

Eating our way to a greener world

Can a plant-based food system mitigate our climate crisis while strengthening food security?



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Global temperatures are likely to rise more than 2C above pre-industrial levels by 2100, with even the most optimistic scenario passing the Paris agreement's 1.5C goal

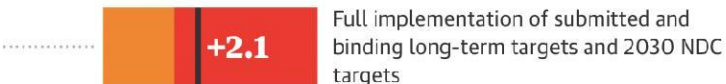


Scenarios

1. Optimistic, best case



2. Pledges and targets



3. 2030 targets only

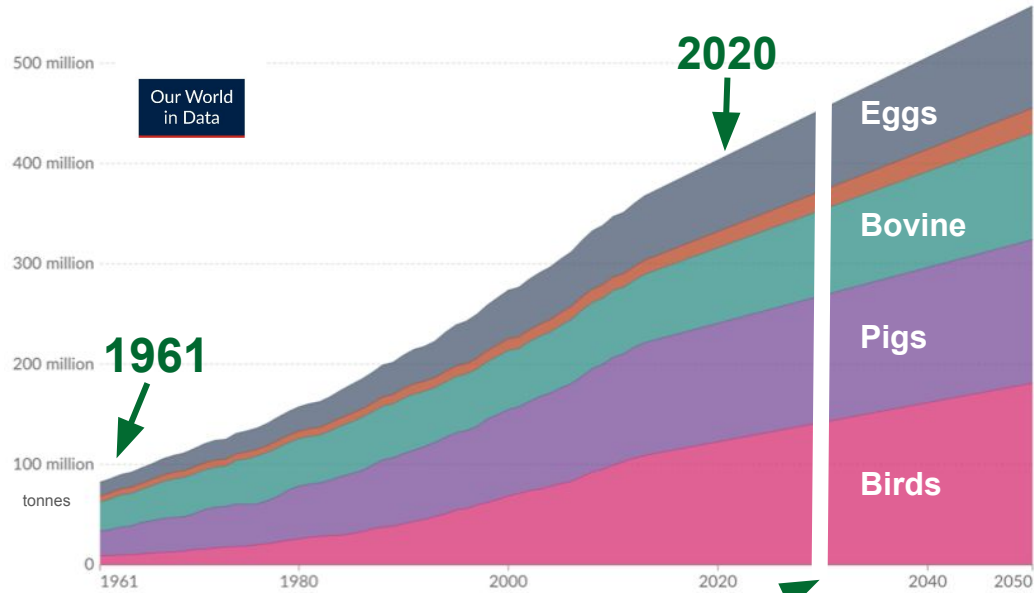
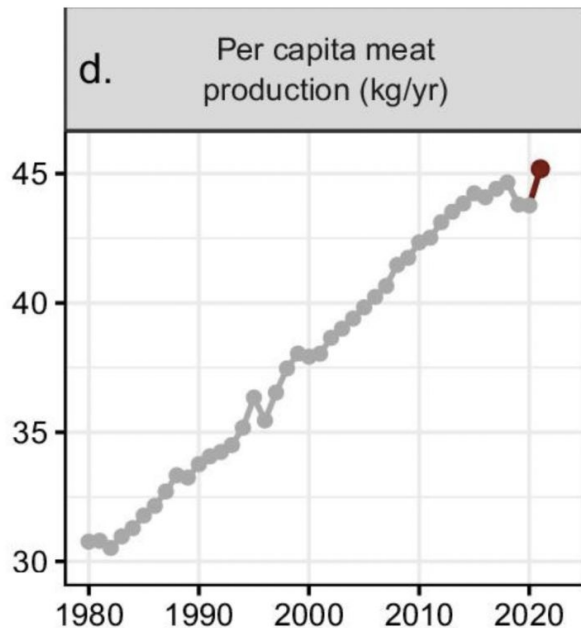


4. Policies and action



The problem of rising global meat consumption

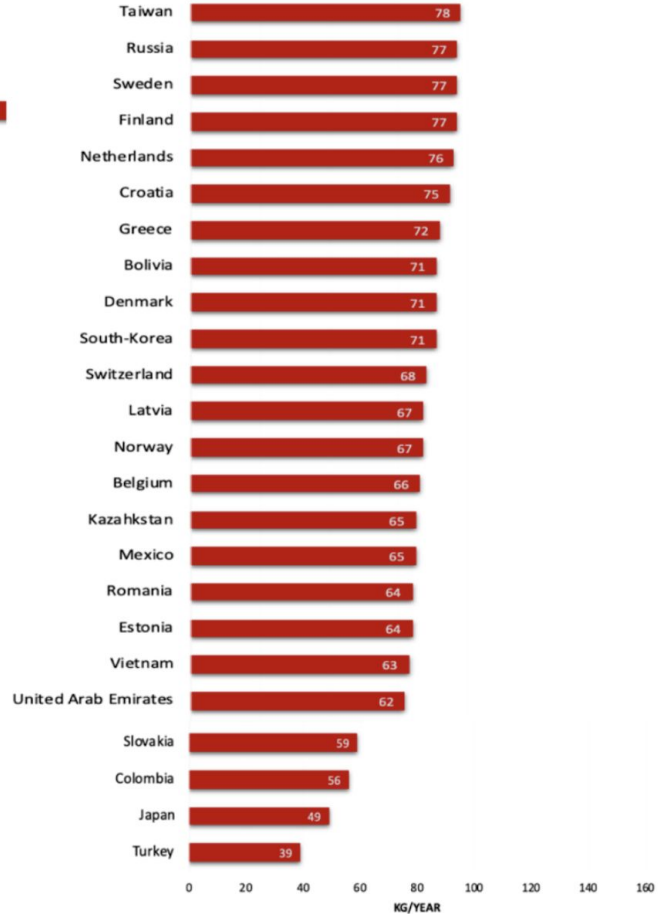
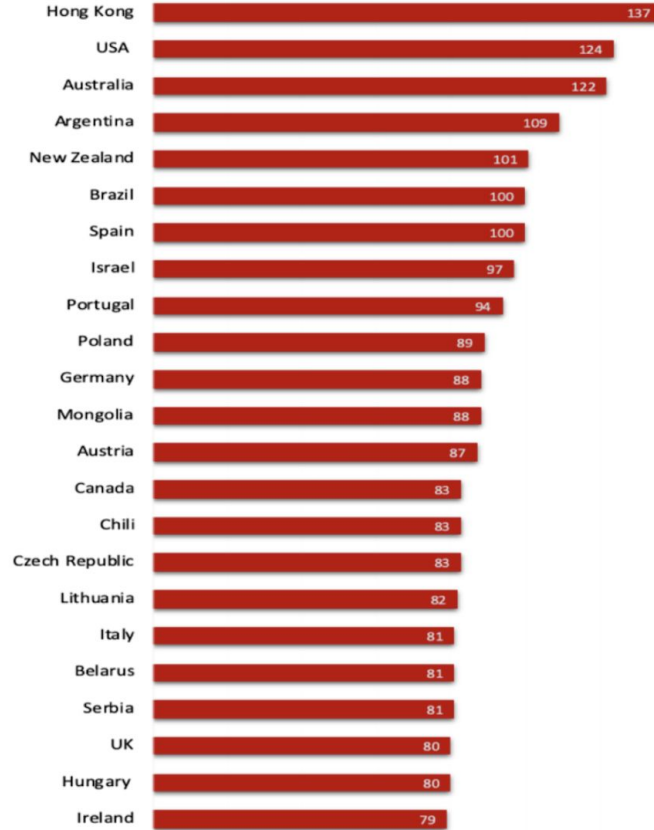
“Even if fossil fuel emissions ended today, global food emissions alone would make the 1.5°C limit impossible” Michael Clarke (2020)



Animal agriculture emissions **must peak by 2030 to avoid 2°C warming**

(Harvard Law School Animal Law & Policy Program, 2024)

MEAT CONSUMPTION PER CAPITA/YEAR



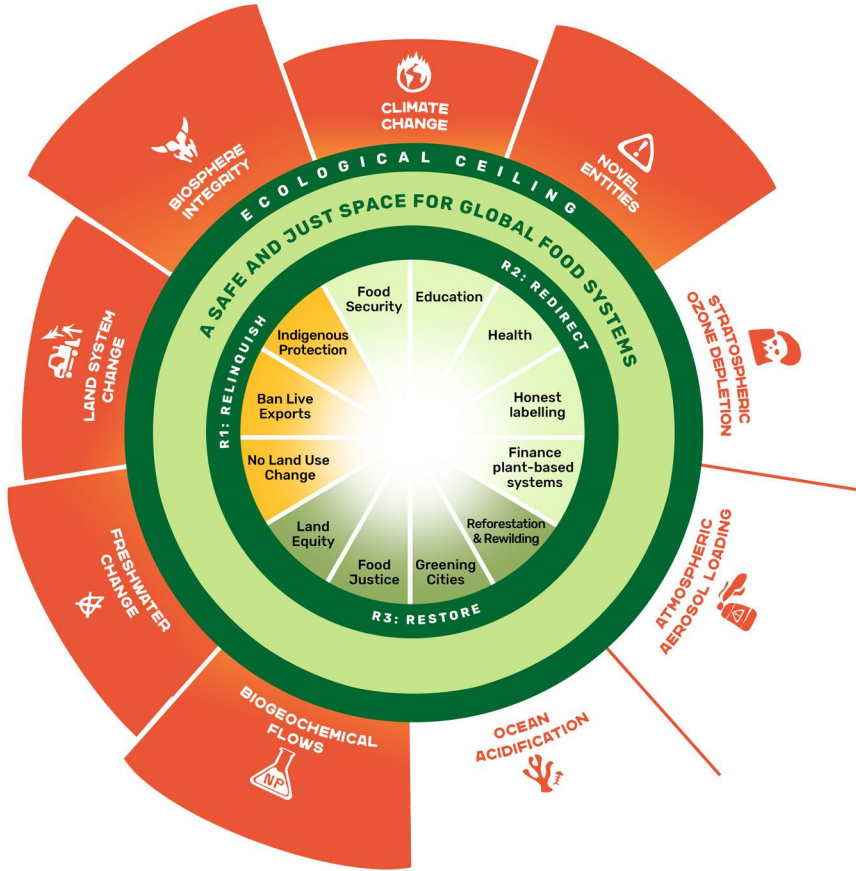
Outline

1. Food security

- a. Climate change, land use and other planetary boundaries
- b. Health, social and economic aspects

2. Plant Based Treaty

- a. What cities can do to green our plate with fruits and vegetables; grains; & plant-based fats and proteins
- b. Endorse the Plant Based Treaty!



