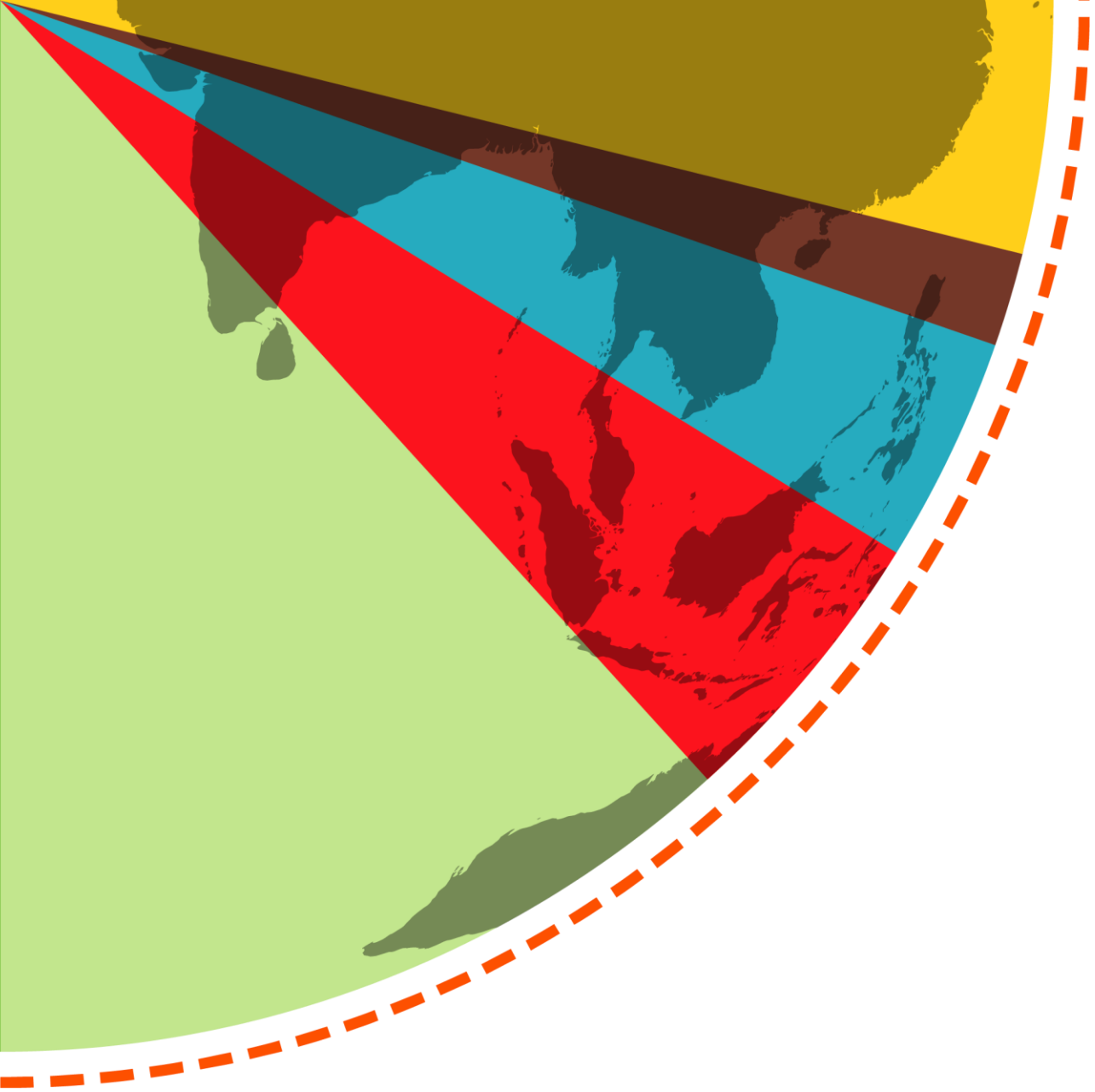
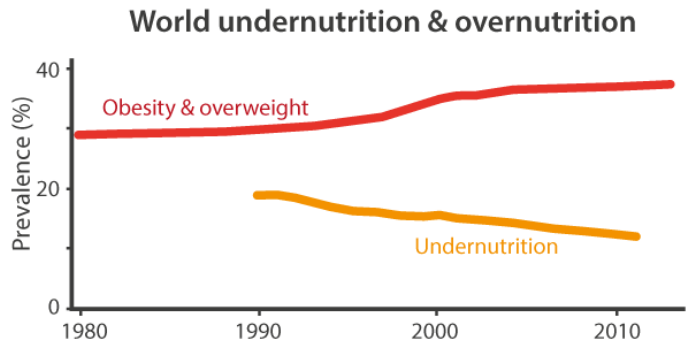


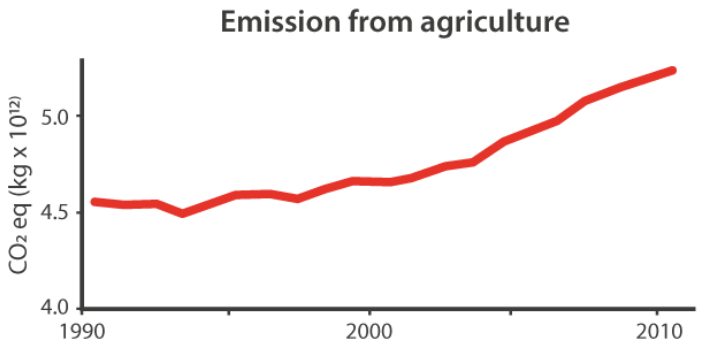
The EAT-*Lancet* Commission on Healthy Diets From Sustainable Food Systems

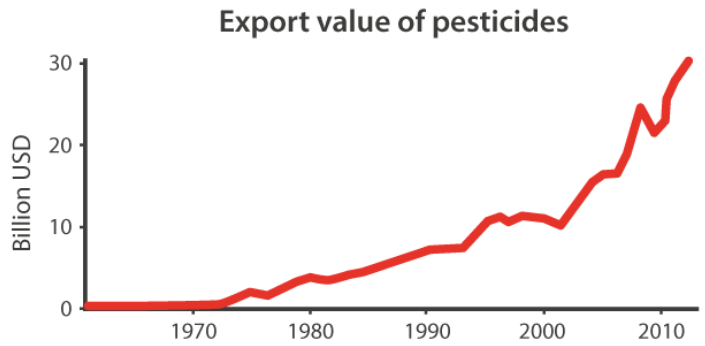
Food Planet Health

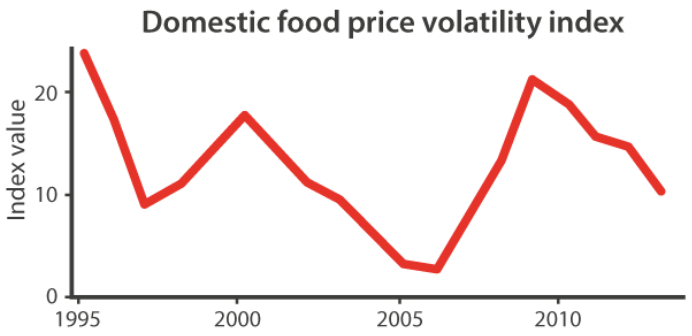
The Problem

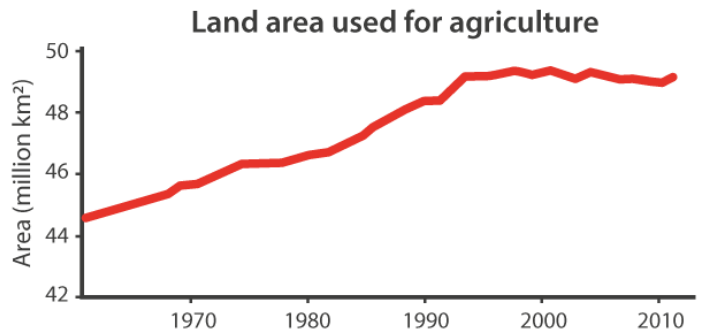
A Great Acceleration in the Global Food System

