

**Environmental impacts of and solutions for
the consumption and production of meat and dairy**



MISSION NATUUR & MILIEU

- Securing a healthy natural environment
- Building a sustainable society in which nature and the environment are treated with care and respect
- Growing towards a green economy



FOCUS NATUUR & MILIEU

Environmental

- Prevent climate change
- Save biodiversity: abundant natural surroundings
- Clean water
- Clean air



Main areas for interventions (PPP)

- Mobility
- Energy
- Food



NATUUR & MILIEU IN A NUTSHELL

The partner of green corporations:

- Innovative
- Working on solutions
- Informed, science-based
- Reliable and reasonable
- Broad and integrated

Wide-range of stakeholders and partners

- Citizens – 100.000+ community
- Companies 100+ (Ahold, Unilever, Friesland Campina, Microsoft, sme's)
- Local and national governments
- Scientific institutes

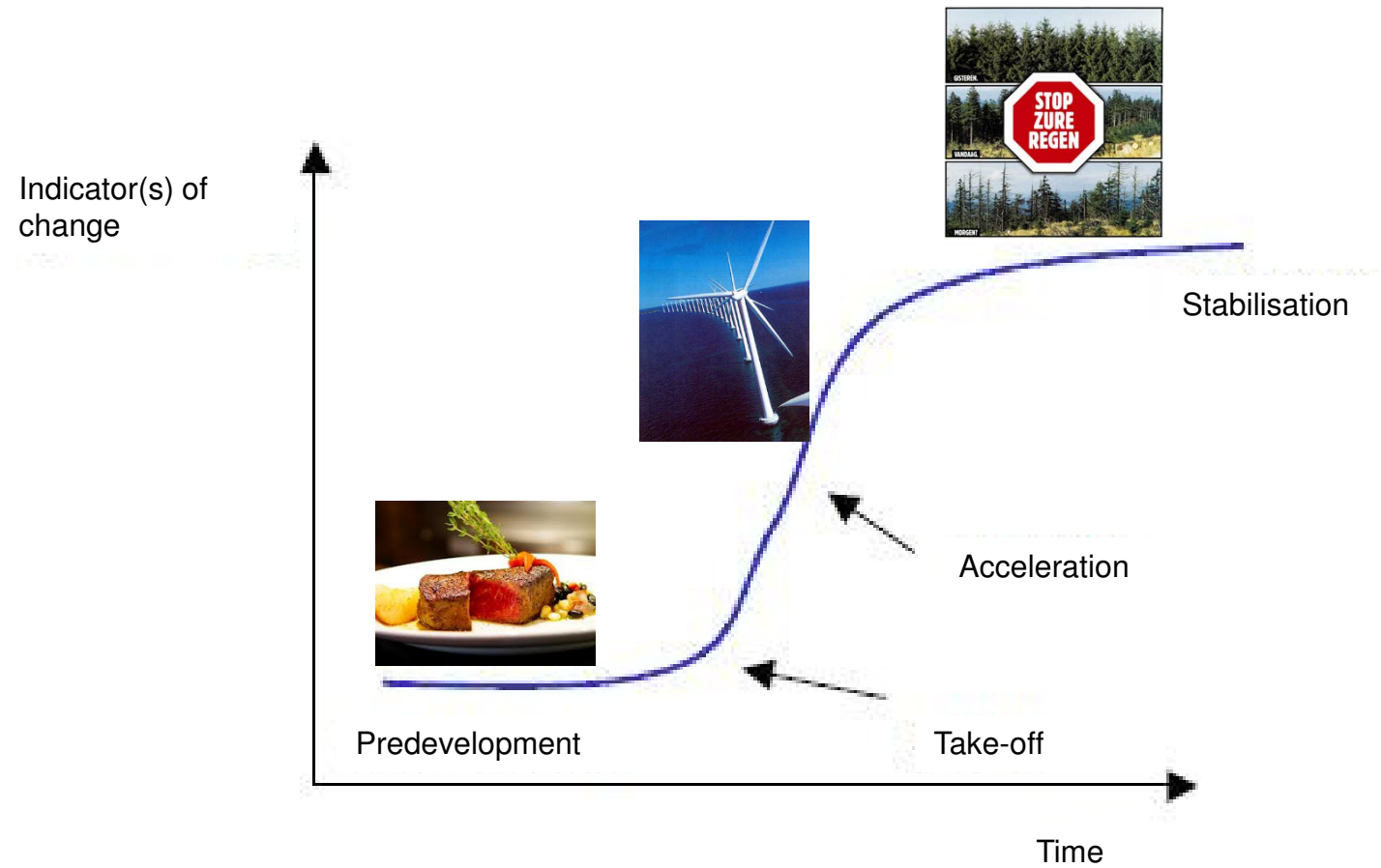


ORGANISATION

- **Annual budget € 5-6 mln**
 - 2,5 mln funds and donors
 - 1,5 mln companies & business models
 - 1,5 mln government projects
- **45 staff members + 15 – 20 flexible staff**
- **Independent foundation**



STRATEGIES FOR CHANGE



ENVIRONMENTAL IMPACT CONSUMPTION AND PRODUCTION OF MEAT AND DAIRY



FOOD IS...