Donut economics



The food system is becoming less resilient

2 ZERO HUNGER



- 8.2% of the world's people going hungry in 2024; up from 7.7% in 2015

- “volume” of farmed animals up 15% from 2015 to 2024

- current food system relies on breaking circuit breakers

- some parts of the world will be too hot for outdoor work

- reduced quality of grains

- Greater number of extreme weather events

- Water availability (least safe assumption), soil crisis, land use and deforestation, biodiversity crisis

13 CLIMATE ACTION

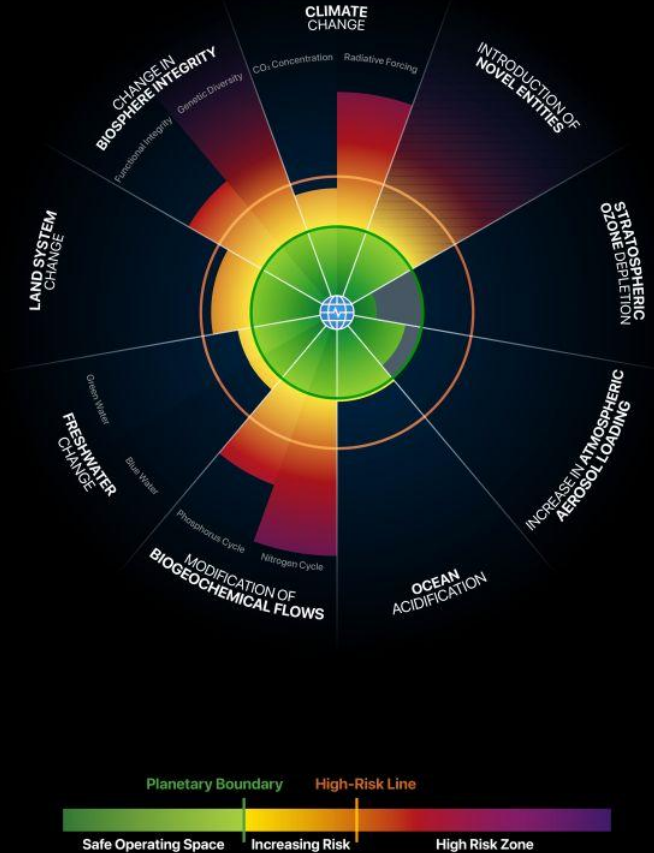
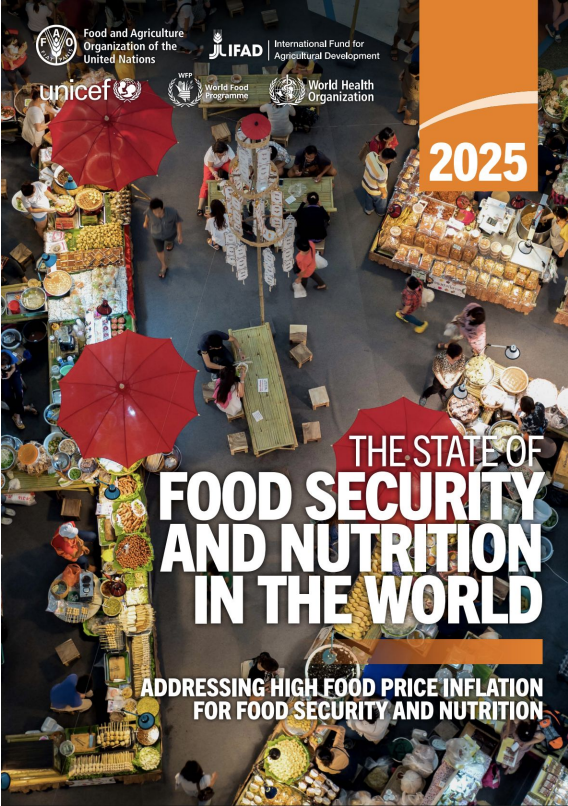


6 CLEAN WATER AND SANITATION



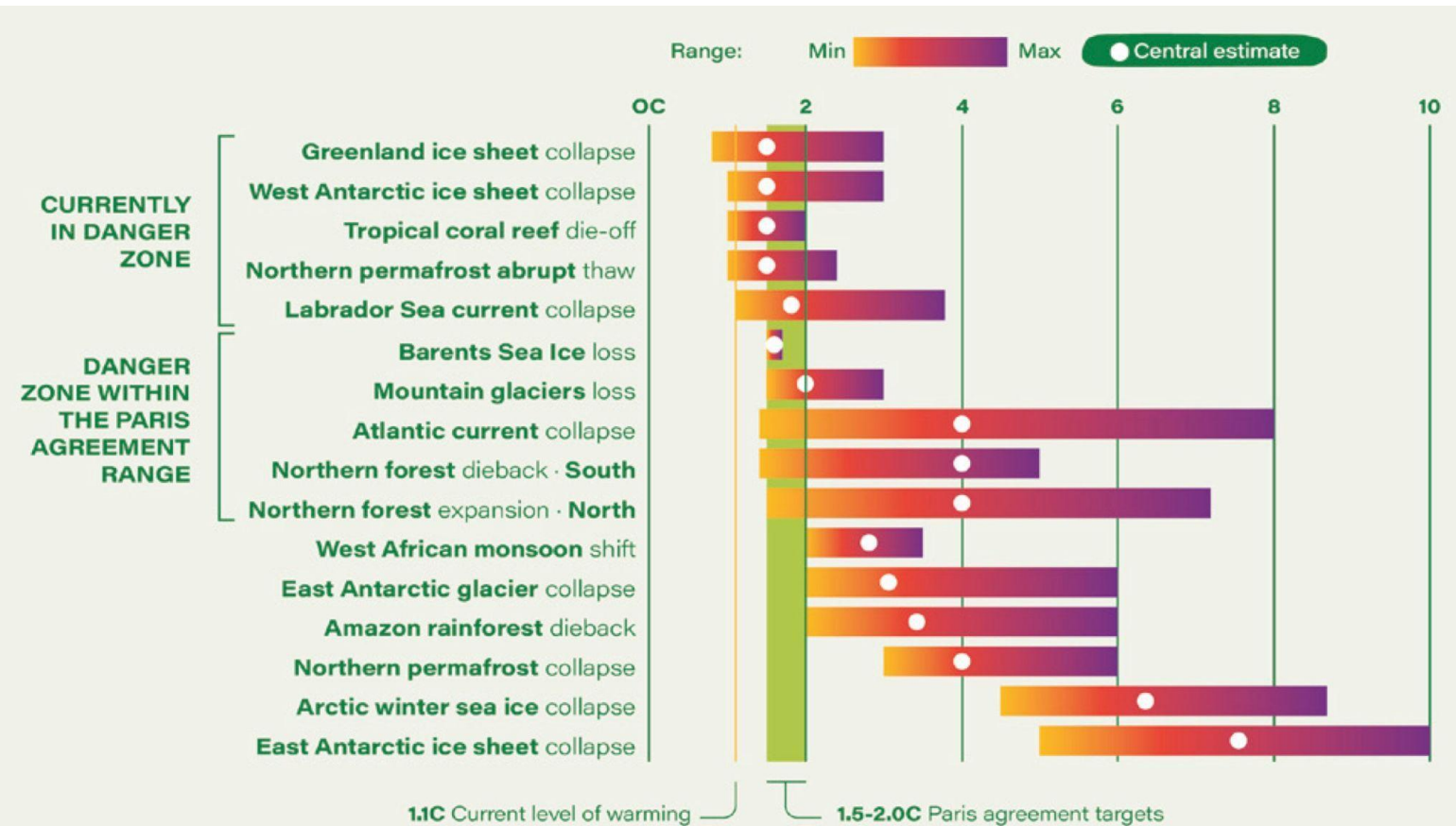
Defining food security

- access to sufficient, safe and nutritious food

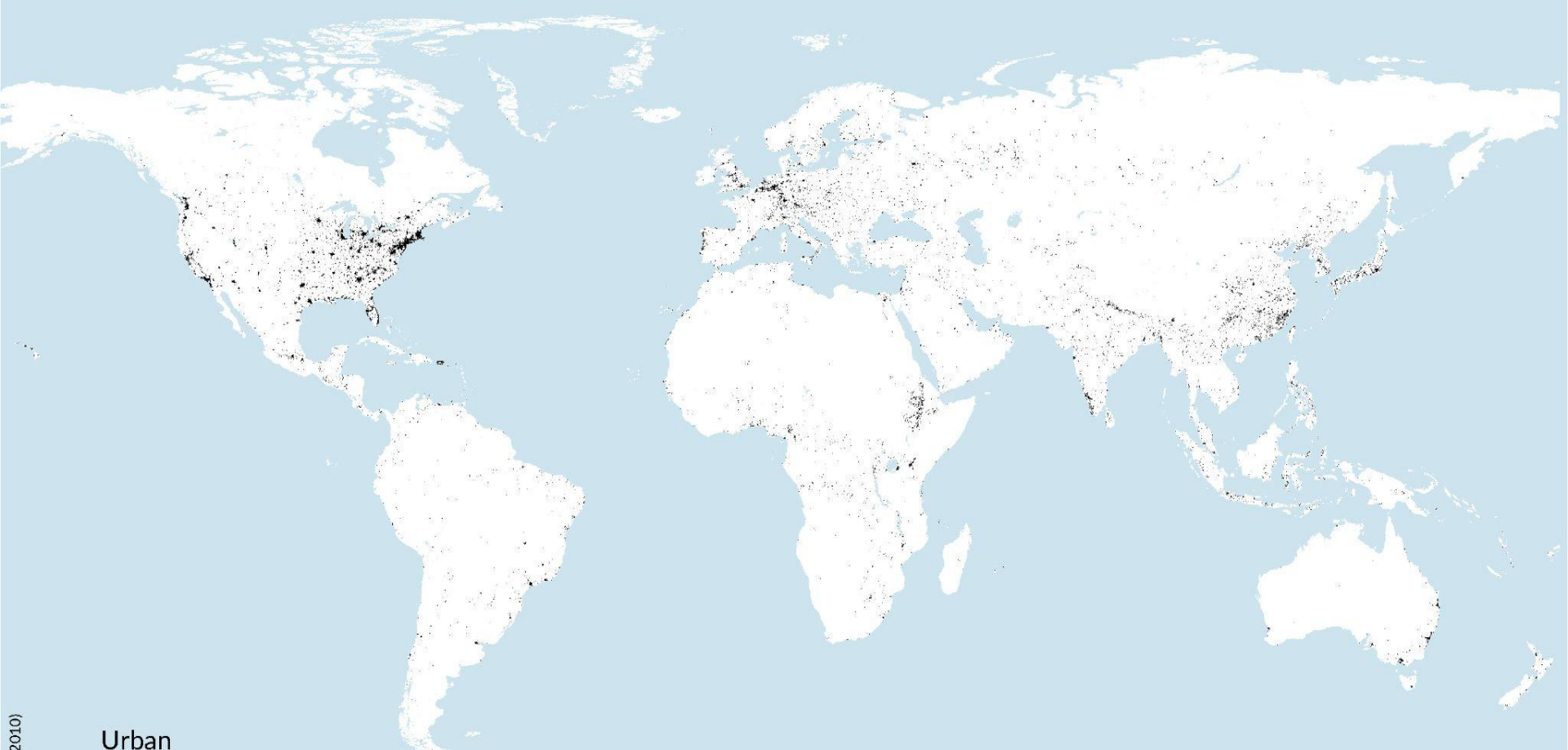


Tipping points

“The 1.5°C threshold is a physical limit, not a political target.” - Johan Rockström