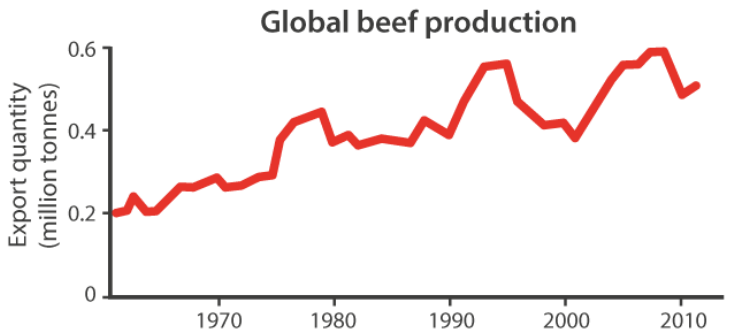


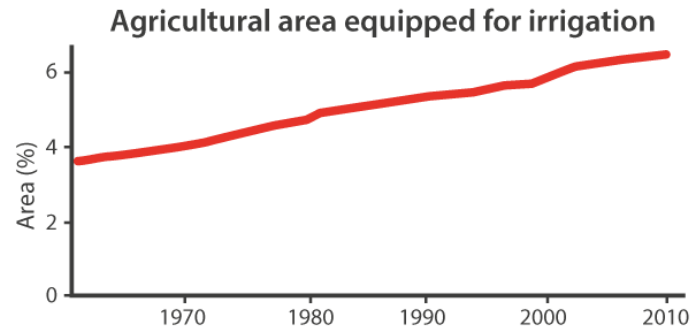


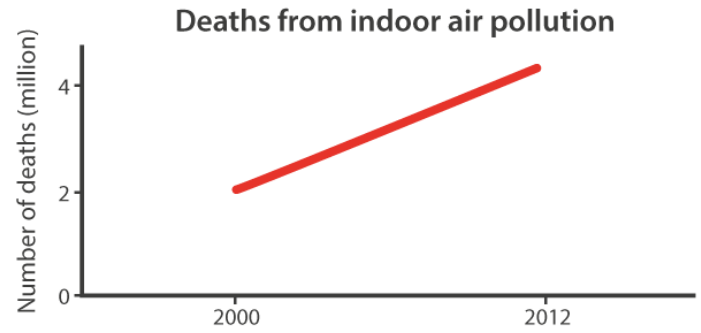


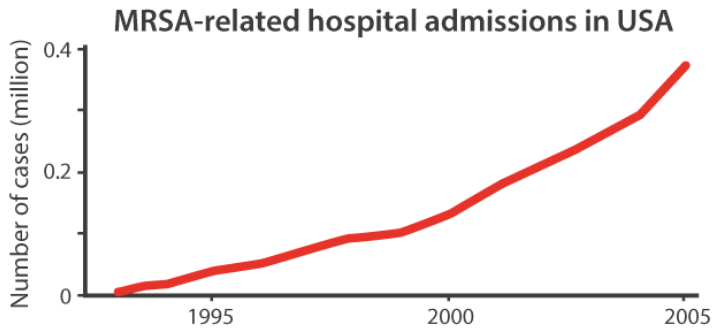












The scale of the challenge

2 billion people lack key micronutrients like iron and vitamin A

155 million children are stunted

52 million children are wasted

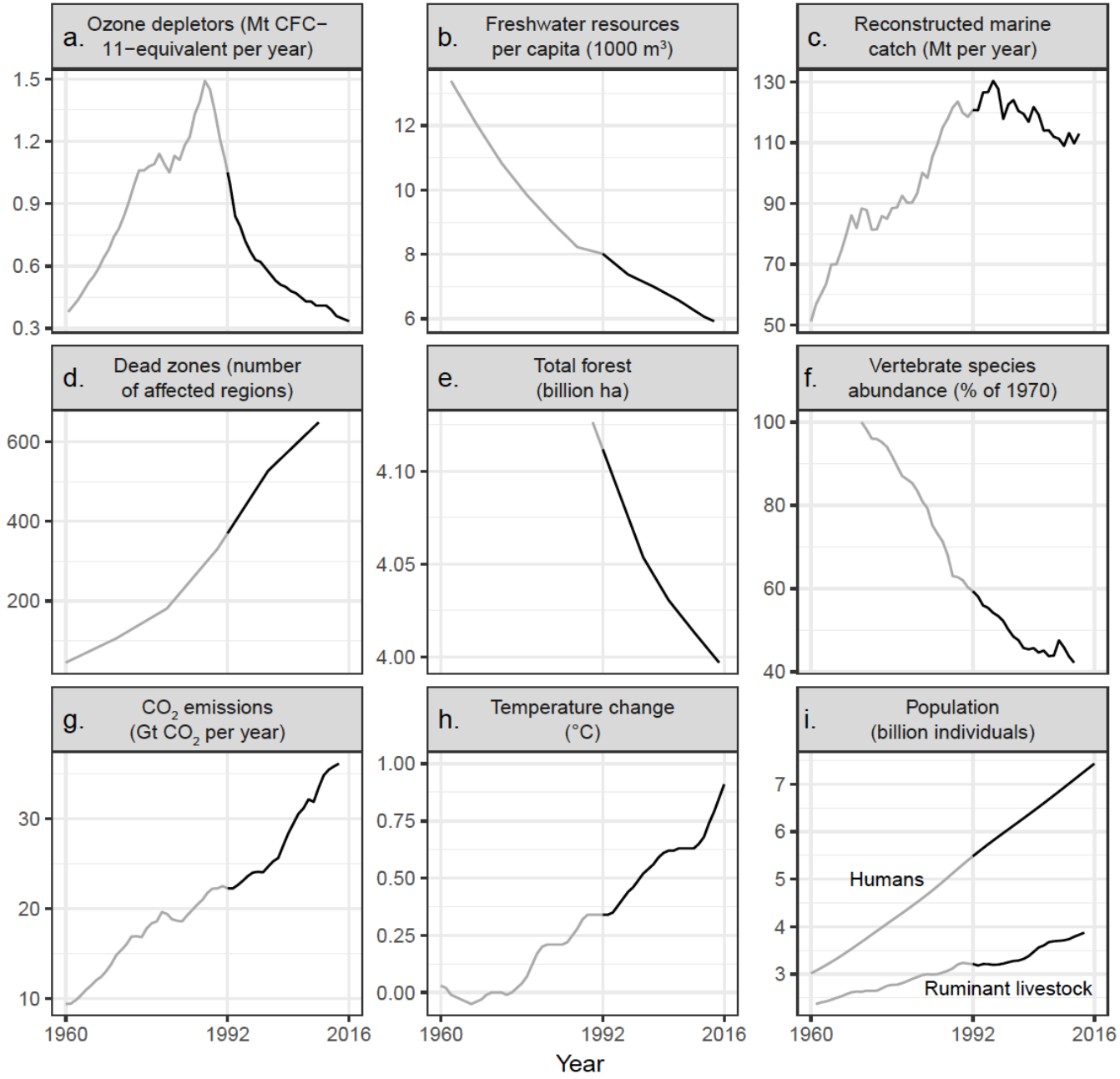
2 billion adults are overweight or obese

41 million children are overweight

88% of countries face a serious burden of either two or three forms of malnutrition

And the world is off track to meet all global nutrition targets

We are not yet bending the curves on unhealthy and unsustainable food



1 Goal – 2 Targets – 5 Strategies

To Achieve Planetary Health Diets for Nearly 10 Billion People By 2050

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.

1 Goal – 2 Targets – 5 Strategies

Scientific Targets for Healthy Diets from Sustainable Food Production

Evidence Base for the Planetary Health Diet

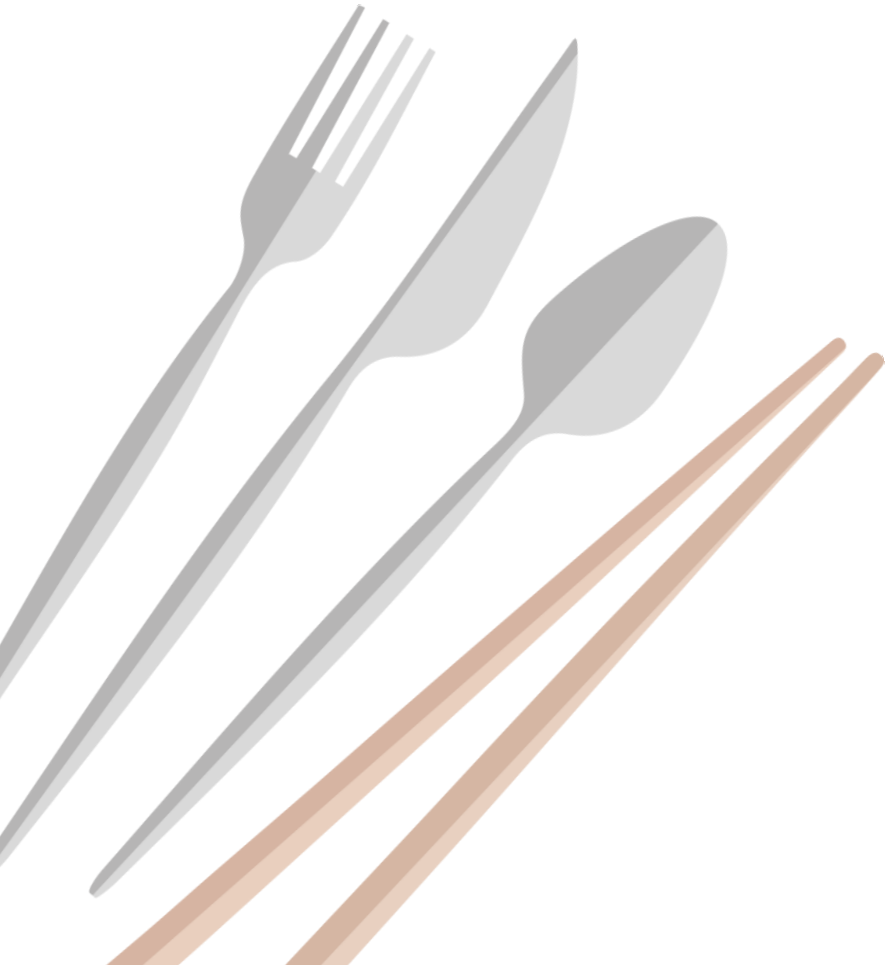
Randomized controlled feeding studies with CVD risk factor outcomes