- Of vital importance, keeps us healthy, and gives us pleasure and energy
- For most people in the world more affordable, safer and better available than ever
- An import economic factor in the EU: NL 10% GDP and 10% employment
- Front runner position in knowledge production and innovation



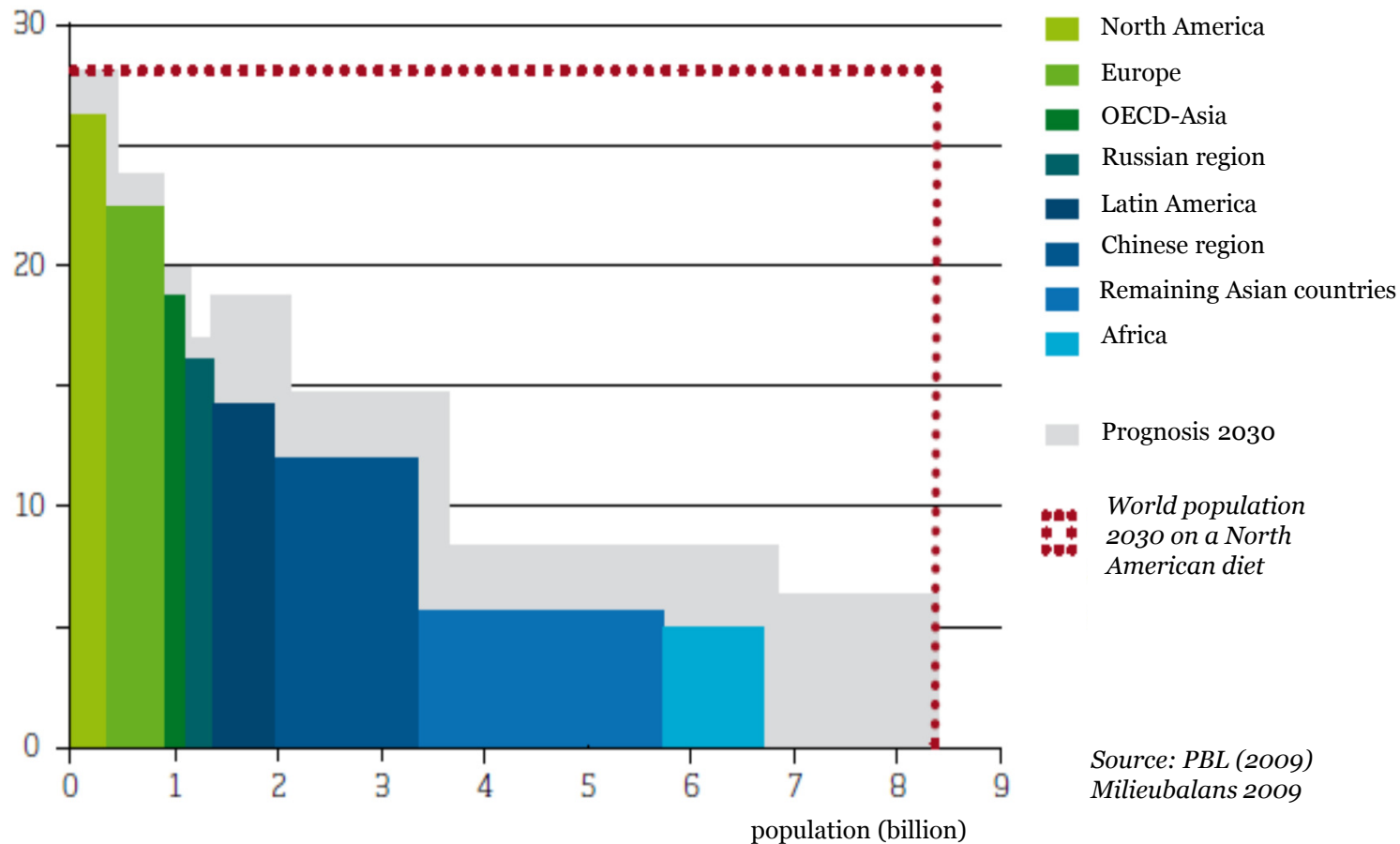
BUT THERE IS A DOWNSIDE...