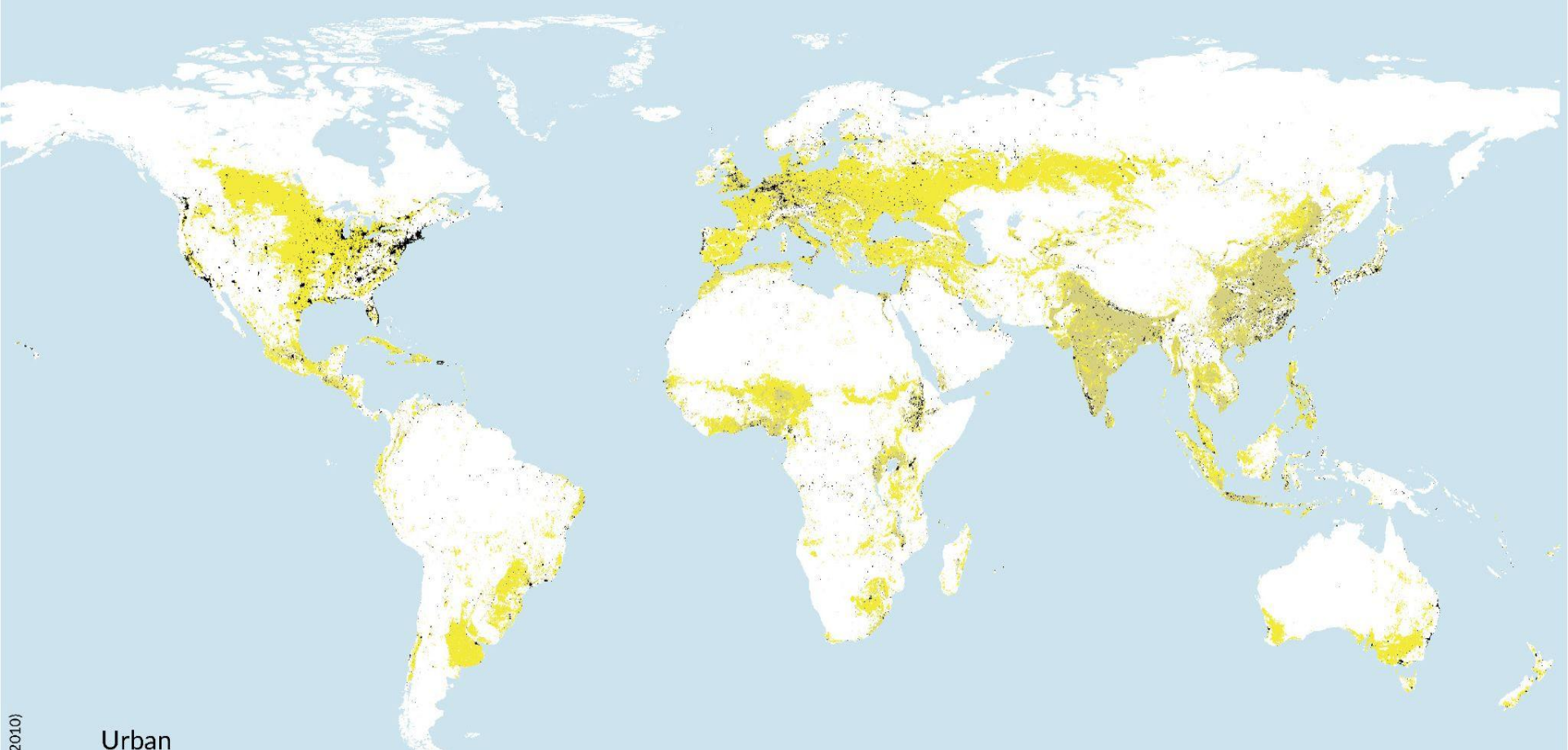






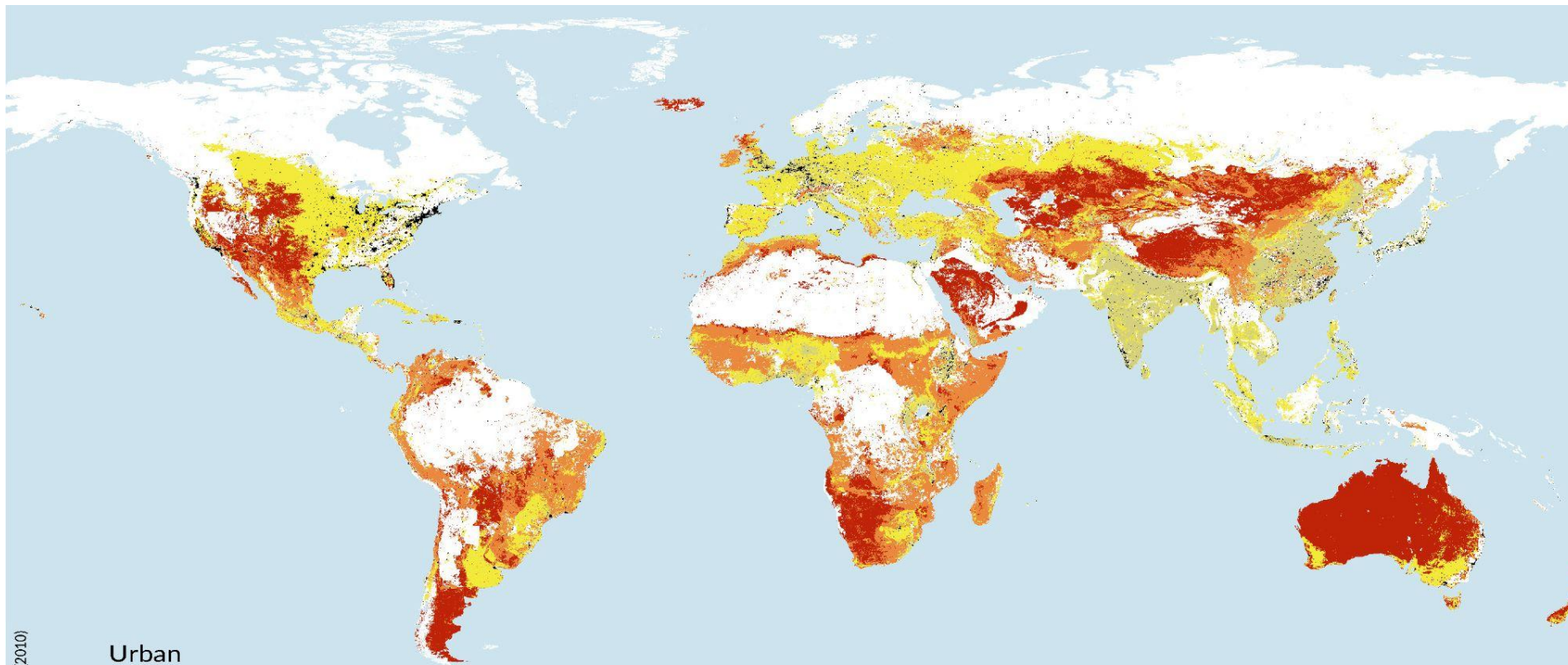
Urban





Urban

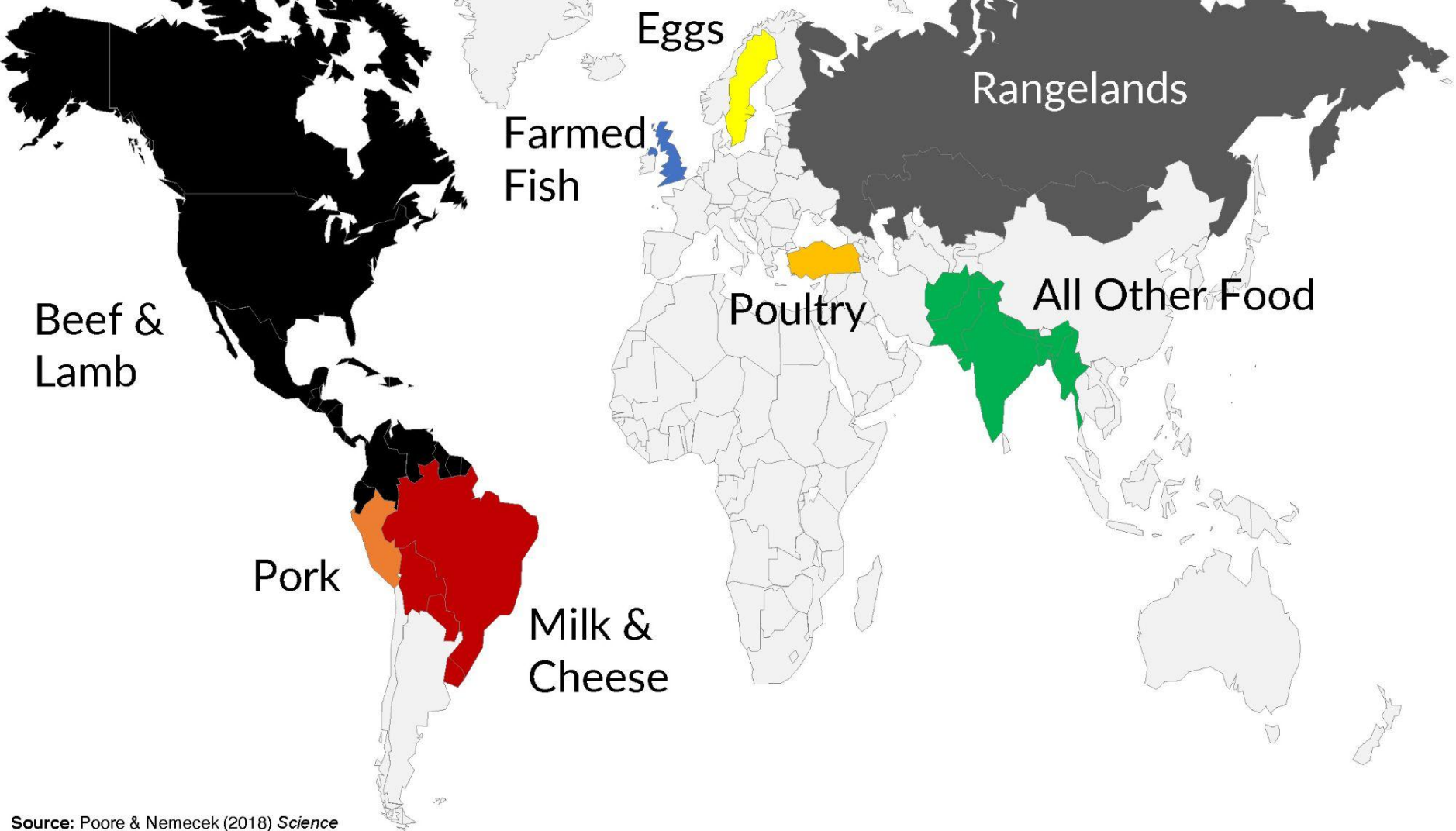