Observational cohort studies with long follow-up and disease outcomes

Randomized trials of dietary patterns with CVD risk factors
and disease outcomes

Target 1 – **Healthy Diets**

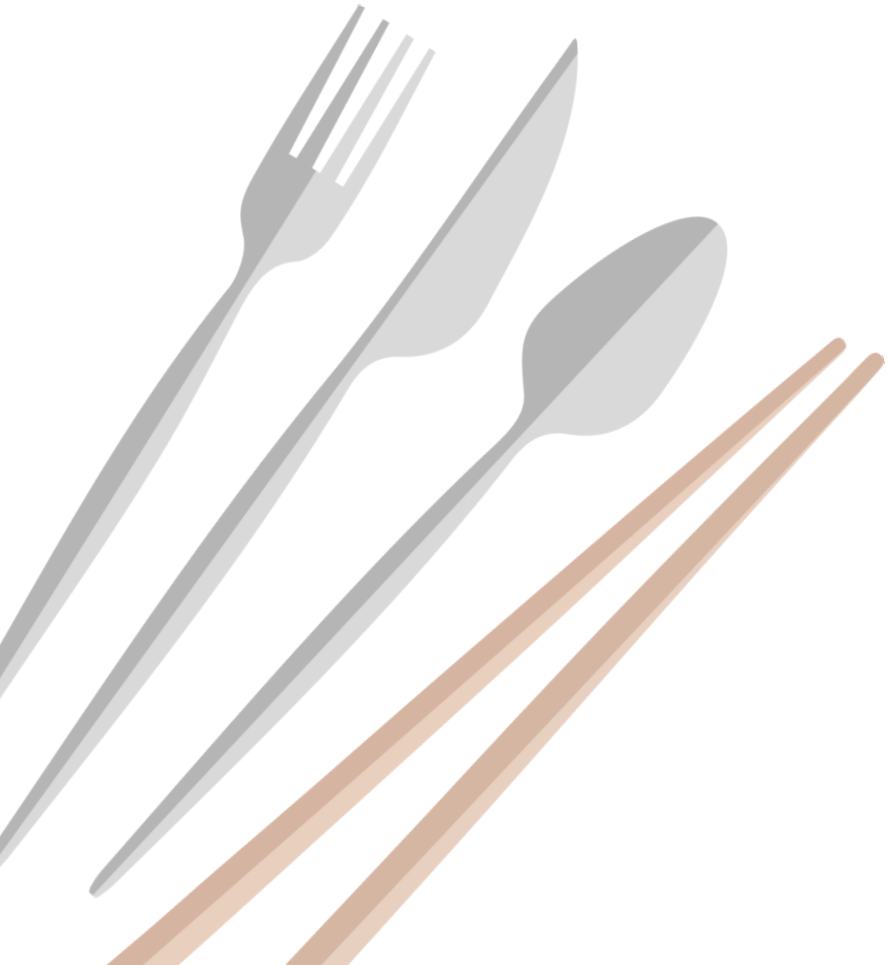
2500 kcal/day

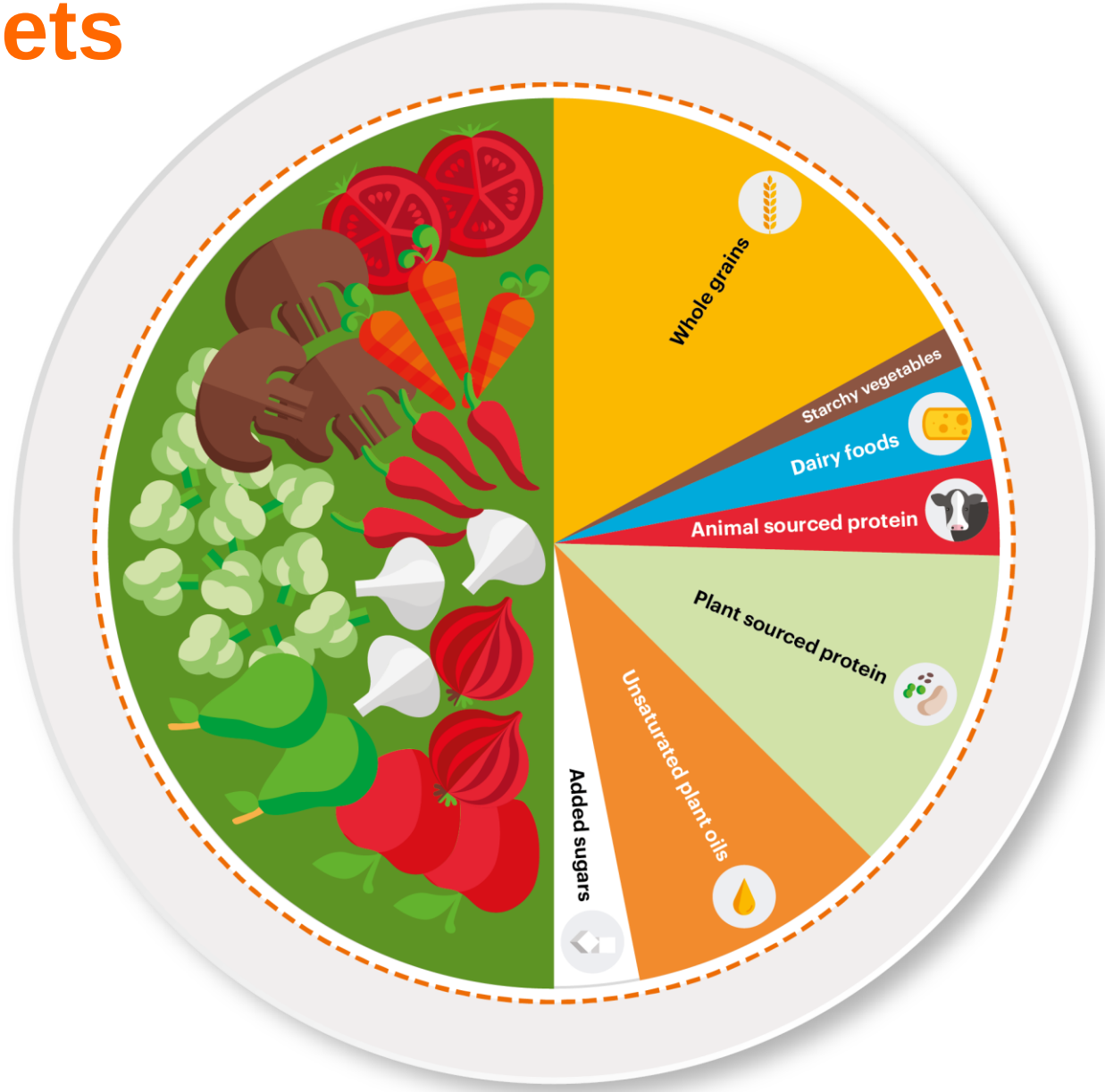


	Macronutrient intake grams per day (possible range)	Caloric intake kcal per day
Whole grains		
Rice, wheat, corn and other	**232**	**811**
Tubers or starchy vegetables		
Potatoes and cassava	**50** (0–100)	**39**
Vegetables		
All vegetables	**300** (200–600)	**78**
Fruits		
All fruits	**200** (100–300)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

