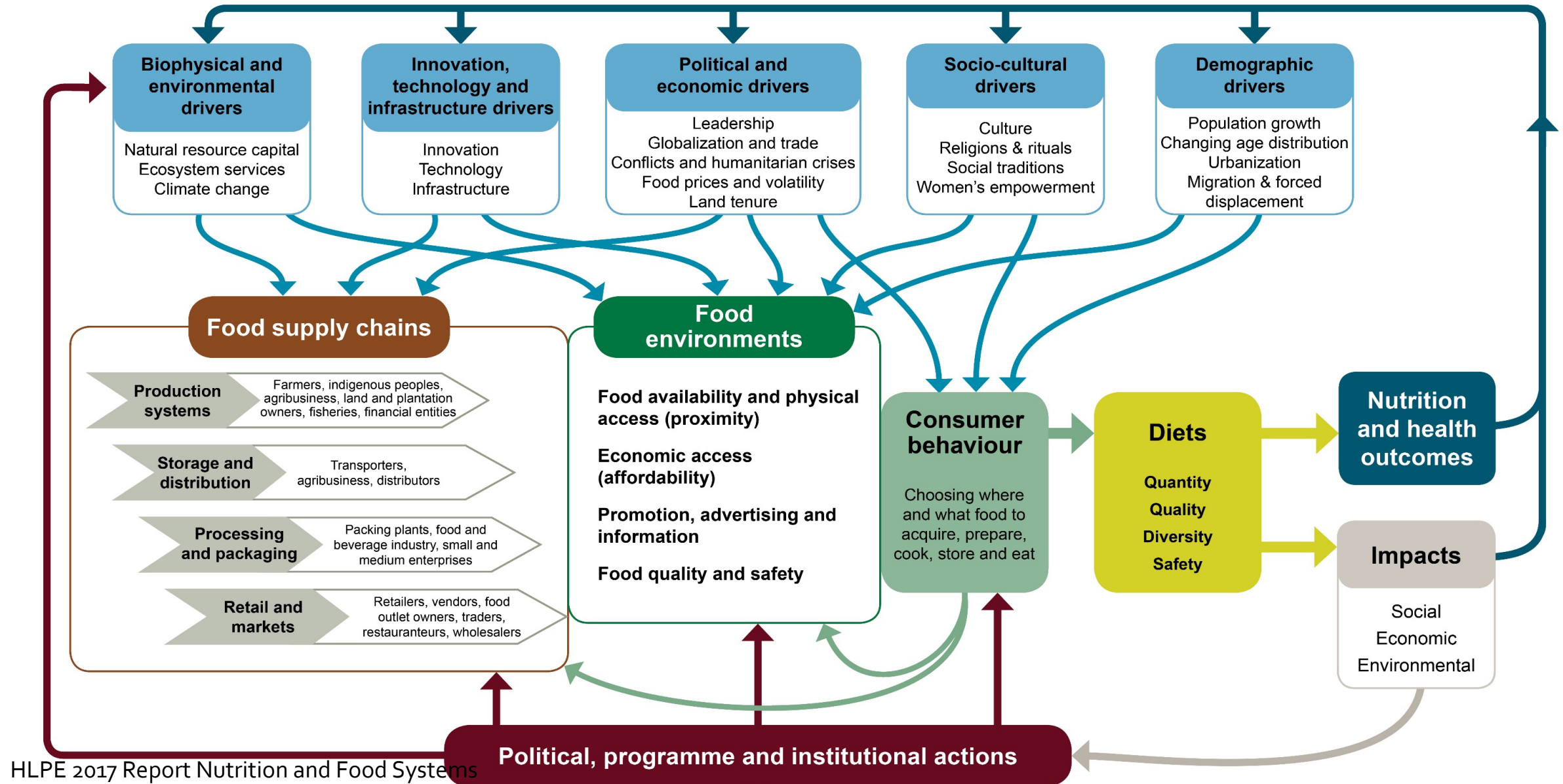


All things are not equal in meat

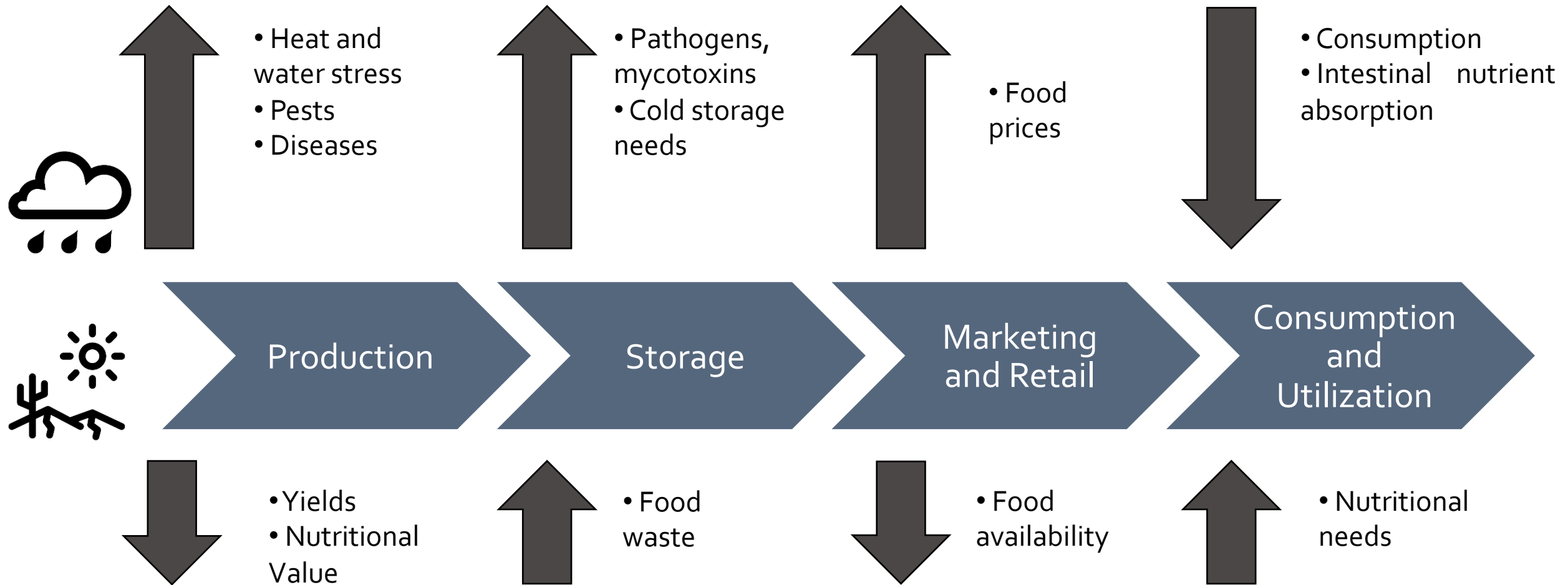
Limiting ruminant meat consumption to 52 calories/person/day in all regions