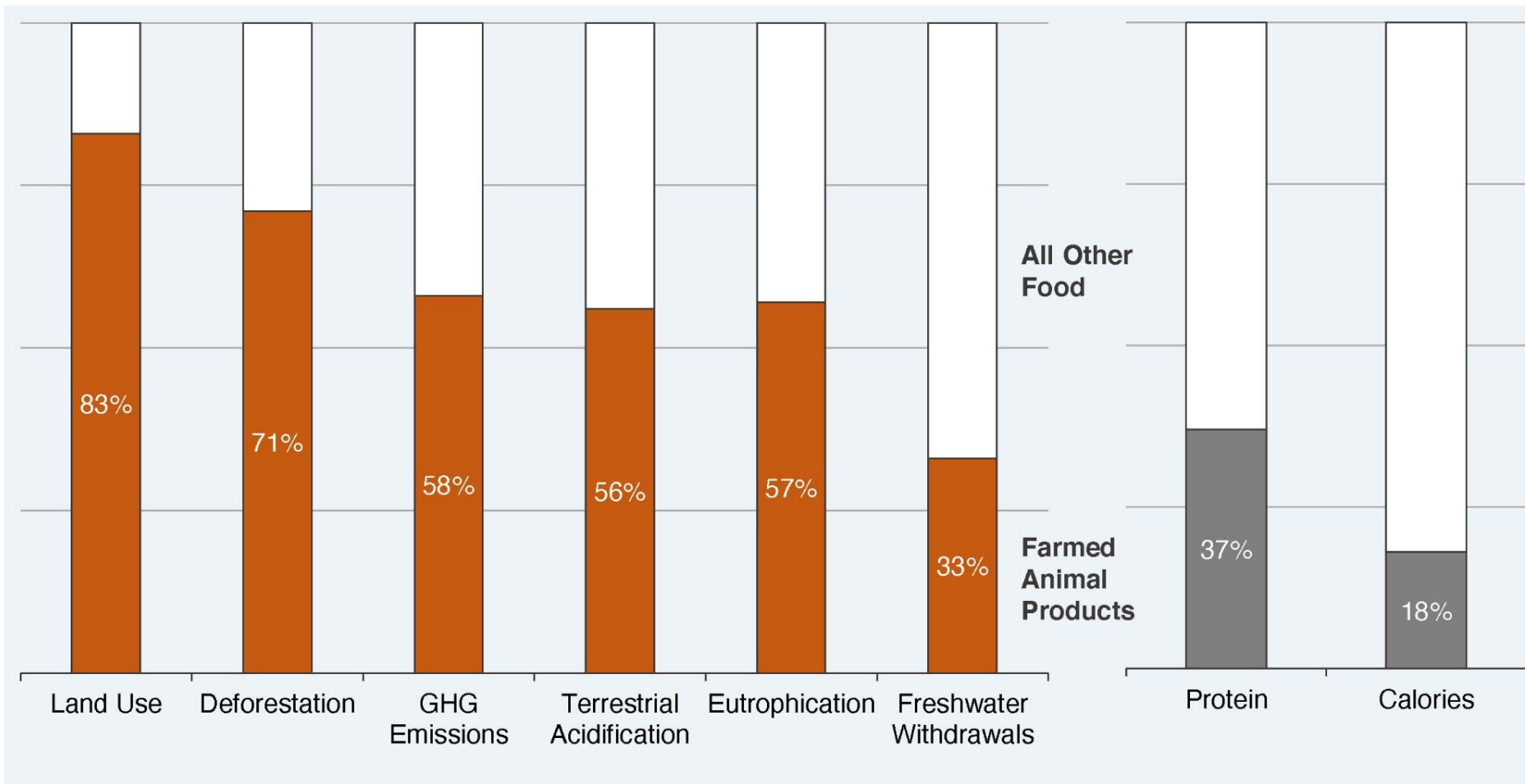
source: Ellis et al. (2010)

Urban





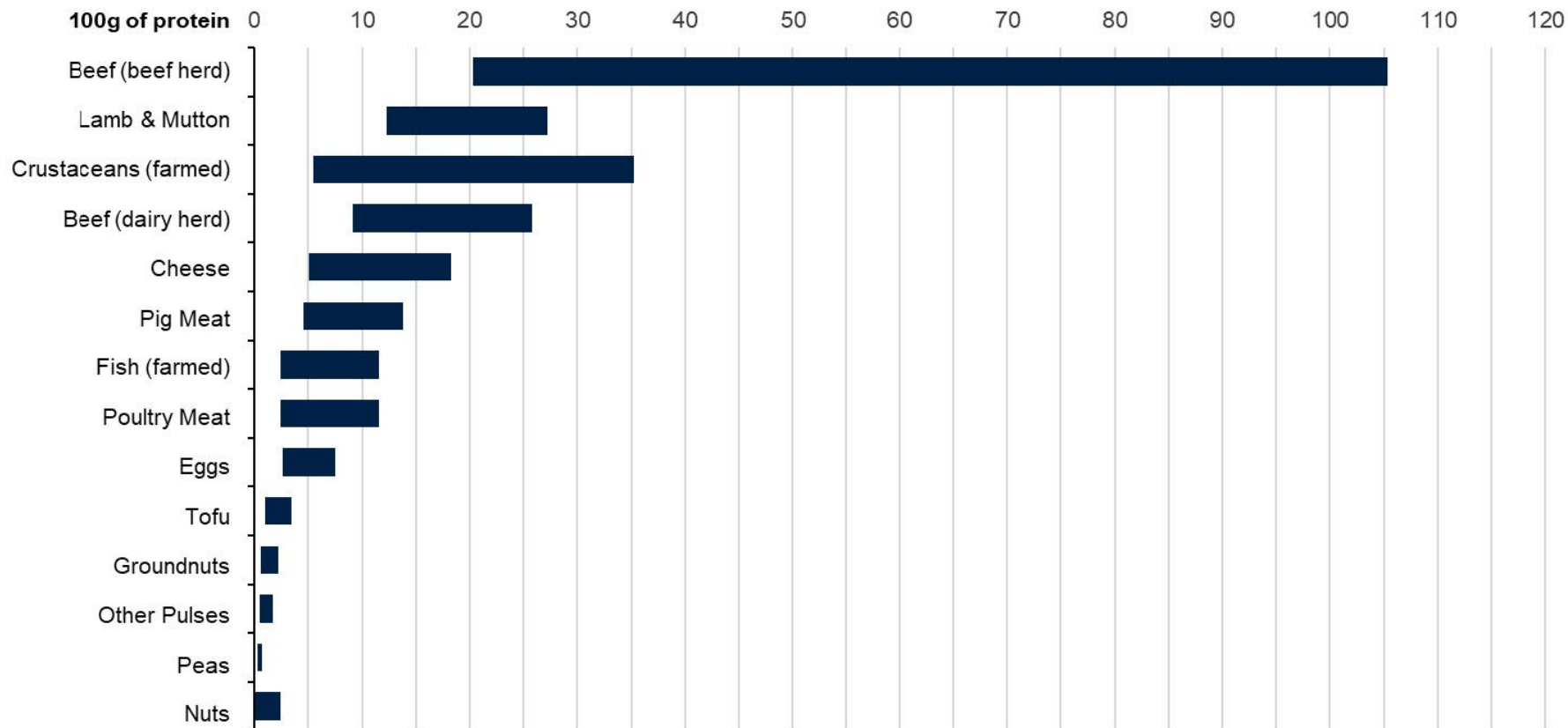
Source: Poore & Nemecek (2018) *Science*