Target 1 – **Healthy Diets**

2500 kcal/day





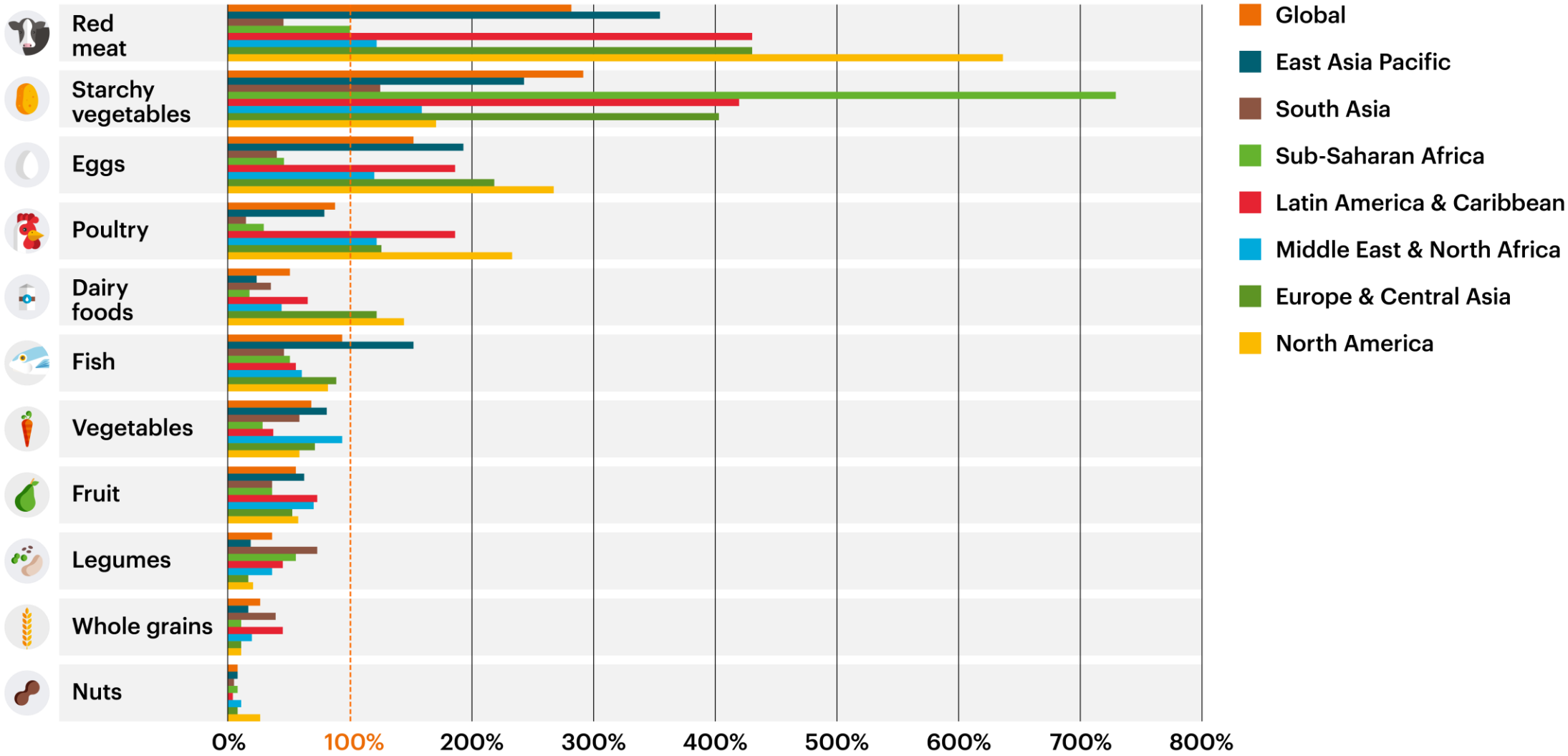
Samples of Planetary Health Plates



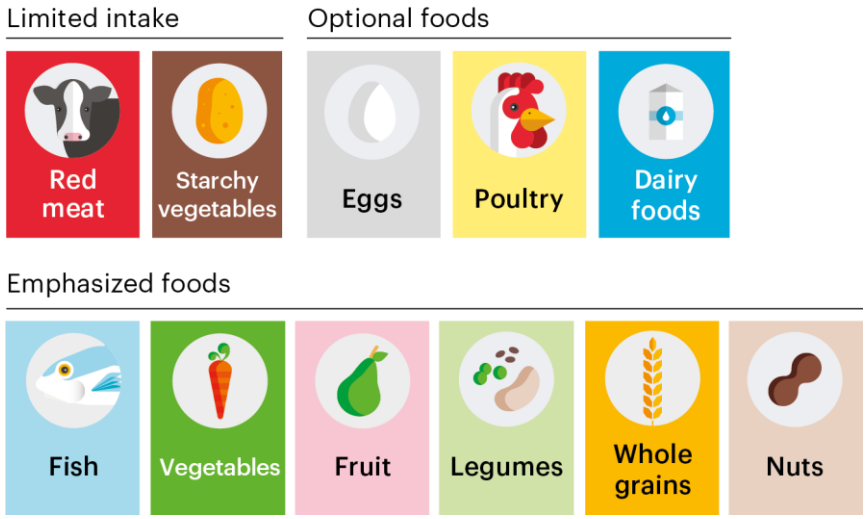


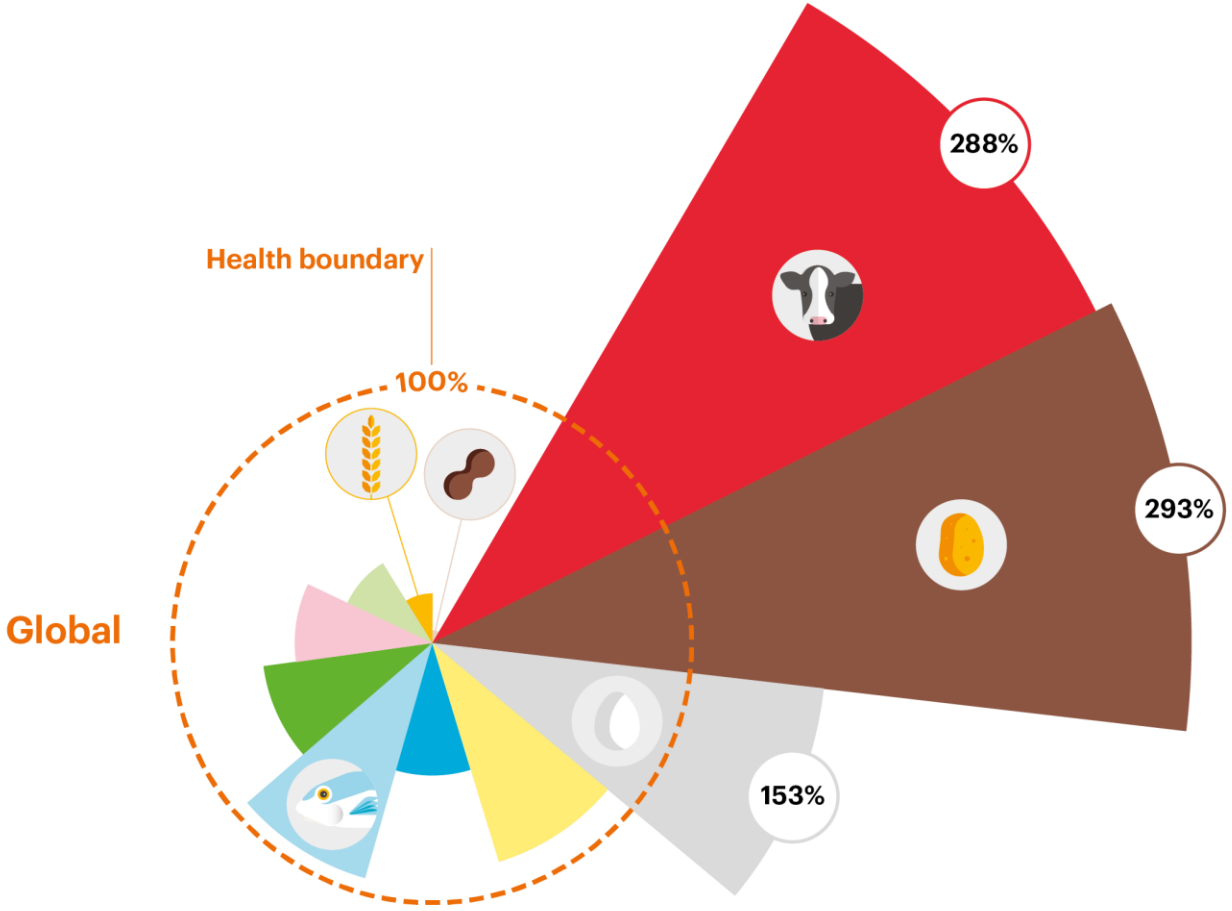



Current Intakes vs Planetary Health Diet

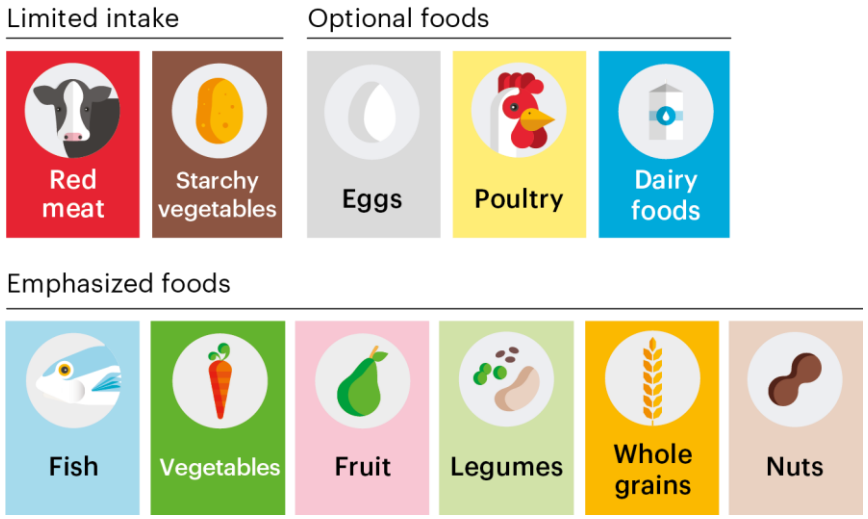


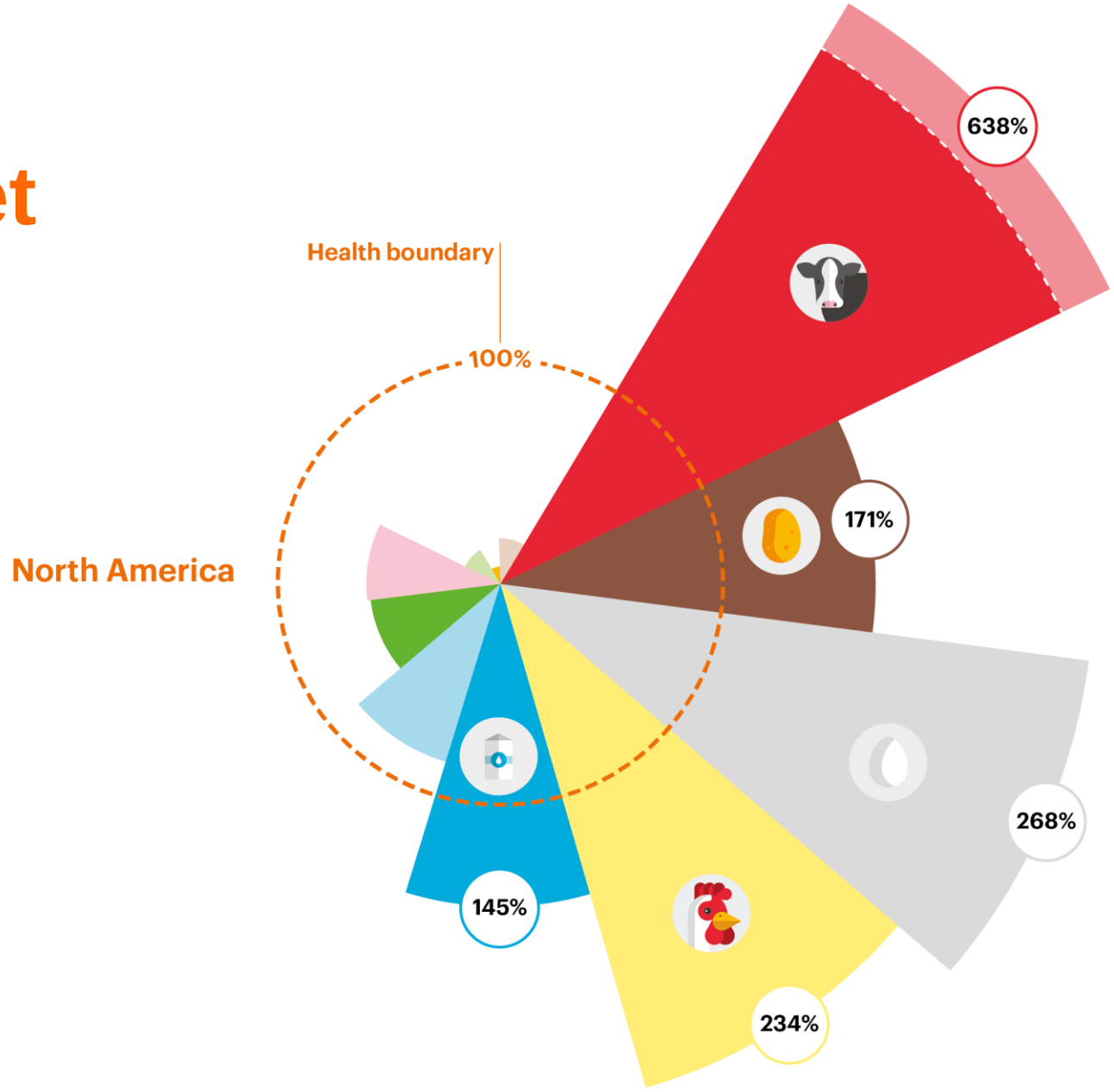
Current Intakes vs Planetary Health Diet