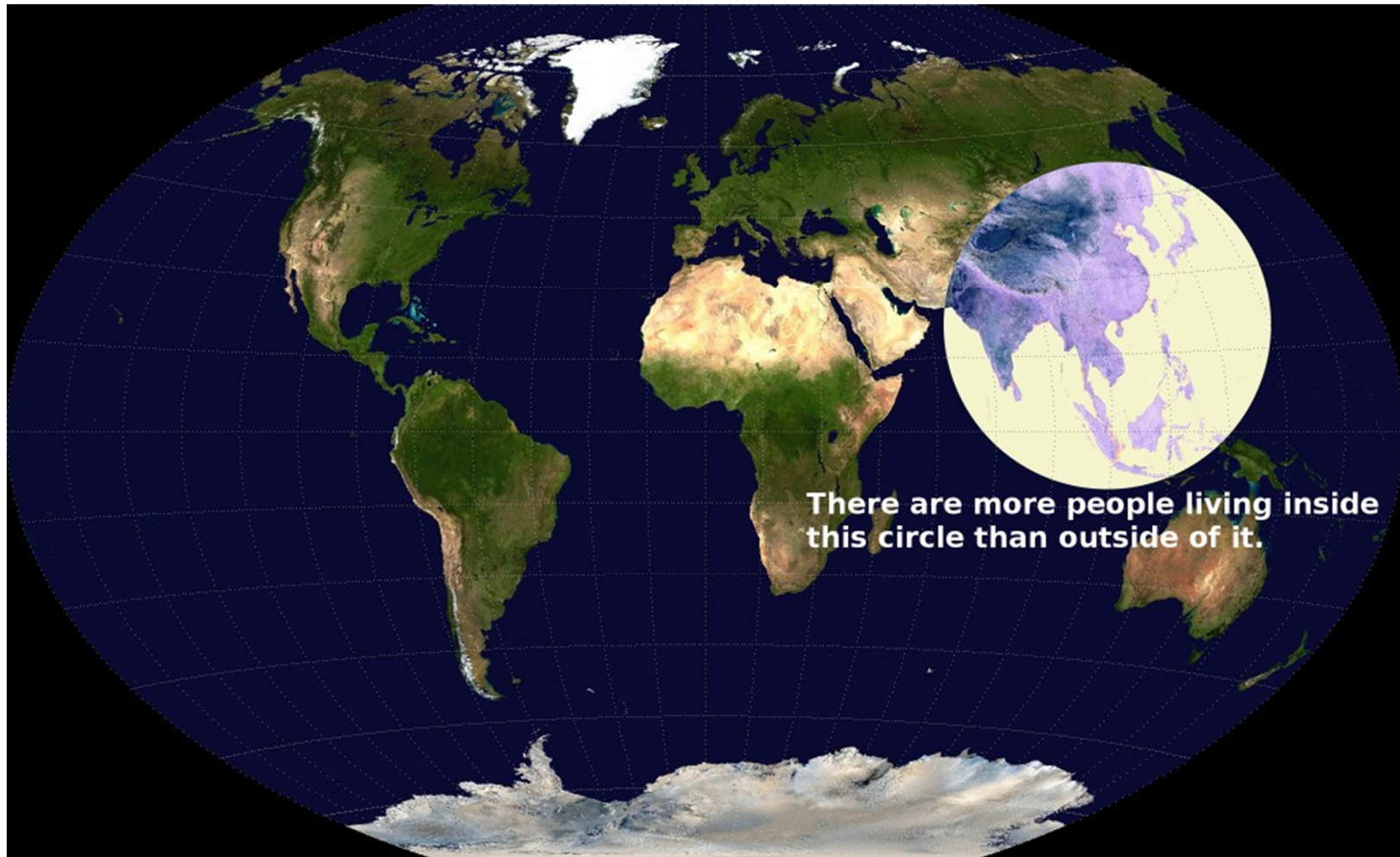
- Livestock alone: 10-25% of the worldwide greenhouse gas emissions
- Depletion of fish stocks: 83% Mediterranean Sea and 63% Atlantic Ocean
- Biodiversity loss: 80% farmland is used for livestock production
- 75% protein rich animal feed is imported from outside EU
- Disruption of nutrient cycles: algae blooms in lakes, rivers and coastal waters
- Water use: shortages of clean water