reduces the GHG mitigation gap by half and closes the land gap



Disruptions across the entire food system



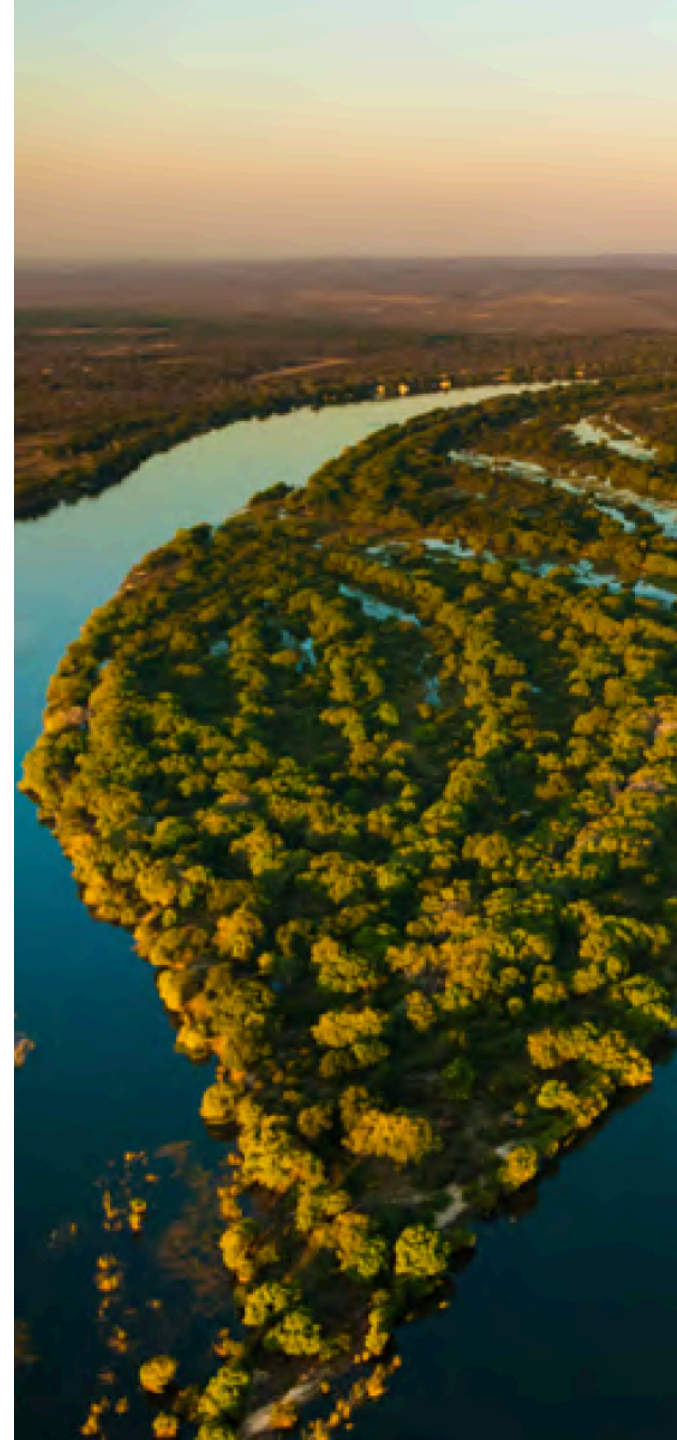
Effects of climate change on value chains