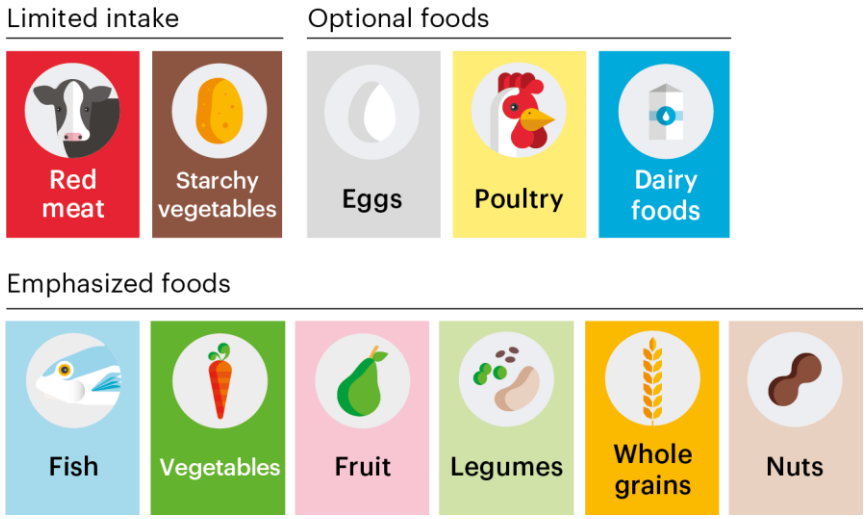


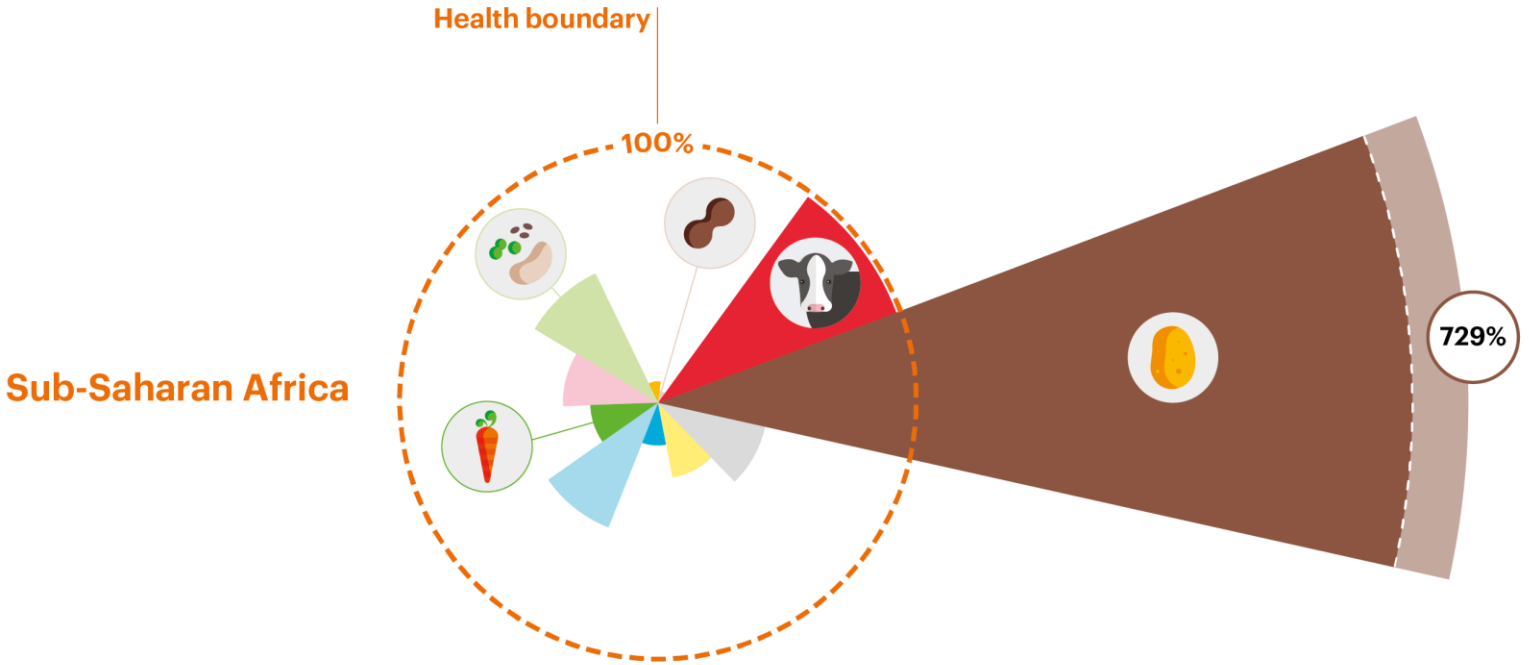
Current Intakes vs Planetary Health Diet



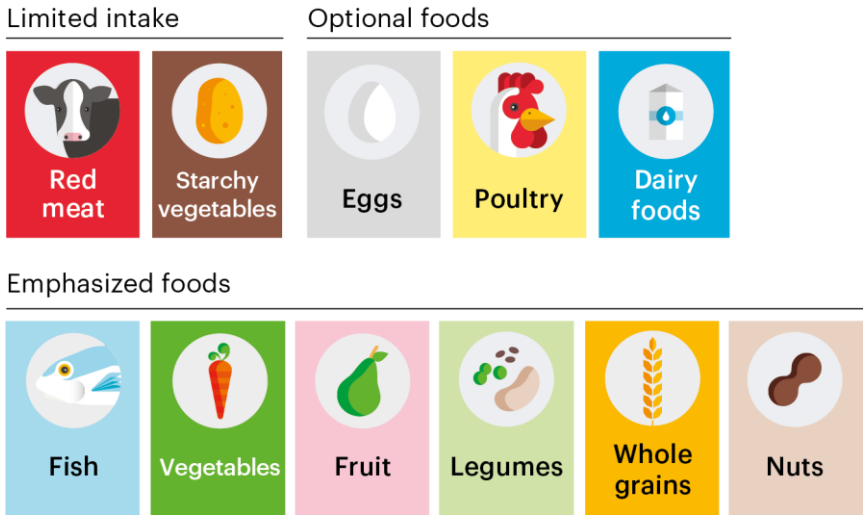


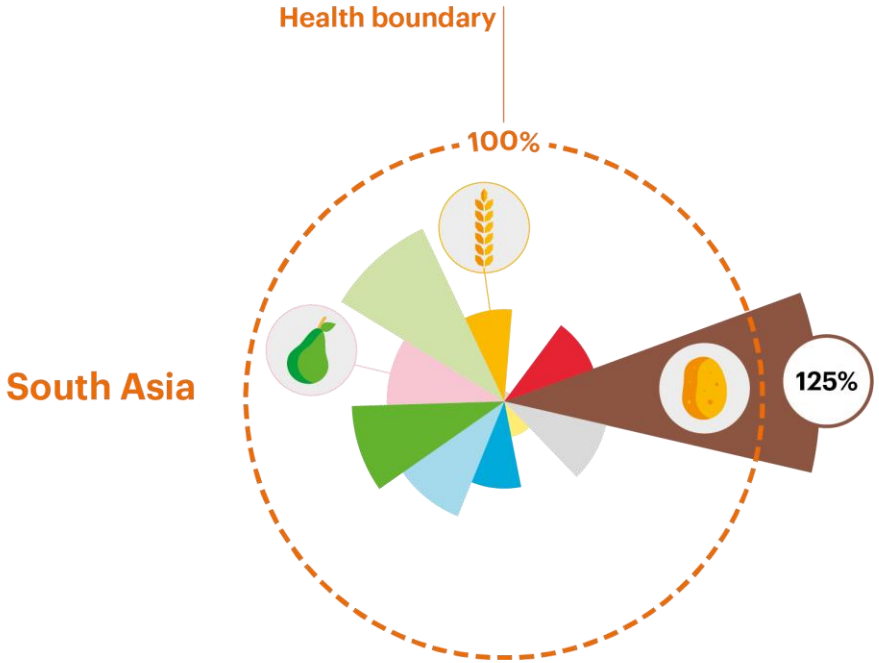
Current Intakes vs Planetary Health Diet





Current Intakes vs Planetary Health Diet



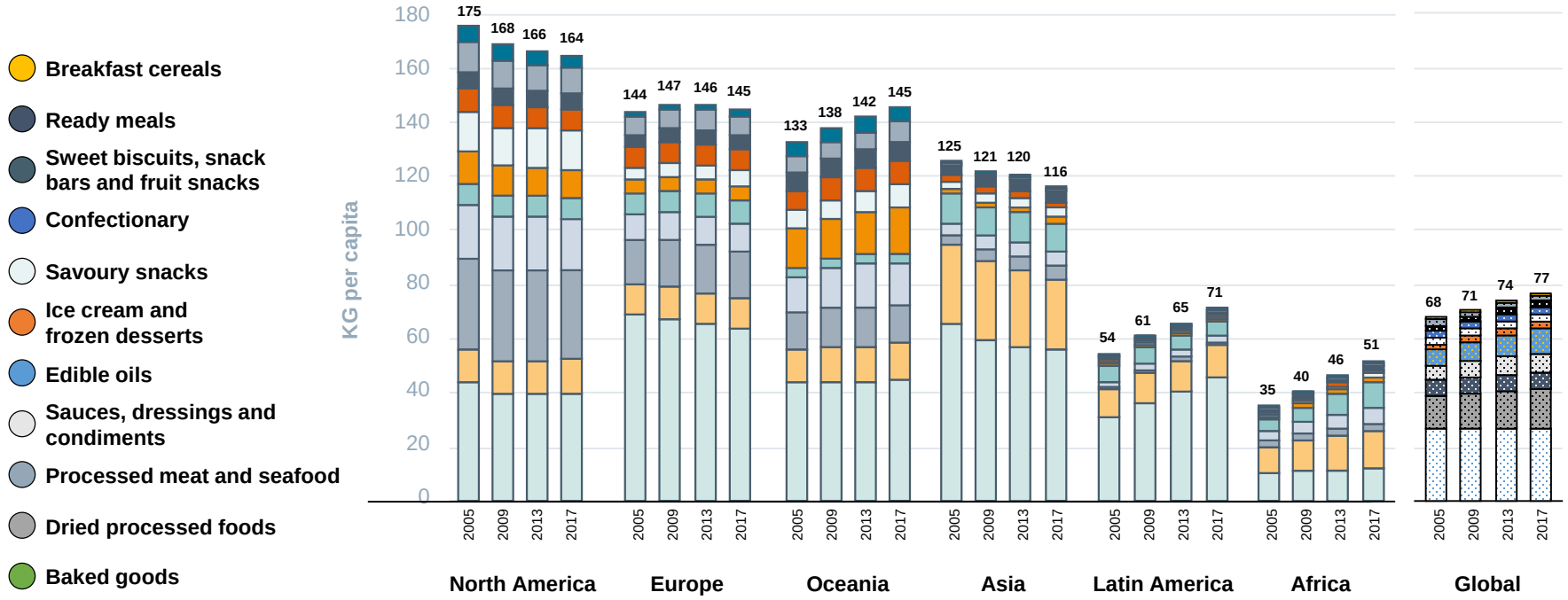


Substantial Health Benefits

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

69% packaged foods aren’t aligned with healthy diets

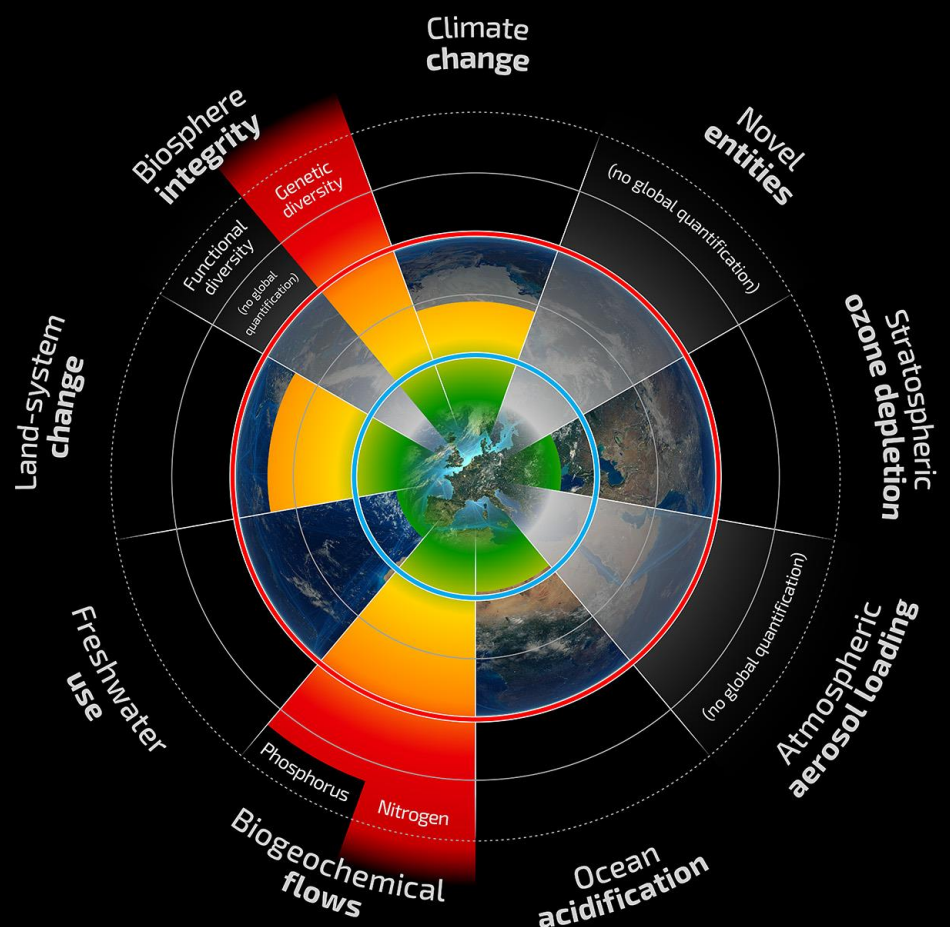
Trends and patterns in per capita packaged food category sales by region, 2005–2017