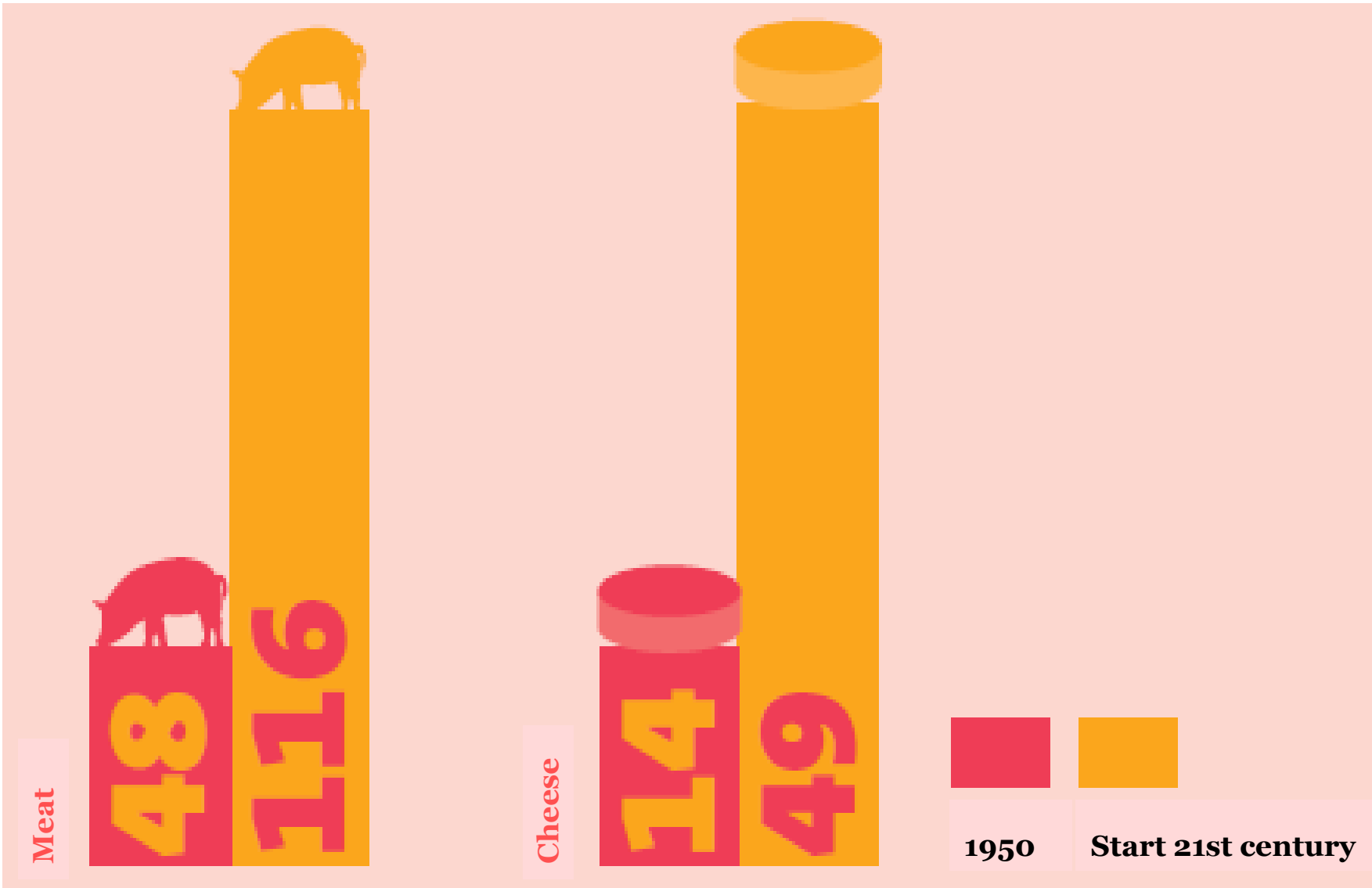


GLOBAL CONSUMPTION OF ANIMAL PROTEIN PER REGION IS GROWING FAST

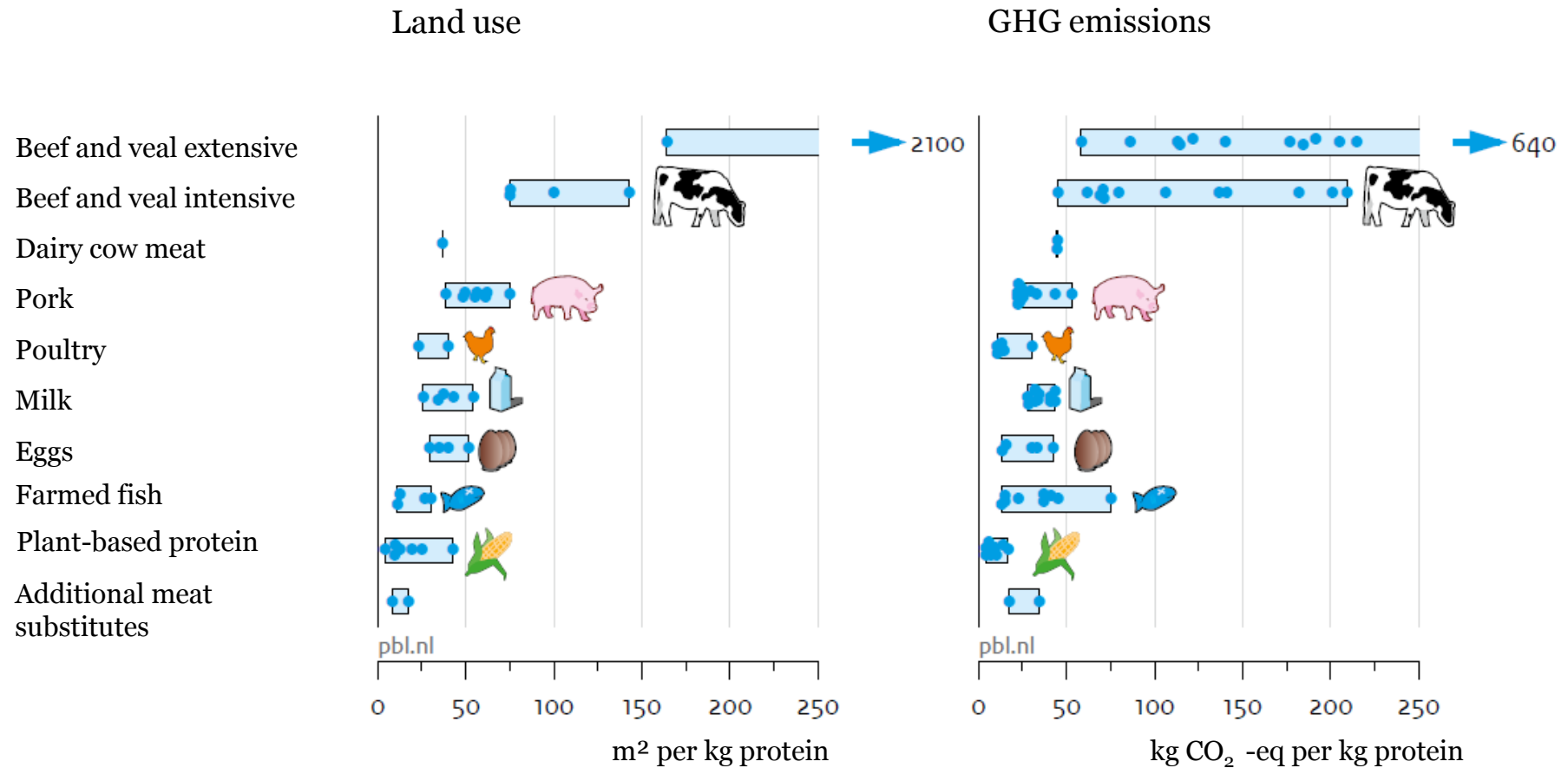
kg protein per person per year