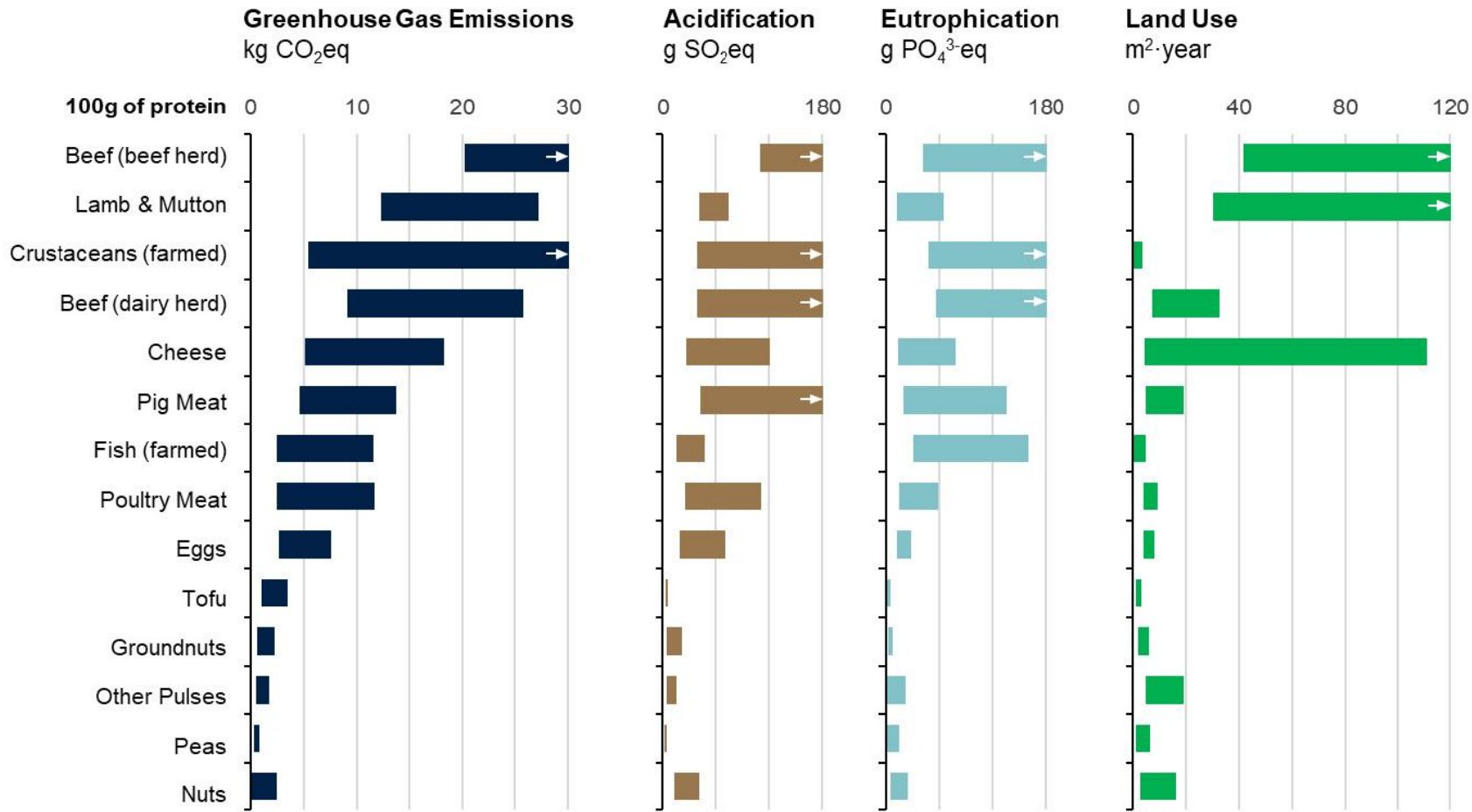


Source: Poore & Nemecek (2018)

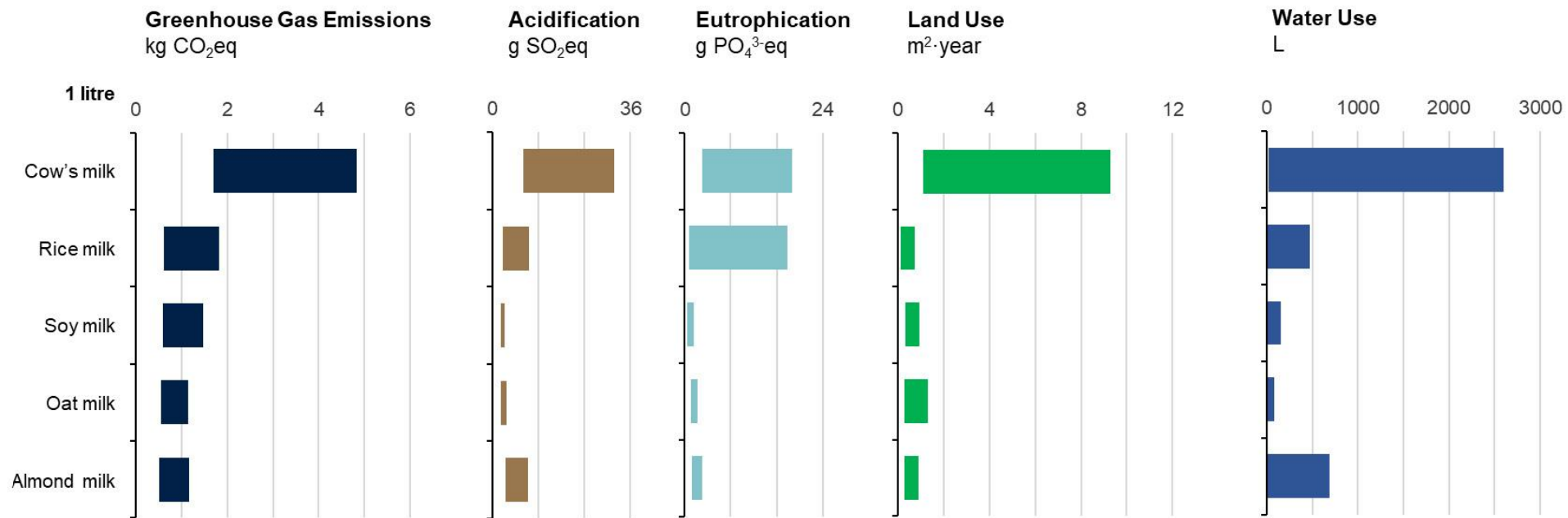
Greenhouse Gas Emissions

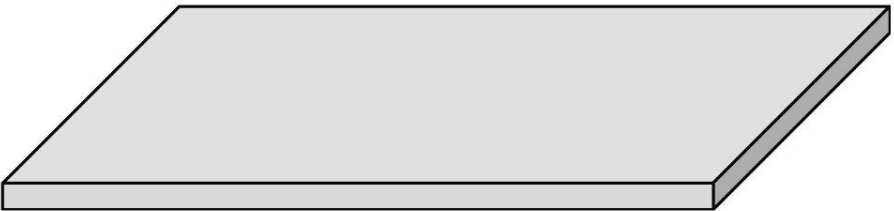
kg CO₂eq



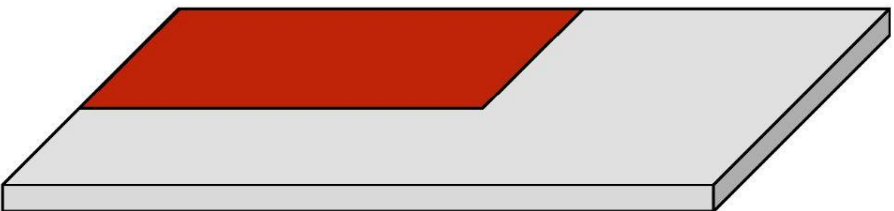


Source: Poore & Nemecek (2018)





Land Per Person on Earth
17,000m²



Current Diet
Global 6,200m²

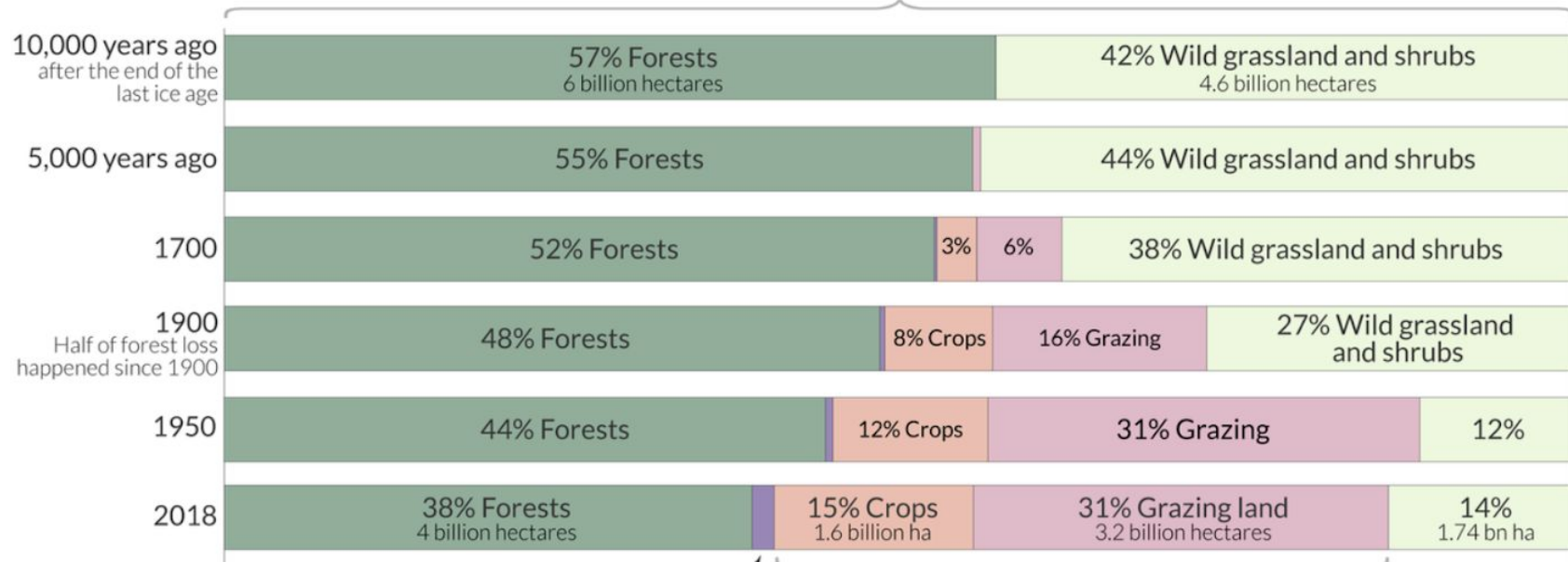


No Animal Products Diet
1,500m²

Humanity destroyed one third of the world's forests by expanding agricultural land

Agriculture is by far the largest driver of deforestation. To bring deforestation to an end humanity has to find ways to produce more food on less land.

10,000 years ago, 10.6 billion hectares — 71% of Earth's land surface — were covered by forests, shrubs, and wild grasslands.
The remaining 29% are covered by deserts, glaciers, rocky terrain and other barren land.