2018 Global Nutrition Report

Planetary Boundaries

A safe operating space for humanity



- **Beyond zone of uncertainty** (high risk)
- **In zone of uncertainty** (increasing risk)
- **Below boundary** (safe)
- **Boundary not yet quantified**

Source: Steffen et al. Planetary Boundaries: Guiding human development on a changing planet, *Science*, 16 January 2015.
Design: Globaïa


Climate
C

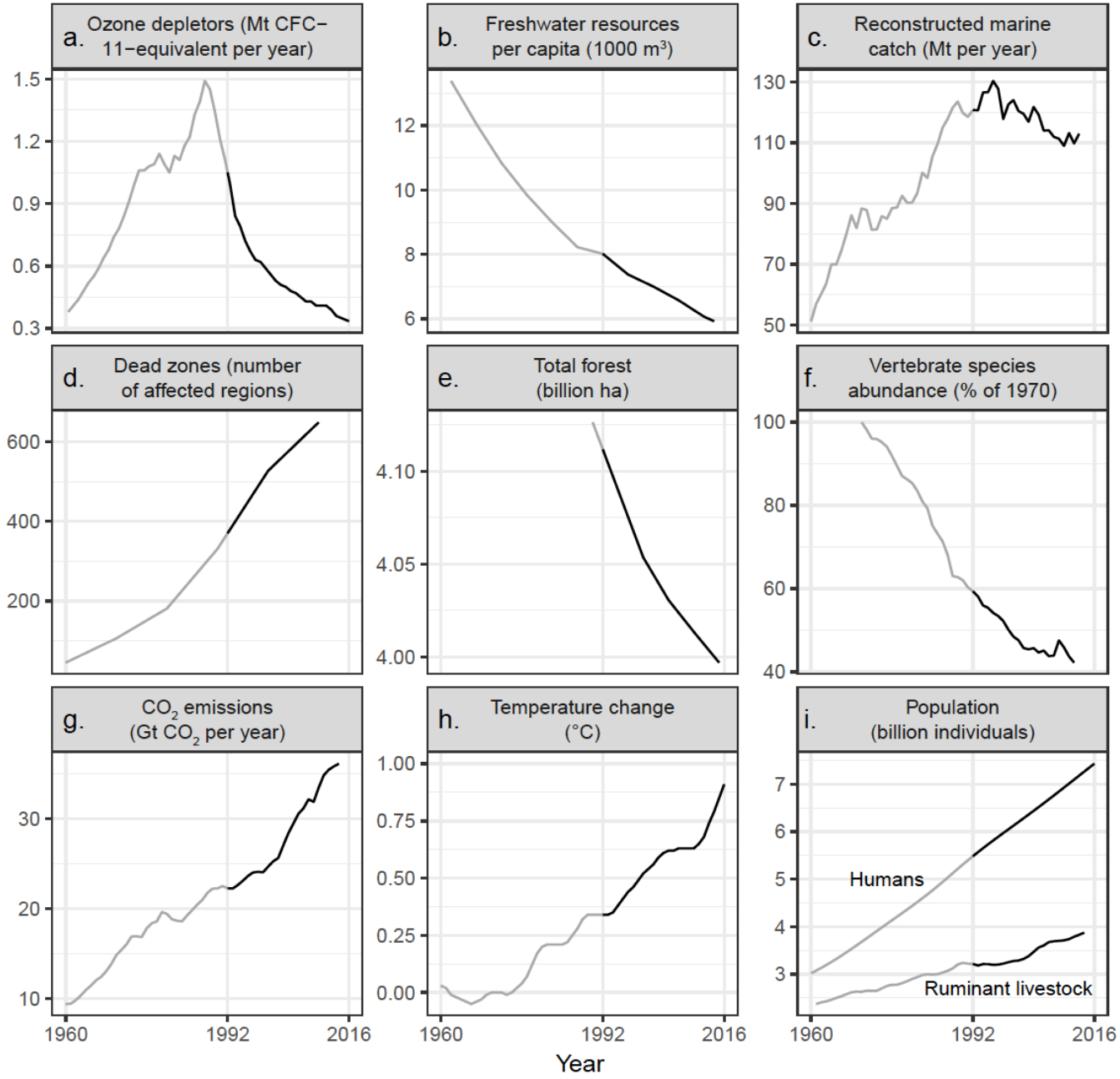

Nitrogen
(N)
Phosphorus
(P)


Water
(H_2O)


Biodiversity
(DNA)


Land

We are not yet bending the curves on unhealthy and unsustainable food



Target 2 – Sustainable Food Production

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

Environmental Effects per Serving of Food Produced

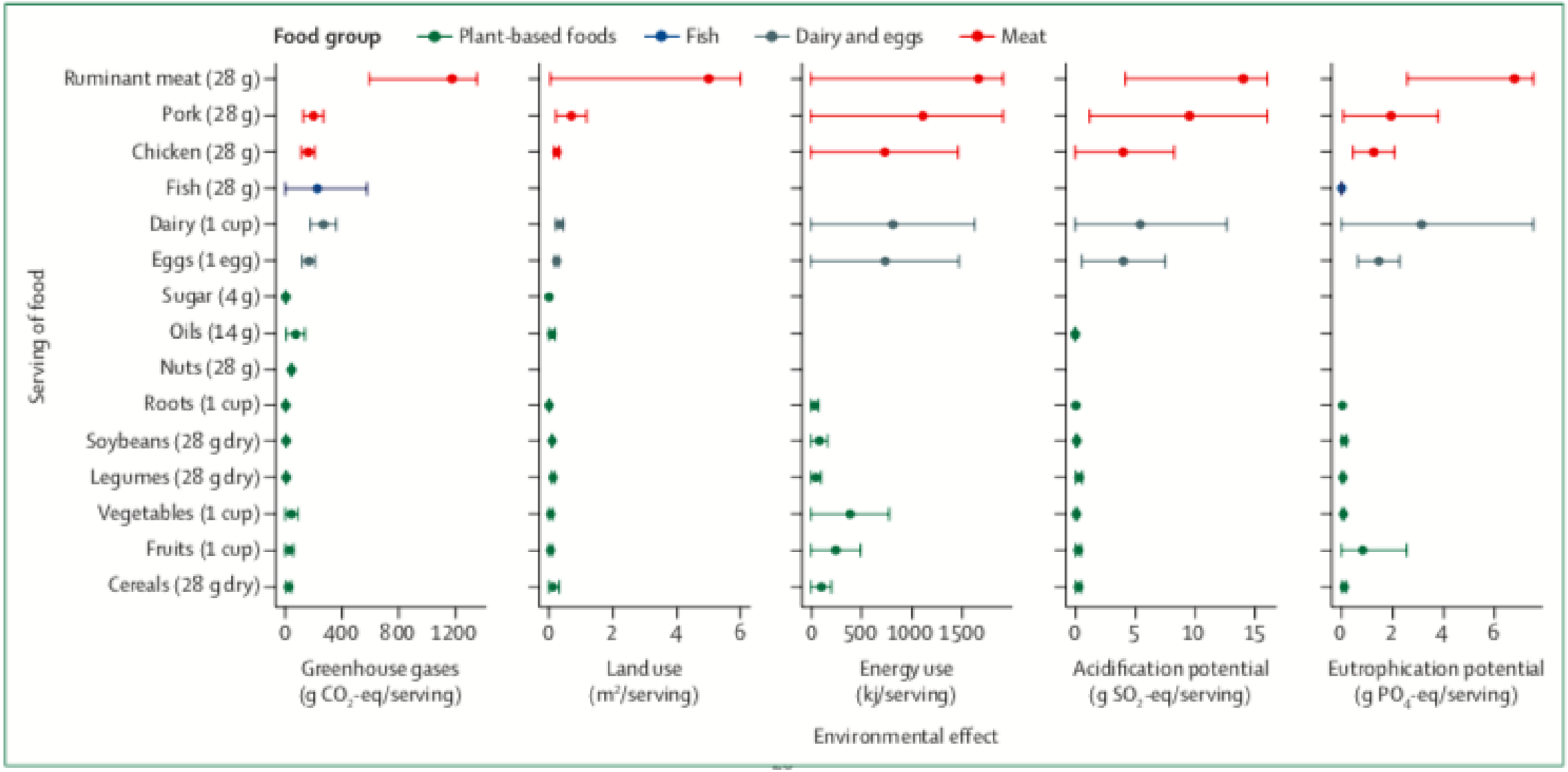
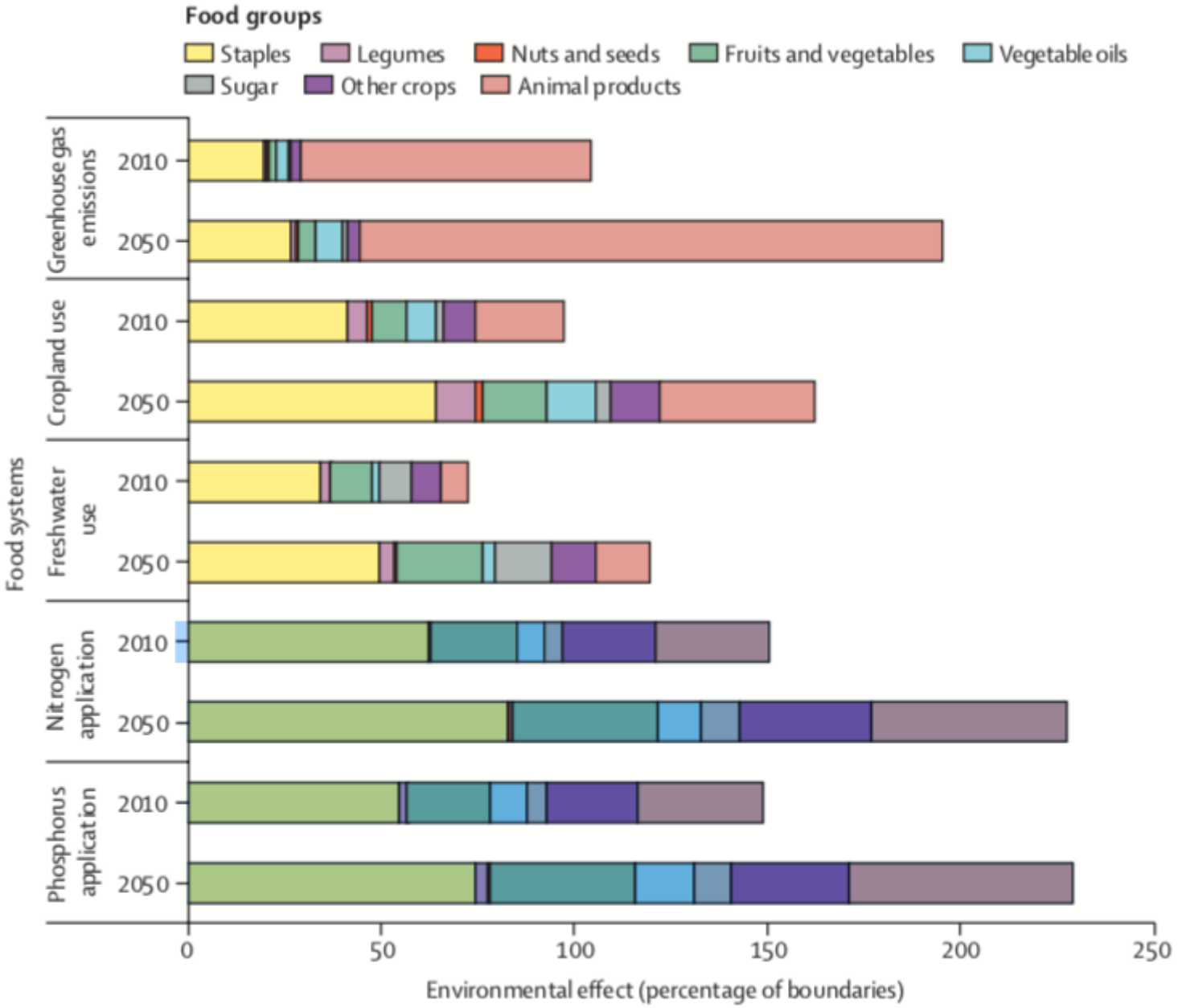