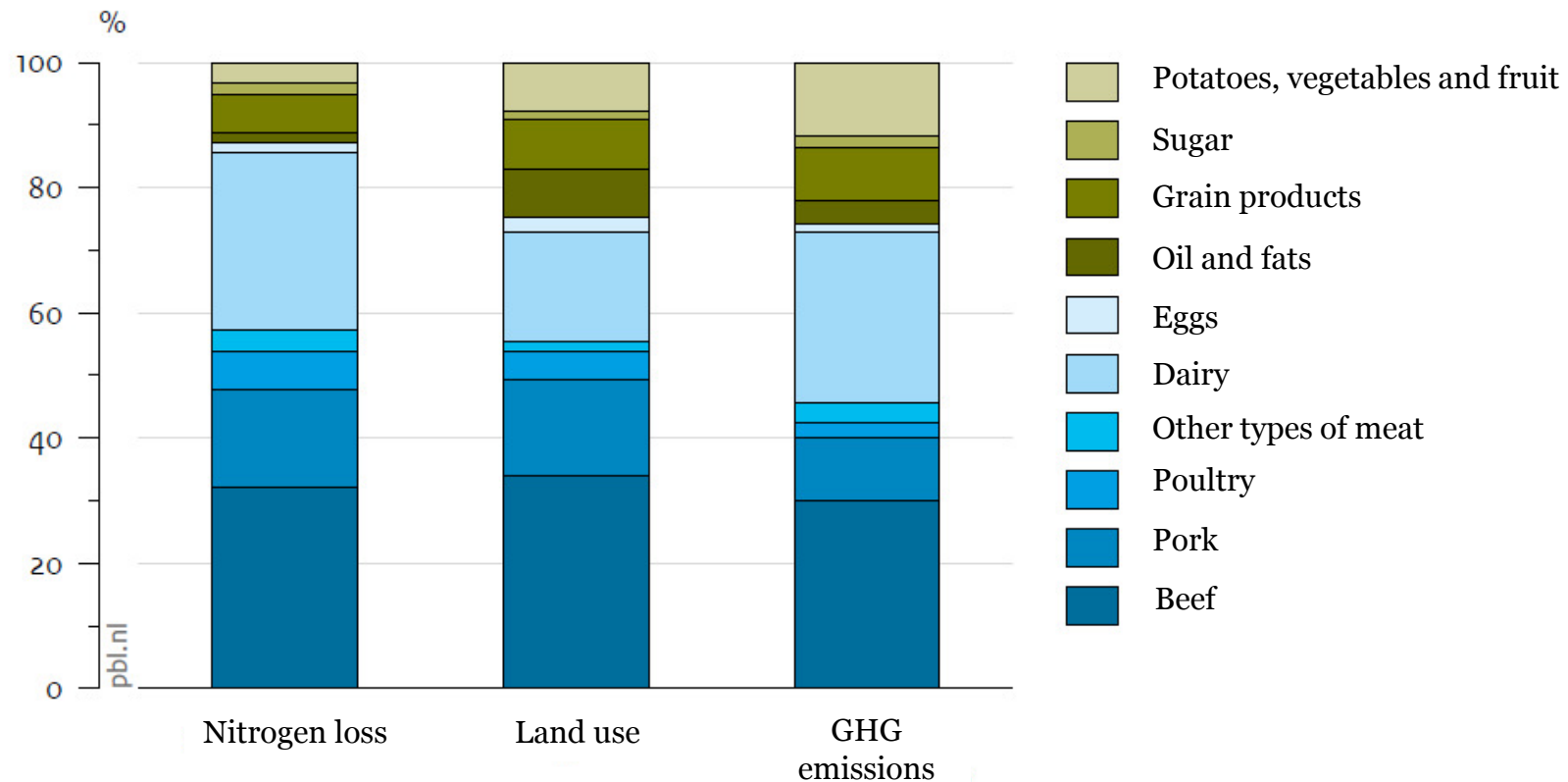




LAND USE AND GHG EMISSIONS PER SOURCE OF PROTEIN



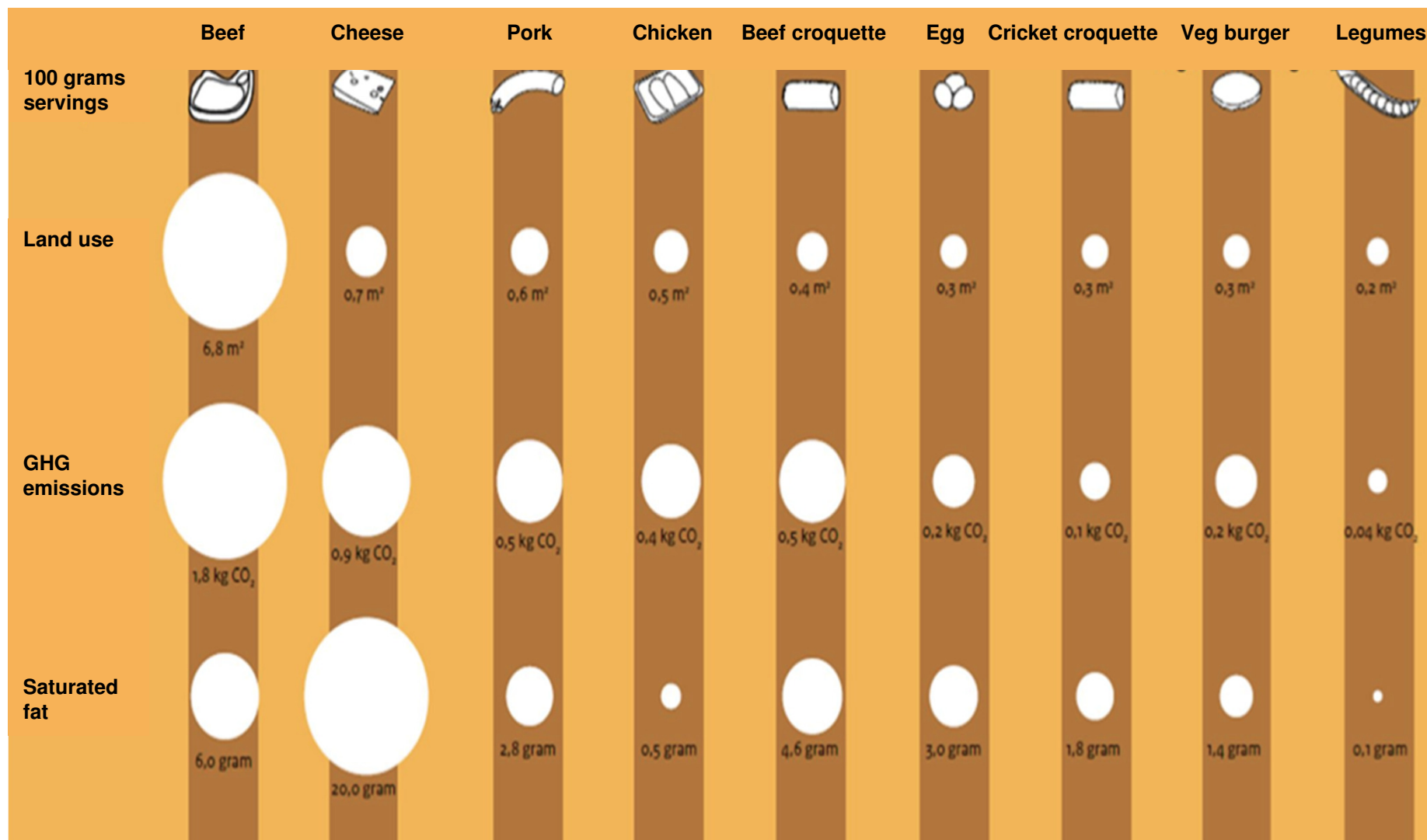
PRESSURE ON THE ENVIRONMENT