Don't forget about *who* will continue to feed the world

“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*

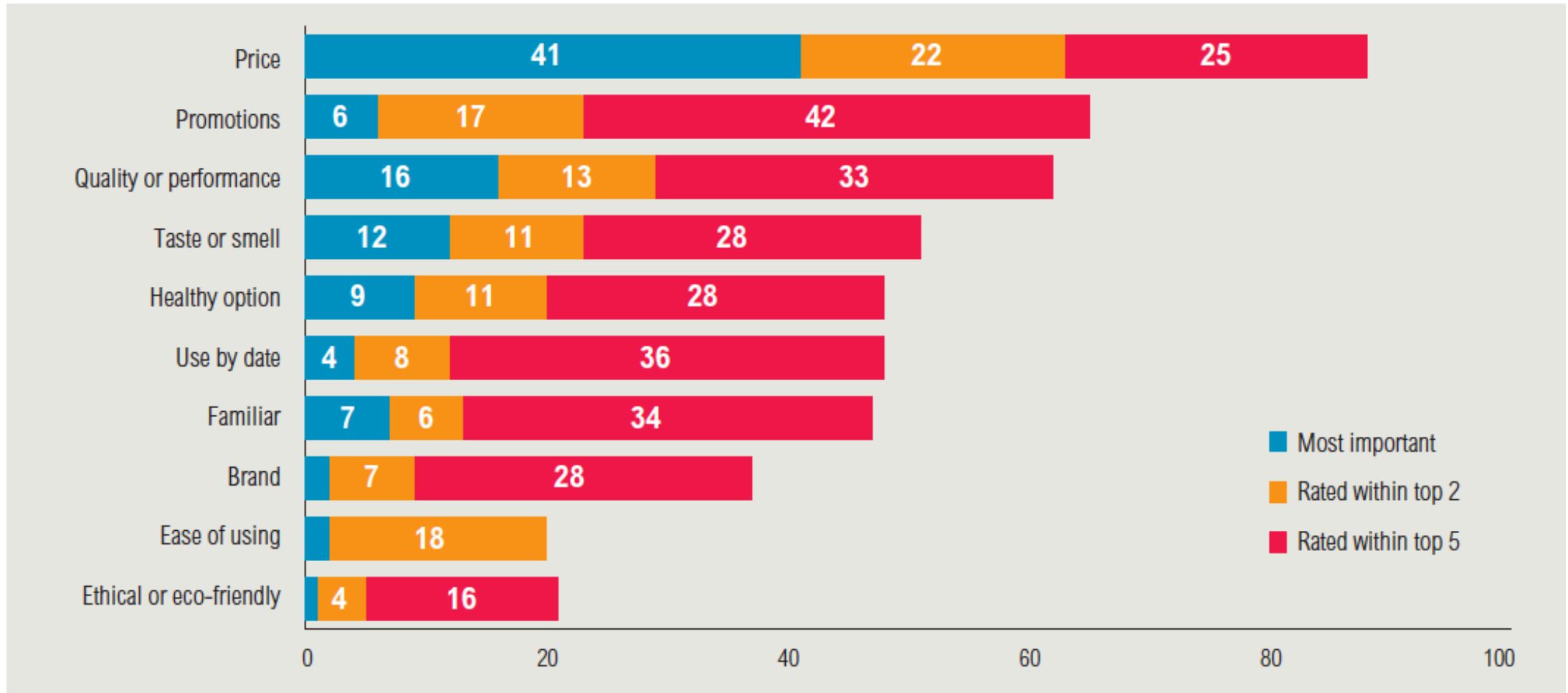


Who plays a role? Individuals, industry or state?

- **Don't leave it to the individual:** There is a lack of evidence for individuals taking action, and attitude-action gaps are evident. Public understanding of the environmental and nutritional impacts of food is low.
- **Don't leave it to industry goodwill or enlightened self-interest:** Some in the food industry are acting but their efforts alone are not enough.
- **Governments need to govern:** Policy makers need to create a strong regulatory and fiscal framework, and international trade needs to reflect the importance of sustainable healthy diets.
- **CSOs** can cultivate movements, coalitions & networks among citizens and communities.

Price, quality, and taste are important to consumers

Factors influencing consumer product choice, percentage of UK shopper responses



Sustainable Alternatives & Reformulations



Consider the local context and its determinants and the trade-offs

We must address the underlying ***social determinants*** that impact our health and the planet. Every country is impacted by poverty but its determinants may be different, or the same...

Racial disparities
Incarceration & gun violence
Drugs and alcohol abuse
Food insecurity
Obesity and diabetes

Tribal disparities
Social unrest & border conflict
Herb abuse
Food and water insecurity
Stunting and wasting

An exceptionally murderous city

Crime and despair in Baltimore

As America gets safer, Maryland's biggest city does not