Figure 4: **Environmental effects per serving of food produced**

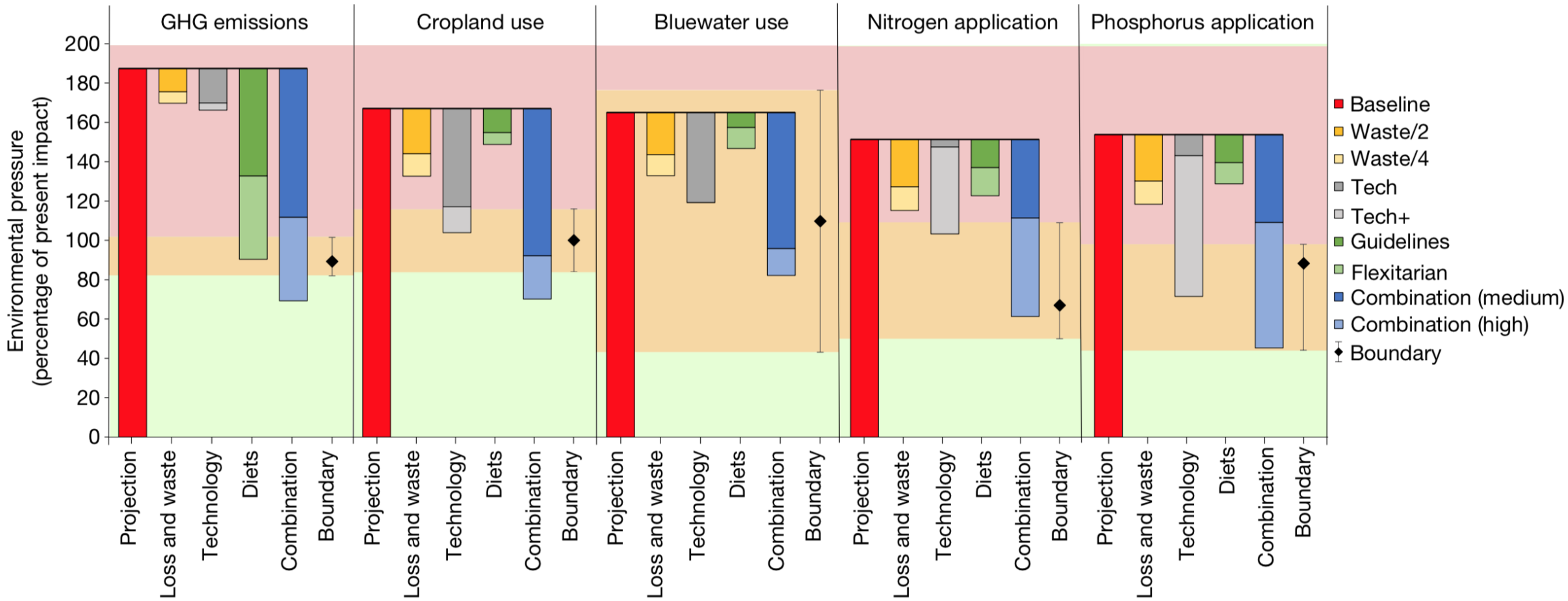
Bars are mean (SD).[5,217] CO_2=carbon dioxide. Eq=equivalent. PO_4=phosphate. SO_2=sulphur dioxide.

Global Adoption of the Western diet is not an option



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.

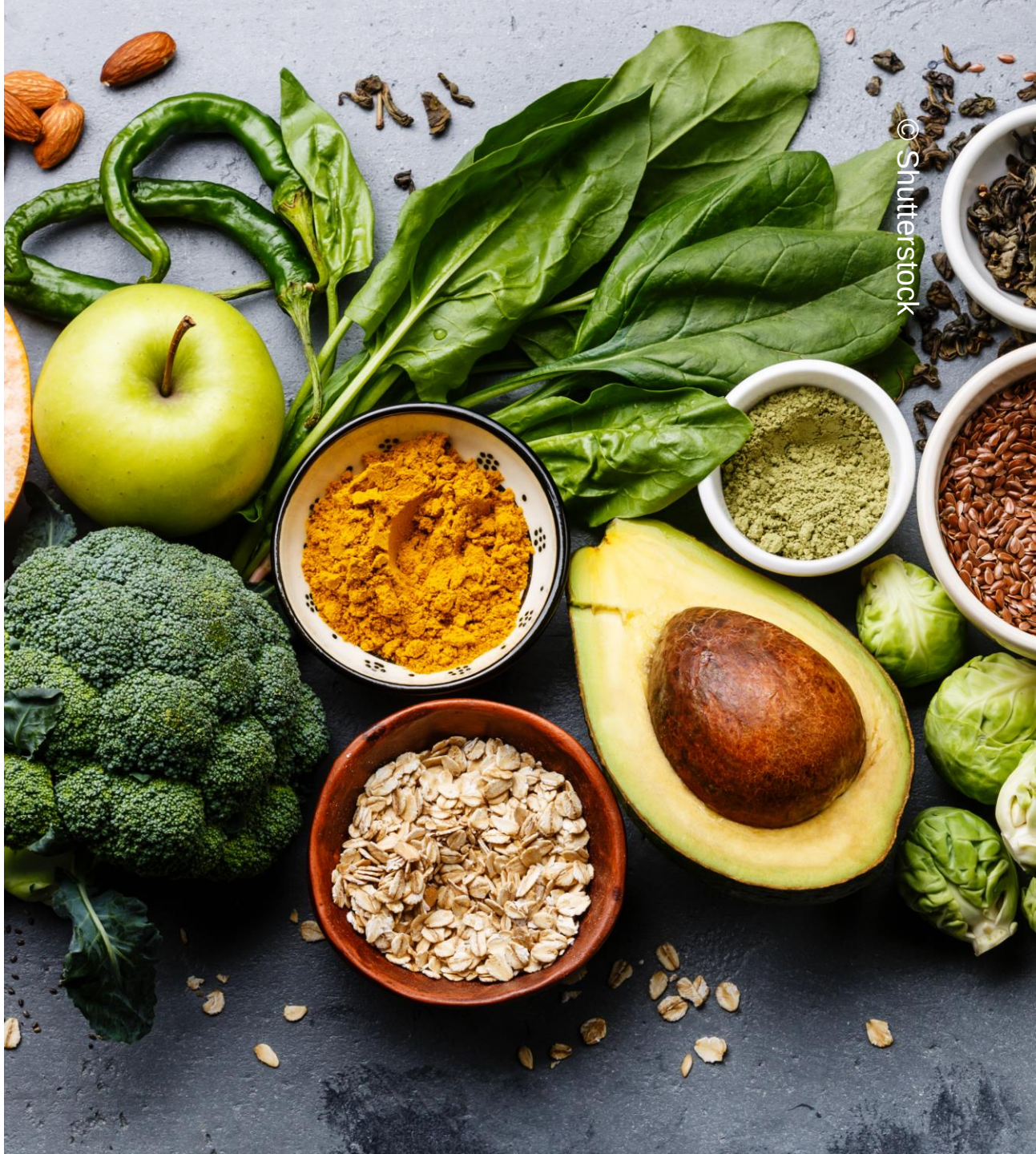

GHG emissions
Cropland use
Bluewater use
Nitrogen application
Phosphorus application
Environmental pressure
(percentage of present impact)
0
20
40
60
80
100
120
140
160
180
200
Projection
Loss and waste
Technology
Diets
Combination
Boundary
Baseline
Waste/2
Waste/4
Tech
Tech+
Guidelines
Flexitarian
Combination (medium)
Combination (high)
Boundary

1 Goal – 2 Targets – 5 Strategies

Five Strategies for a Great Food Transformation

Strategy 1

Seek international and national commitment to shift towards healthy diets



“no single actor or breakthrough is likely to catalyze systems change… require engagement of actors at all scales and in all sectors working towards a shared set of goals

Healthy food needs to be made more available and accessible

The full range from soft (e.g. information) to hard (e.g. regulations) policy options should be considered and for actions at multiple scales, municipal, cities, national, international.