PER FOOD CATEGORY, 2010



Source: PBL, 2013

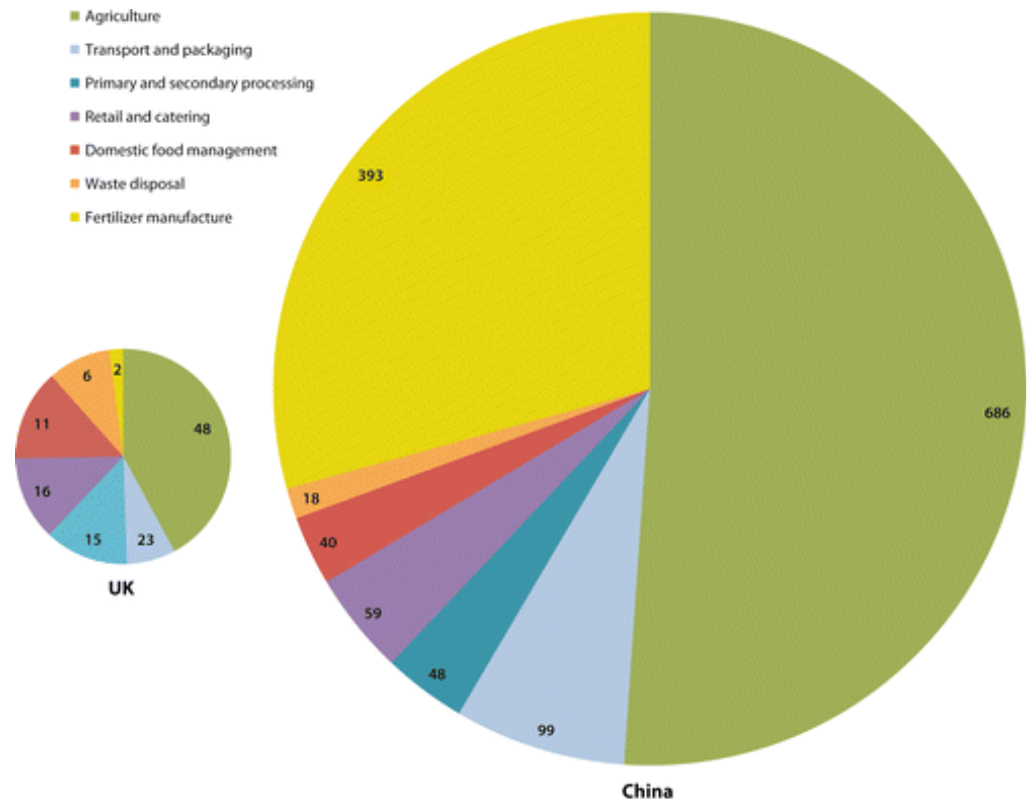
Animal products play an important role in the environmental impact of our diet.