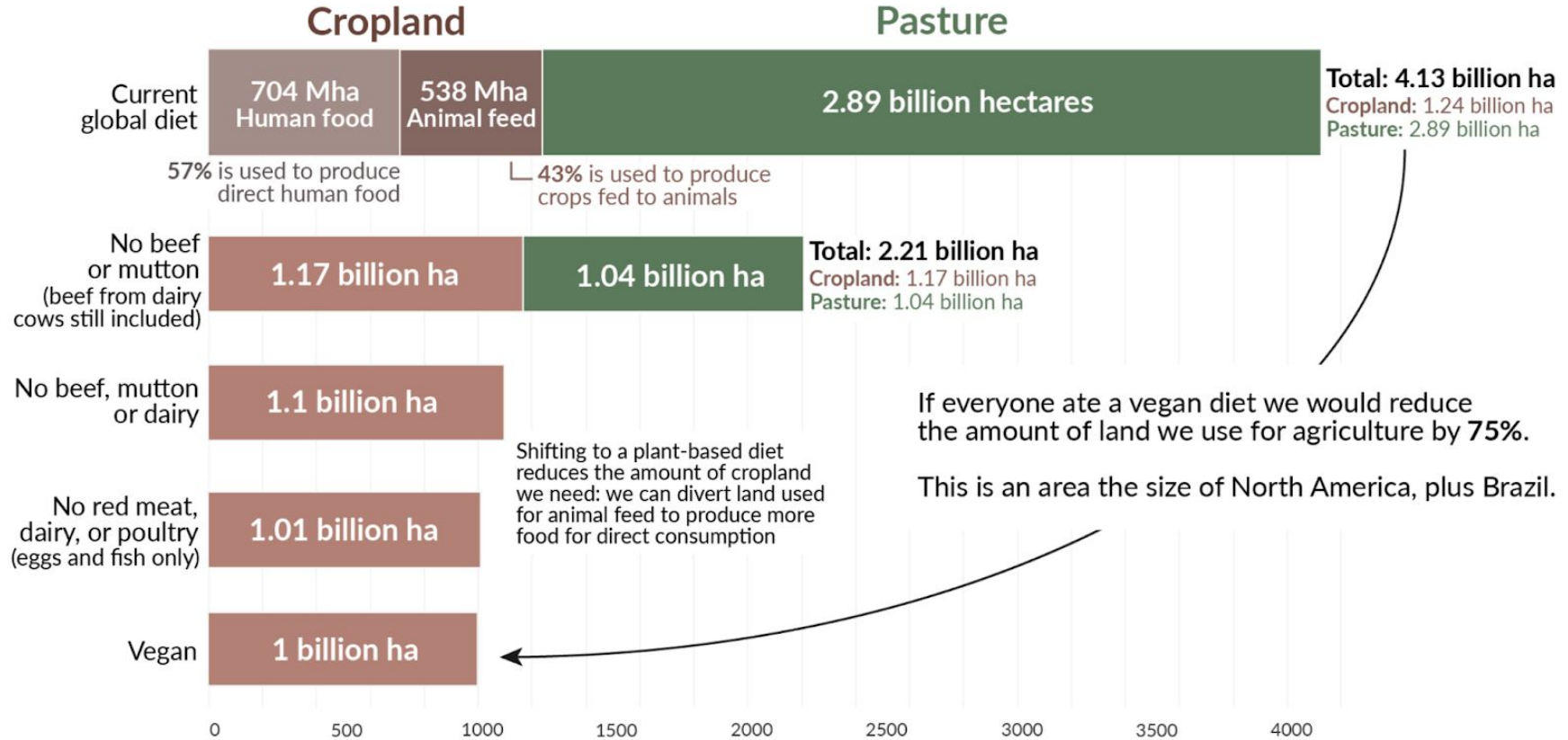
1% Urban and built-up land

Agricultural land: 46% of the land that was once covered by forests, wild grasslands and shrubs is today used for agriculture.
 - 77% of agricultural land is used for livestock (grazing + crops for animal feed).
 - 23% is used for crops that are directly eaten by humans.

Global land use for agriculture across different diets



Global agricultural land use is given for cropland and pasture for grazing livestock assuming everyone in the world adopted a given diet. This is based on reference diets that meet calorie and protein nutritional requirements.



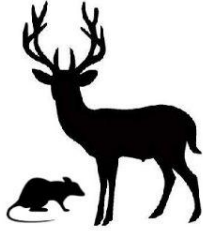
Data Source: Joseph Poore & Thomas Nemecek (2018). Reducing food's environmental impacts through producers and consumers. *Science*.

[OurWorldinData.org](https://www.ourworldindata.org) – Research and data to make progress against the world's largest problems.

Licensed under CC-BY by the author Hannah Ritchie.



5
birds



15
mammals



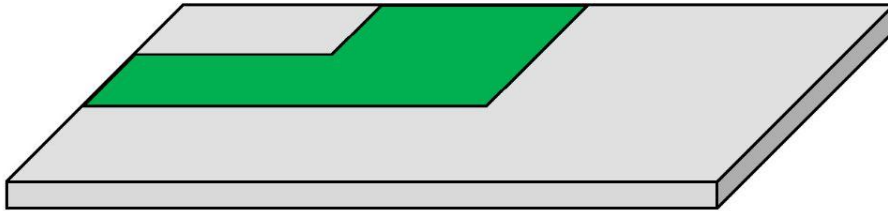
20
reptiles



100
amphibians

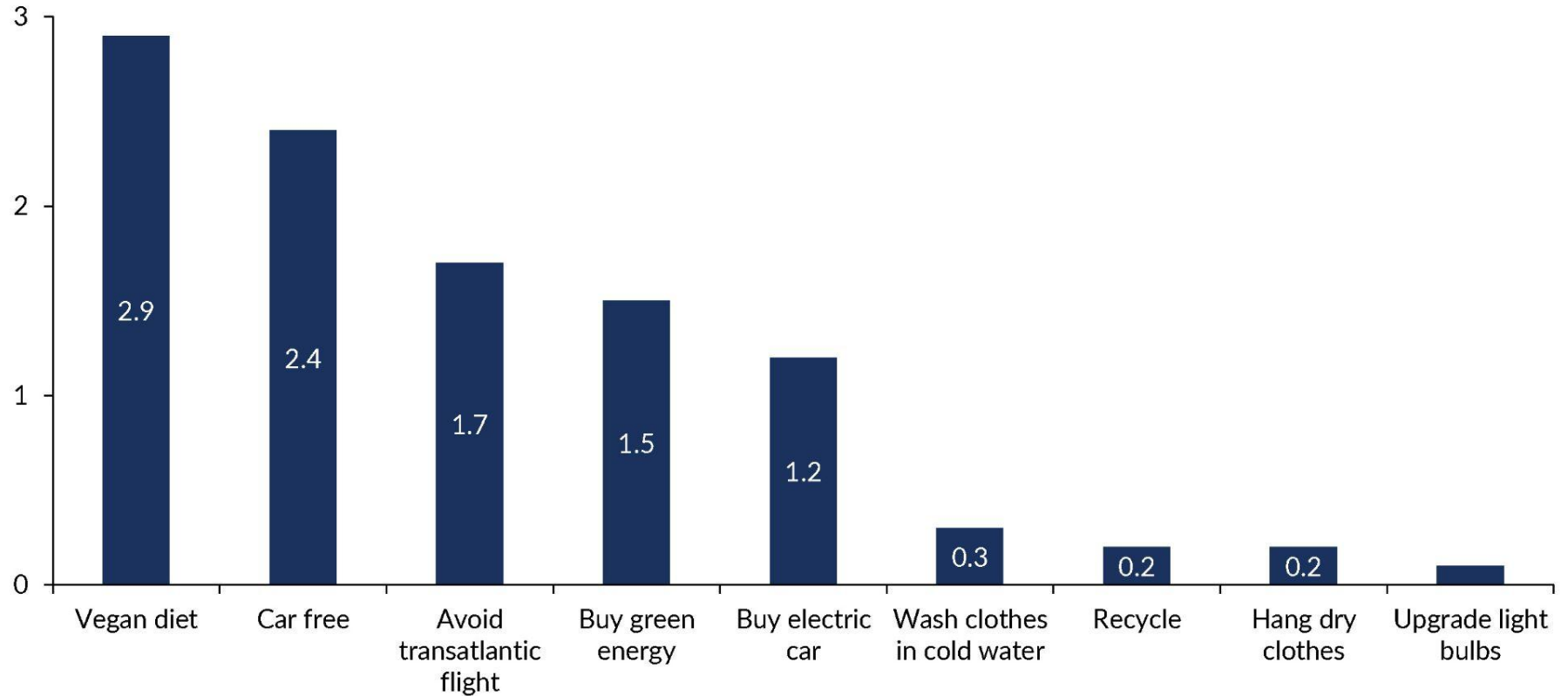


150 tonnes CO₂
plants and soil



Spared Land
4,700m²

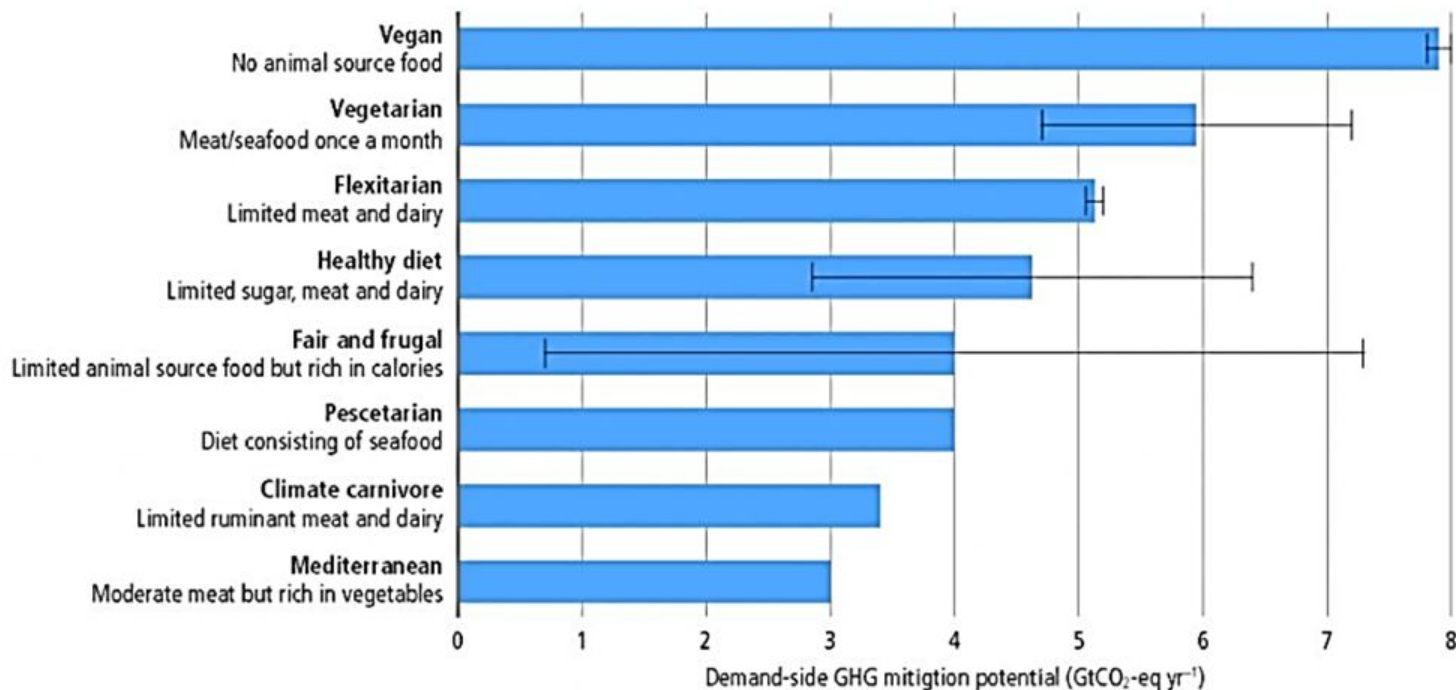
Greenhouse Gas Emissions Saved Per Person (tonnes CO₂eq, Europe)