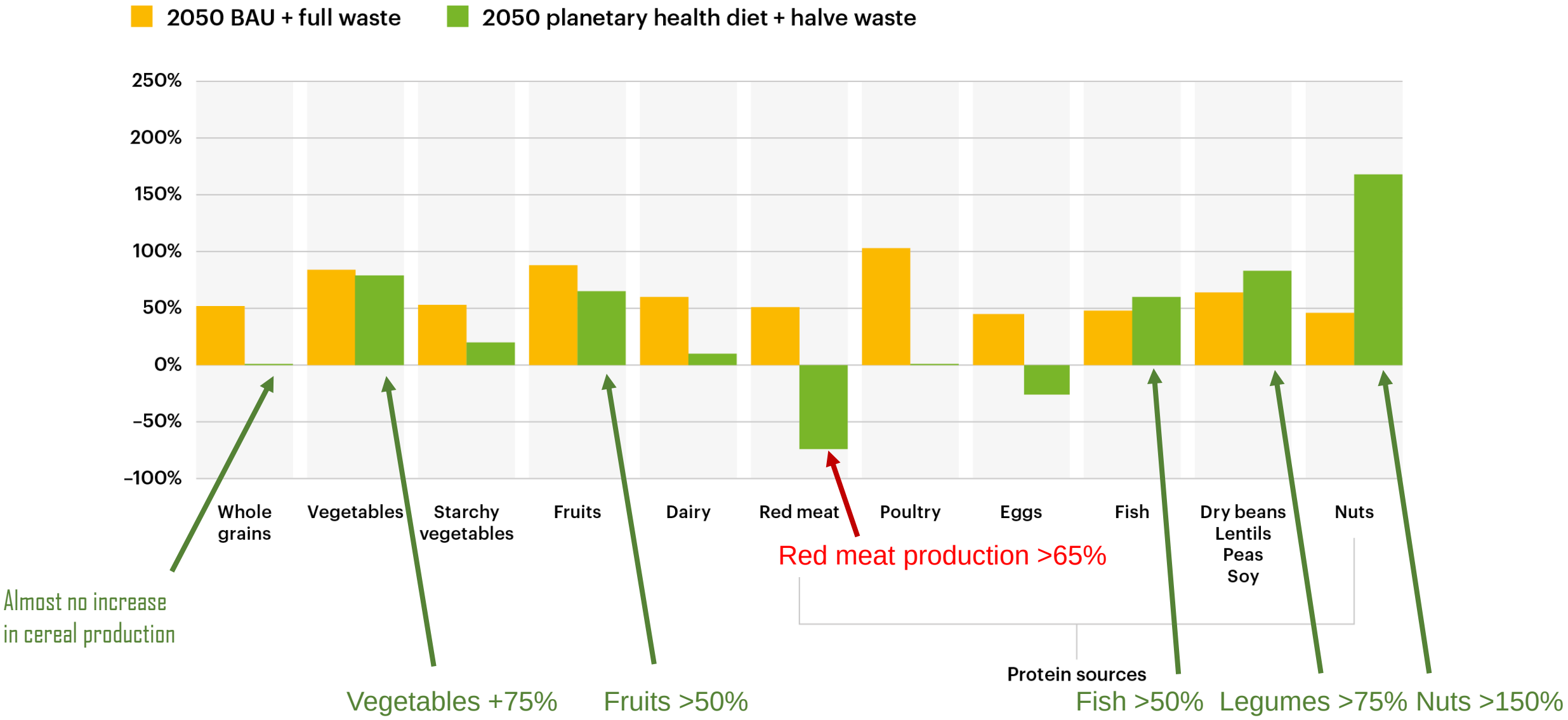
Examples of areas of improvements:

- Information and food marketing
- Investing in public health information and sustainability education
- Implementing dietary guidelines
- Using health care services to deliver dietary advice interventions

Strategy 2

Reorient agricultural priorities from producing high quantities of food to producing healthy food

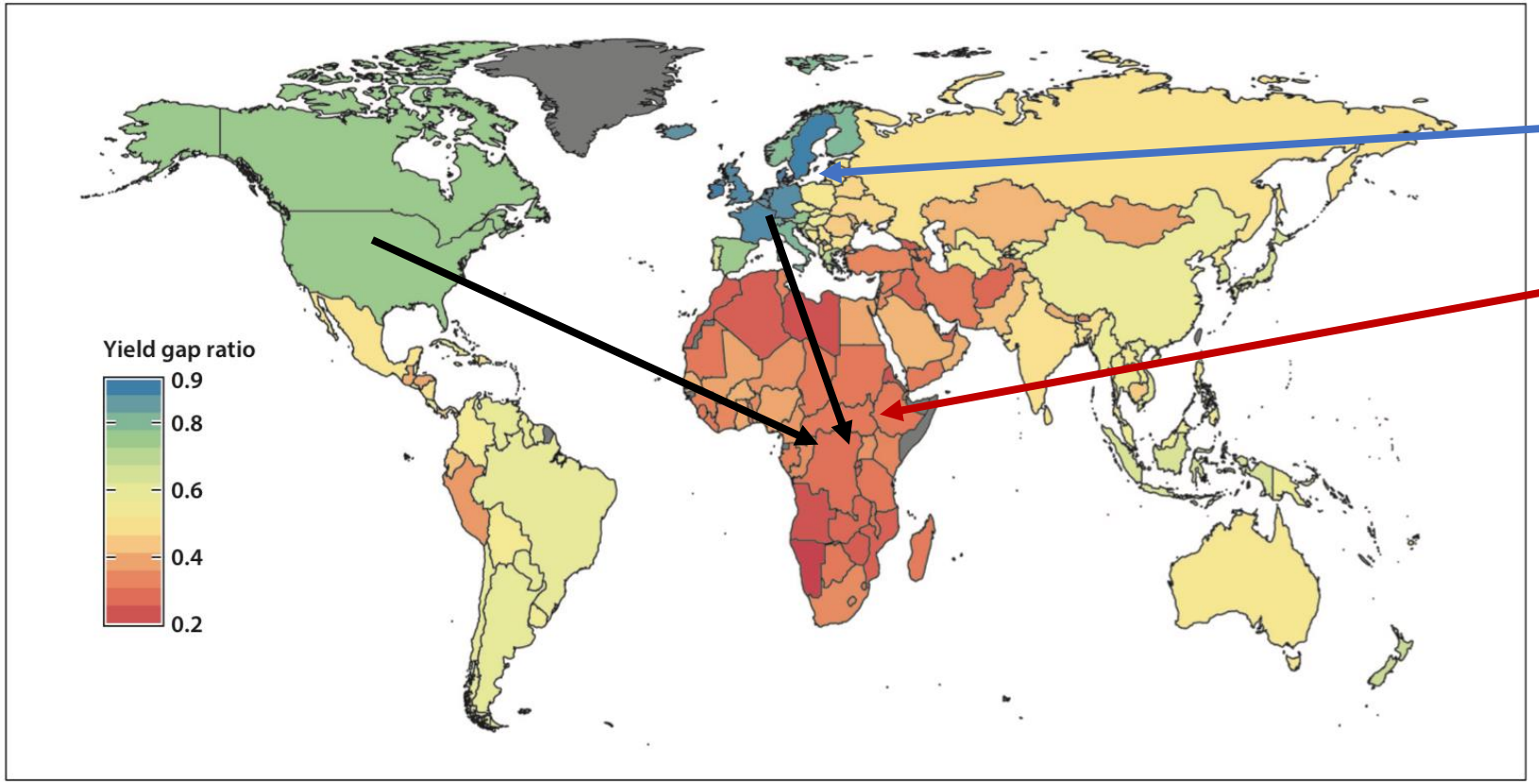
Change in Food Production



Strategy 3

Sustainably intensify food production to increase high-quality output

Yield gap – difference between actual and attainable yields



More sustainability

Sustainable Intensification

Global redistribution of fertilizers (N & P)

Figure 5

Existing crop yield gaps. Shown is the ratio of current yields to potential yields, as estimated by 92 (see also **http://www.yieldgap.org/water-productivity**). A ratio of 0.2 indicates that a nation, on average, has crop yields 20% of what that nation is capable of yielding. Low ratios indicate large yield gaps, or the difference between current yields and potential yields. Countries in gray are missing data on either current yields or potential yields.

Clark et al. 2018 Annual Review of Env. Resour.

Strategy 4

Strong and coordinated governance of land and oceans

Areas of improvement include:

Land:

Protect natural ecosystems

Land expansion only into managed lands

Global coordination to minimize ”deforestation leakage”

Restoration of degraded lands

Oceans:

Harmful subsidies to fisheries removed

Ecosystem based management to protect marine biodiversity

10% of marine areas closed to fisheries

Closure of the high seas to enhance fish stocks

Strategy 5

At least halve food losses and waste, in line with UN Sustainable Development Goals

Areas of improvement include:

Infrastructure, storage across value chain
Packaging and processing technology
Food labelling, Food safety policies,
Information and education campaigns

Source: WRI analysis based on FAO (2011b).

WORLD RESOURCES INSTITUTE

In *low income countries* most food loss at production stage

In *high income countries* food loss at consumption stage

Conclusion

Without a transformation of the global food system, the world risks failing to meet the UN Sustainable Development Goals (SDGs) and the Paris Agreement and the data are both sufficient and strong enough to warrant immediate action.

Widespread multi-sector, multi-level action is needed including: a substantial global shift toward healthy dietary patterns; large reductions in food loss and waste; and major improvements in food production practices.

Dietary changes from current diets to healthy diets are likely to substantially benefit human health, averting about 11.0 million premature deaths per year, a reduction of about 20%.

Feeding 10 billion people a healthy diet within safe planetary boundaries is possible and will improve the health and well being of millions of people and allow us to pass onto our children a viable planet.

eatforum.org

#foodcanfixit