CLIMATE & FOOD

- Our complete food system, from fertilizer manufacturing to food packaging, causes 19%–29% of all global anthropogenic GHG emissions ([Vermeulen et al., 2012](#)).
- In the Netherlands, this is equal to 24,3%, and still increasing ([LEI, 2012 p.24](#))



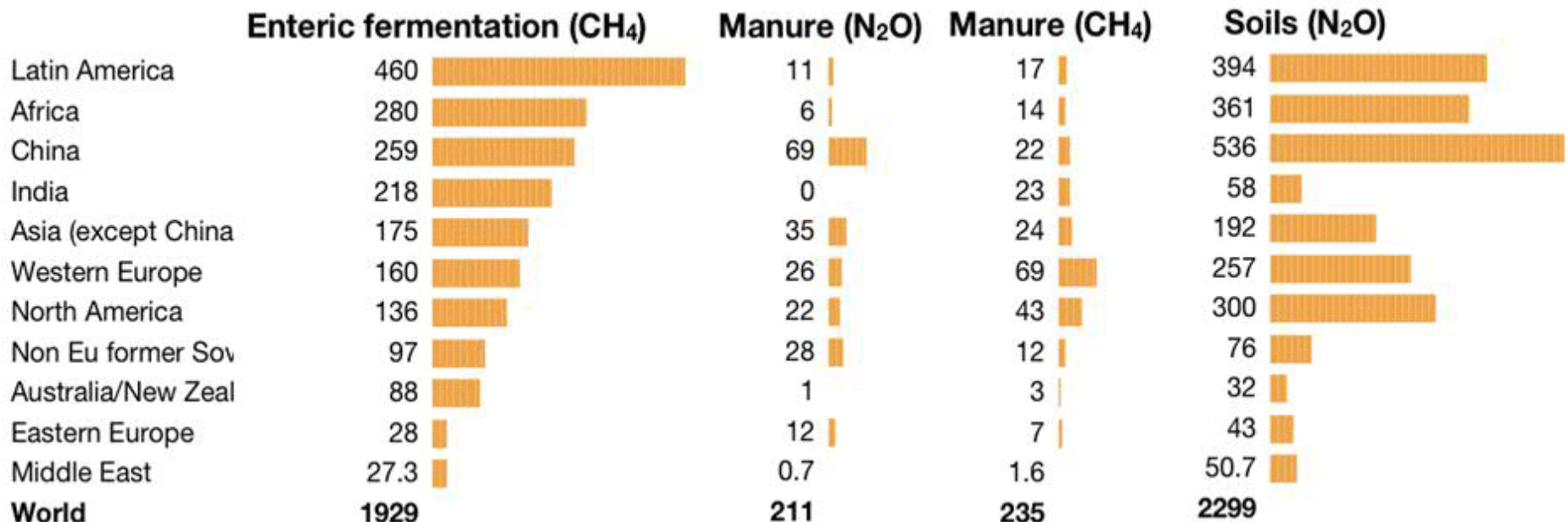
Vermeulen SJ, et al. 2012.
Annu. Rev. Environ. Resour. 37:195–222

Numbers refer to Megatonnes CO₂-eq. in year 2007



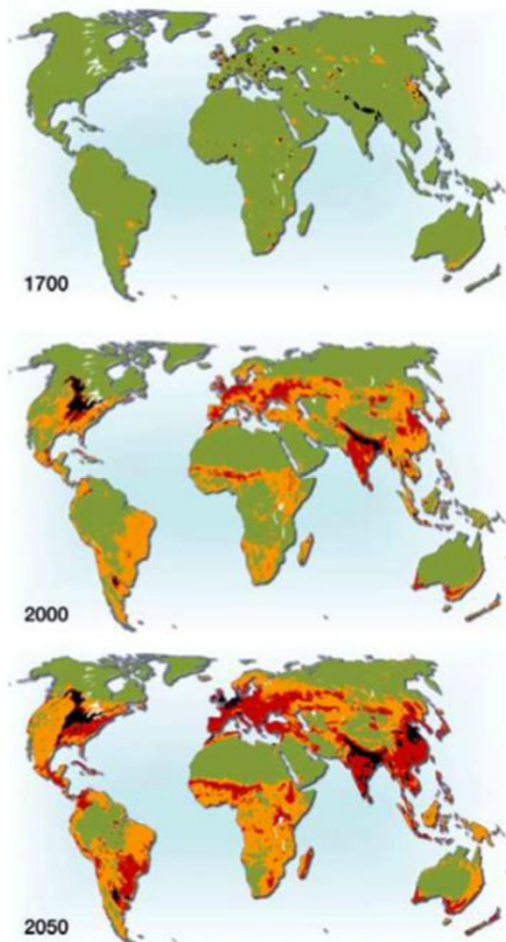
CLIMATE & LIVESTOCK

- 80% of agricultural emissions are caused by livestock farming ([UNEP, 2012](#))
- Estimates of livestock's share in global GHG emissions range from 10% – 25% ([UNEP, 2012](#)), depending on whether LULUC are included

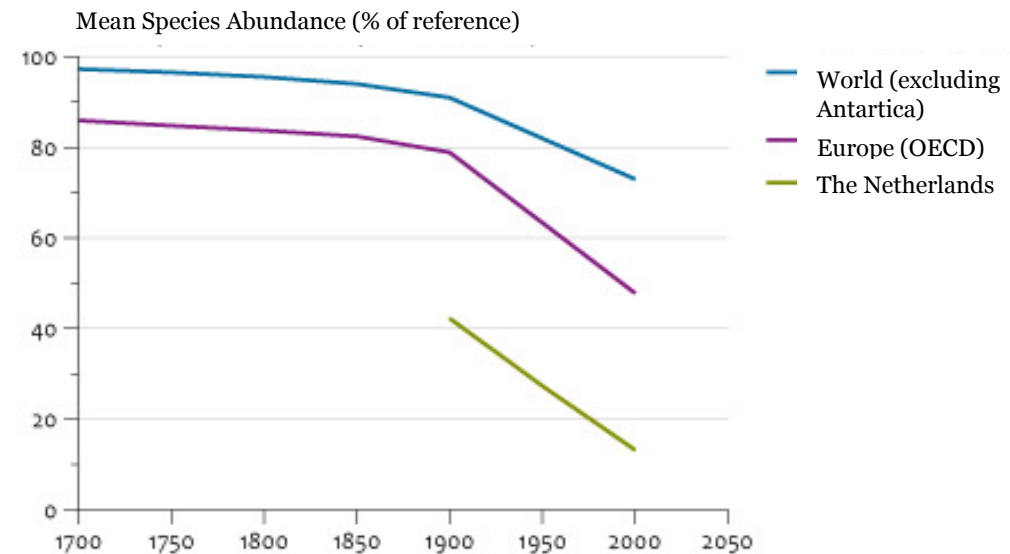


Regional GHG emissions of major agricultural sources in mln tonnes CO₂-eq. / yr (UNEP, 2012):