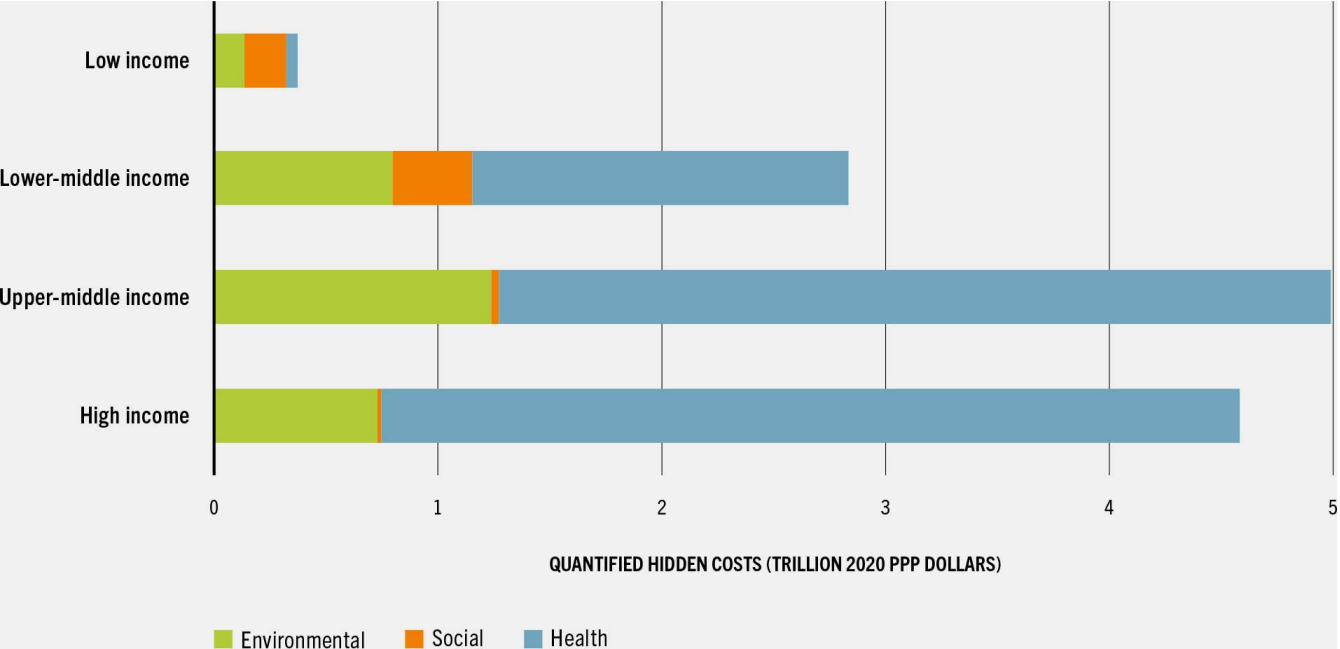
IPCC 2019: Human dietary choices and greenhouse gas emissions

Demand-side mitigation

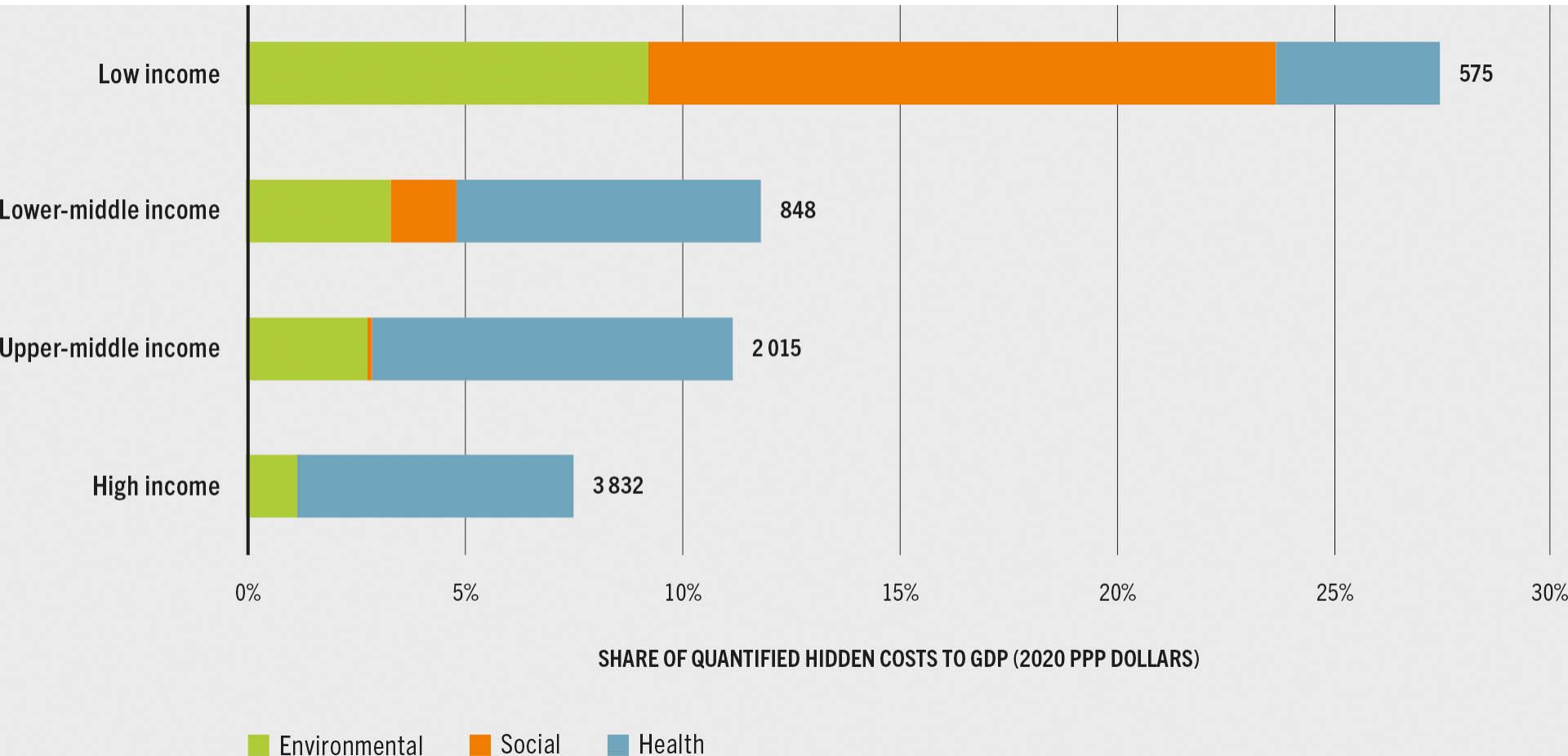
GHG mitigation potential of different diets



Total Hidden Costs of our Current Food System



Per Capita Hidden Costs of our Current Food System



Source: FAO, The State of Food and Agriculture (2023)

Grand strategic objective



**DEVELOP A SAFE AND JUST
PLANT-BASED FOOD SYSTEM
THAT WOULD ENABLE US
TO LIVE WITHIN OUR
PLANETARY BOUNDARIES
AND REFOREST THE EARTH**

Phases

3 R'S

Redirect

Relinquish

Restore

Campaigns

Public information campaigns
Subsidies
Menu change
Food security
Honest labeling

Avoid clearing forests
Stop octopus farming
Ban live exports
Stop animal gifting

Reforestation
Food justice
Land equity
Community gardening
Greening cities

Tactics

Awareness raising, ad campaigns, advocacy, partnerships, pressure campaigns, email actions, food demos, community gardens, direct actions like marches



Plant Based Treaty initiative

Program	What it does	2025 status	2025-2030 plan
Endorsements	Collects endorsements from individuals, groups and businesses	a quarter of a million individual endorsements including high profile celebrity endorsers, Over 1000 politicians, 5 Nobel Laureates	2 million individual endorsements
City campaign	Cities endorse the Plant Based Treaty and implement a Plant Based Treaty action plan using the Redirect, Relinquish & Restore principles	50 city endorsements including Amsterdam, Edinburgh and Mississauga. 200 Plant Based Treaty city teams in 40 countries. Implemented meaningful actions such as menu changes, carbon labeling and city led public education campaigns	Achieve 1,000 city and 20 country endorsements with meaningful policy changes Engage 10,000 teams in thousands of cities to achieve tipping points to drive endorsements
Menu change	Encourage plant-based food choices by individuals and food providers	100 Cafes Campaign launched: 100 teams approaching 100 cafes to ask them to increase and promote plant-based options Four Playbooks of best practices published	10 businesses in each target country commit to increasing plant-based options per year
Global climate talks advocacy	Attend Bonn, COP, UN high-level political meetings on SDGs and food conferences. Publish and distribute Safe & Just report	Releasing Safe & Just donut economics report. Lobbying countries to endorsing the Plant Based Treaty, and submitting National Determined Contribution (NDC) proposals. Global media coverage for our attendance at COPs such as Reuters.	Raising awareness through our Safe & Just donut economics report. Working to secure Plant Based Treaty Country endorsements
Training & capacity building	Climate science and food system impact literacy. Practical trainings for advocates to launch campaigns. Recruitment	Trainings for the public: Dr Joseph Poore webinar attended by city councils, city advocacy, university menu changes, 100 Cafes Campaign, Safe & Just Report	Updating a City Campaign Guide Recruiting regional managers in countries to manage teams



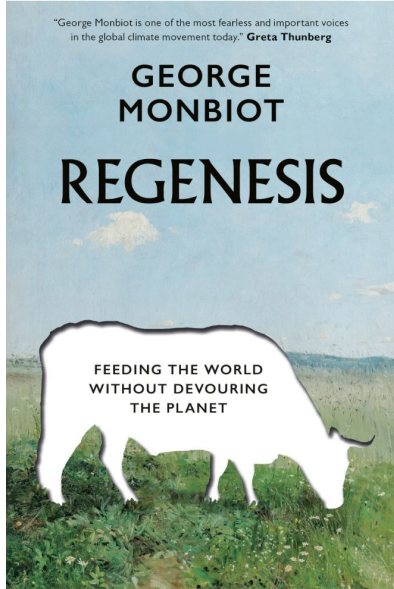
**50 CITIES
HAVE ENDORSED
THE CALL FOR A**



<p>NORTH AMERICA</p> <ul style="list-style-type: none"> ● United States Boynton Beach Huboken Los Angeles West Hollywood ● Canada Brampton, Ontario Caledon, Ontario Mississauga, Ontario Rainbow Lake, Alberta 	<p>AFRICA</p> <ul style="list-style-type: none"> ● The Gambia Manduar Fasa Omar Seho Nema Kunku ● Ghana La Traditional Area, Accra Osu, Accra ● Kyotera, Uganda
<p>SOUTH AMERICA</p> <ul style="list-style-type: none"> ● Nova Lima, Brazil 	<p>ASIA</p> <ul style="list-style-type: none"> ● India Ahmedabad Amravati Bhavnagar Bhuj Bhujpur Gandhinagar Gosolpur Jabalpur Jamnagar Mandla Nagpur Rajkot Soniapat Thane Udaipur Cadodara ● Nepal Chandragiri Nagarjini ● Didim, Türkiye
<p>EUROPE</p> <ul style="list-style-type: none"> ● Grenoble, France ● The Netherlands Amsterdam Nijmegen ● Spain Alcorcón El Masnou Paris ● Portugal Braga Campolide Tavira ● United Kingdom Belfast (Northern Ireland) Edinburgh (Scotland) Exmouth (England) Haywards Heath (England) Lambeth (London) Norwich (England) 	<p>OCEANIA</p> <ul style="list-style-type: none"> ● Derebin, Australia



Plant Based Treaty's 3Rs and 40 detailed proposals in action



R1: REDIRECT- Proposal 3 Food security should be placed as a priority for all nations, with a focus on ending poverty and hunger and making nutritious food accessible for all

Proposal 5 - Shift away from monoculture, arable farming that depletes soil, decreases biodiversity and is reliant on external inputs such as animal manure and agrochemicals towards agro-ecology and veganic farming using regenerative, permaculture and natural principles to restore soil and ecosystems, enhance food security and provide nutrient-dense foods

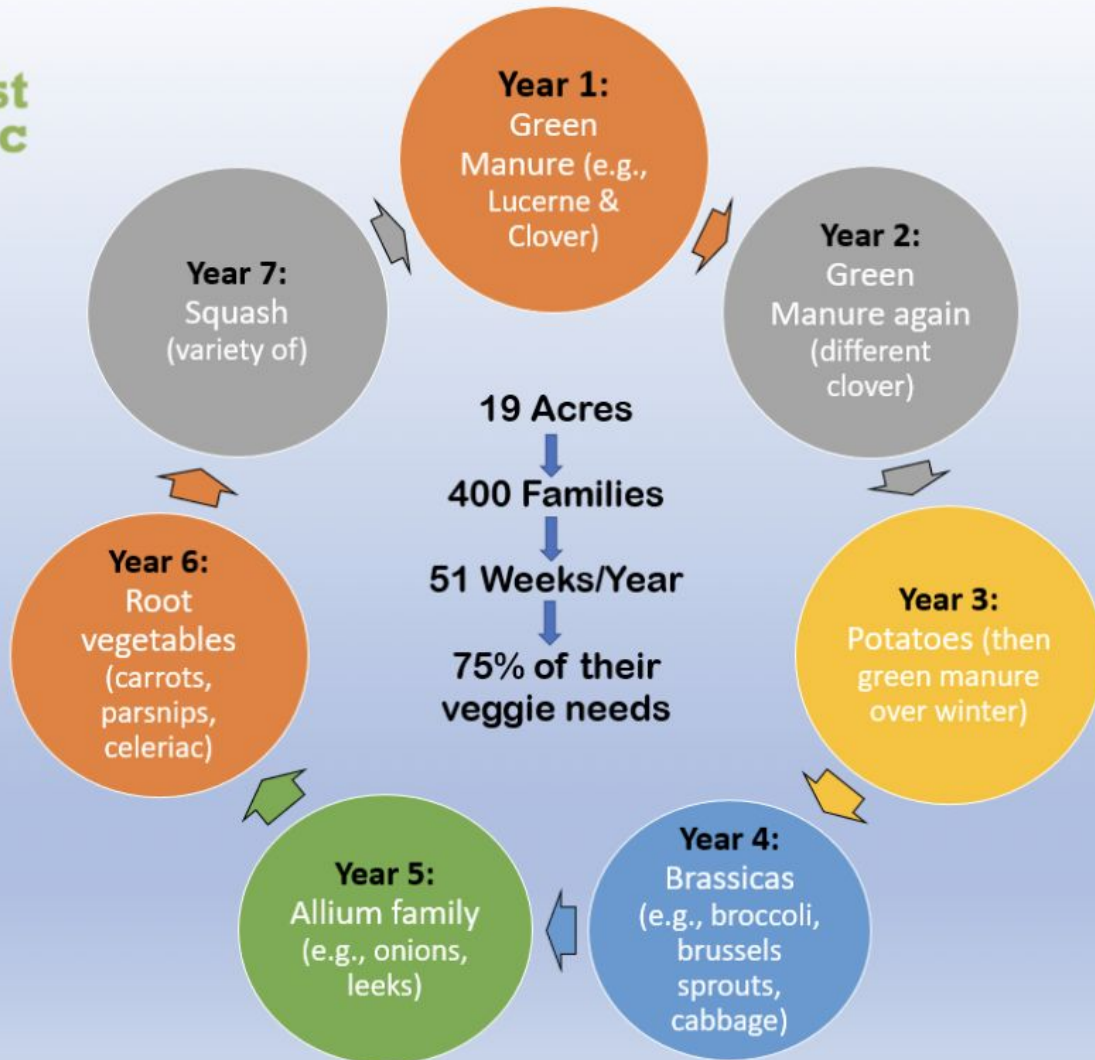




Fruits and Vegetables Horticulture



**Tolhurst
Organic**



Proposal 17 focuses on supporting farmers in a plant-based transition.

Grains - arable land

- problem of soil degradation and erosion with annual planting of grains on arable land
- solutions include no till; perennial grains like Kernza and perennial rice

Fat and protein

- legumes are nitrogen fixing; we need to increase consumption 5x
- precision fermentation would vastly reduce land use

Huge reduction in meat-eating
'essential' to avoid climate breakdown

Major study also finds huge changes to farming are needed to avoid
destroying Earth's ability to feed its population

The
Guardian

An aerial photograph of Miami's South Beach area, illustrating the potential impact of sea level rise. The image shows a dense urban landscape with numerous high-rise apartment buildings and residential structures. A large portion of the coastal and inland areas is submerged in blue water, with only the tops of trees and some buildings visible above the surface. The water appears to have inundated the lower-lying parts of the city, leaving large islands of land surrounded by water.

UN urges global move to meat and dairy-free diet

Lesser consumption of animal products is necessary to save the world from the worst impacts of climate change, UN report says

How Miami's South Beach could look if global heating reaches 2C.

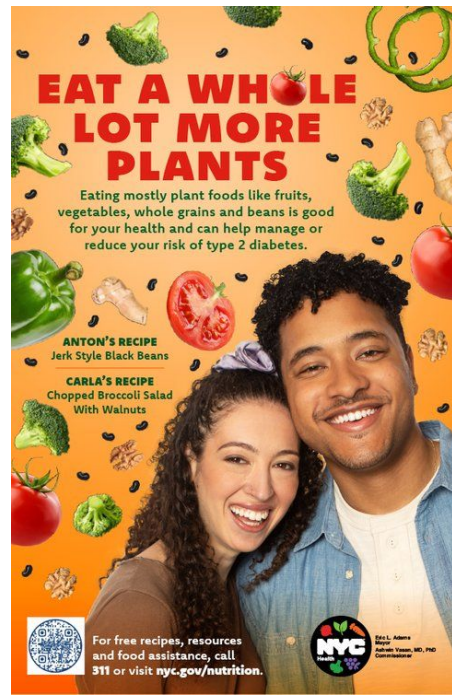
Photograph: Nickolay Lamm/Courtesy Climate Central/sealevel.climate

**The
Guardian**



Gravenhurst Library display

R1: Proposal 8 - Design public information campaigns



NYC ad campaign



Manchester, UK

R1: REDIRECT- Proposal 10 Transition to plant-based meal plans in schools, **hospitals**, nursing homes, prisons, government institutions, universities and businesses.

New York City's public hospitals do plant based by default meals



The Plant-Based Eatwell Guide

This is a plant-based adaptation of Public Health England's Eatwell guide (2016). It aims to help you transition to a healthy and sustainable diet. It shows food groups in the proportions that they should contribute to the overall diet.



Water, plant milks and drinks without sugar including tea and coffee all count

Limit fruit juice and/or smoothies to a total of 150ml a day.



Ultra-processed foods,



Salt, sugar and fat

Eat less often and only small amounts

Check the label on packaged foods

Each serving (150g) contains

Energy 1049kJ / 250kcal	Fat 3.0g	Saturated 1.3g	Sugars 34g	Salt 0.9g
13%	LOW	LOW	HIGH	MED
	4%	7%	38%	15%

of an adult's reference intake
Typical values (as sold) per 100g: 697kJ / 167kcal

Choose foods lower in fat, salt and sugars

Iodine
140µg daily supplement



Vitamin D
10µg daily supplement of D₂ or vegan D₃



Vitamin B12



25µg daily* supplement or 3 daily servings of fortified foods
* people with certain conditions may need additional amounts

Herbs, spices and ferments



Adds flavour and provides antioxidants and probiotics and are often anti-inflammatory

Per day 2000kcal 2500kcal = ALL FOOD + ALL DRINKS

Eat at least 5 portions of a variety of fruit and vegetables every day
Fruit and vegetables



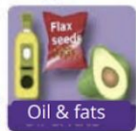
Choose wholegrain or higher fibre versions with less added fat, salt and sugar
Potatoes, bread, rice, pasta and other starchy carbohydrates



Beans, pulses, nuts, seeds and plant protein
Eat beans, peas and lentils, include one tbsp of ground flaxseed or chia seeds for essential omega-3 fats. Consume less meat substitutes



Plant-based dairy alternatives
Choose unsweetened, calcium and vitamin D fortified versions
Choose unsaturated oils & fats use in moderate amounts



Oil & fats

R2: RELINQUISH - Proposal 23 No clearing of forests or other ecosystems for animal grazing, animal rearing or animal farming of any kind

Alcorcon, Spain Plant Based Treaty endorsement committed city to: **“Stop changes in land use, including deforestation, for livestock farming.”**



R3: RESTORE - Proposal 38 Enhance **food justice** by providing access to healthy food for all

Community-Level Action in Muskoka

Food rescue: network for resorts and restaurant. Partner with local grocers, bakeries, and restaurants to redirect surplus food to food banks, churches, or shelters.

Community fridges: Some Ontario towns now run 24/7 “take what you need, leave what you can” fridges. A simple, visible initiative that builds community trust.






WHAT CITIES CAN DO

ENDORSE THE PLANT BASED TREATY!



-  Pass a resolution
-  Write a letter to your head of state to negotiate a global treaty

OTHER ACTIONS CITIES CAN TAKE:

-  Declare a climate emergency
-  Promote plant-based foods in their climate action plan
-  Shift city events to plant-based
-  Shift to plant-based in schools, hospitals, prisons and care facilities
-  Invest in community gardens and tree planting