LAND USE AND BIODIVERSITY LOSS



Biodiversity



Source: PBL.

PBL/aug09/1440
www.compendiumvoordeleefomgeving.nl

Biodiversity, as ratio of species abundance before human impacts

High impacts	0 - 25
High-medium impacts	25 - 50
Medium-low impacts	50 - 75
Low impacts	75 - 100 %

Mean species abundance (%)



USE OF WATER

1 kg Product	Water use in liters/ kg product
Beef	15.500
Sheep meat	6.100
Pork	4.800
Goat meat	4.000
Chicken	3.900
Cheese	5.000
Soybeans	1.800
Grain	1.300
Corn	900



FOOD WASTE

Total amount of food Grown and processed (worldwide)

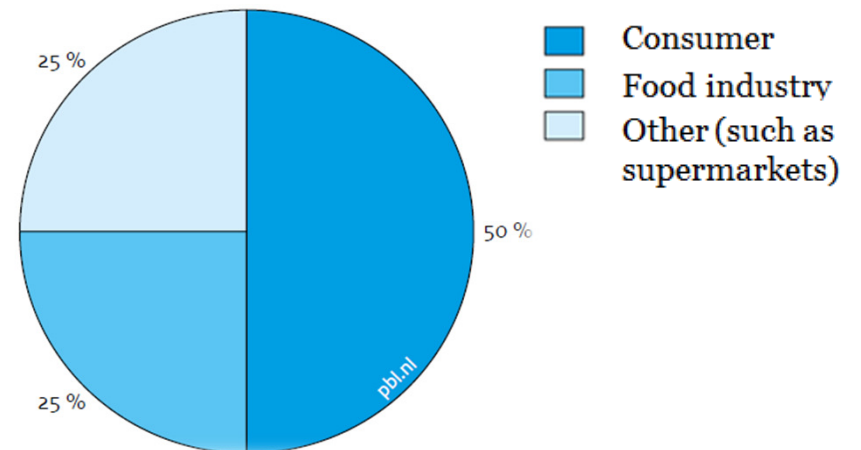


■ Amount of food wasted (32%)

■ Amount of food consumed (68%)

Source: [FAO](#), 2011

Estimate of food waste by food industry and consumers, 2009-2011



WUR, 2013; adaptation PBL, 2013



REDUCING FOOD WASTE BENEFITS:

Eco-systems	Avoids agricultural expansion into remaining natural terrestrial ecosystems and relieves pressure on overstrained fisheries	<ul style="list-style-type: none">■ Better utilizing food already grown reduces the need to convert more ecosystems into food production or to harvest more wild food (e.g., fish)
Climate	Helps reduce greenhouse gas emissions from agriculture to levels consistent with stabilizing the climate	<ul style="list-style-type: none">■ Better utilizing food already grown reduces the need to convert more land, apply more fertilizers, raise more livestock, and use energy for producing, processing, transporting, and storing food■ Diverting food loss and waste from landfills prevents methane emissions from rotting food
Water	Does not deplete or pollute aquifers or surface waters	<ul style="list-style-type: none">■ Better utilizing food already grown reduces the need to withdraw more water from aquifers or add more agricultural chemicals that may pollute water bodies

THE GLOBAL AMOUNT OF FOOD LOSS AND WASTE CAUSES
3,300–5,600 MILLION METRIC TONS OF CO²-EMISSIONS
ALMOST EQUIVALENT TO THE ENERGY CONSUMPTION BY THE US.

Source: [World Resources Institute](#), 2013



Experiences from the Netherlands

SOLUTIONS THAT WORK



STRATEGIES TO REDUCE IMPACT

- **Sustainable consumption:**
 - Consuming less animal products, more vegetables and fruits
 - Consuming different animal products
 - Matchmaking between food consumers and food producers
 - Reducing food waste
- **Sustainable production:**
 - Increasing resource efficiency
 - Producing with less impact (less greenhouse gas emissions, less water, less pesticides, less land use)



OUR GOALS

- **Sustainable consumption:**
 - Meat consumption decreases each year with 1-3 percent
 - In 2016 50 percent of the Dutch population has a meatless diner twice a week
 - Food waste is reduced by 25% in 2020
- **Sustainable production:**
 - More sustainability for base line products: all meat products in Dutch supermarkets are produced according to a 25% higher sustainability standard
 - A bigger market for real sustainable products: 25% of the meat market consists of real sustainable products



FLEXITARIAN CAMPAIGN

**LEKKER
VOOR FLEXITARIERS**

Download gratis het e-kookboek
van Natuur & Milieu en maak
kans op Pierre Wind (ambassadeur
van N&M) in je keuken.

KIJK OP FLEXITARIER.NL

**NATUUR
& MILIEU**



FLEXITARIËR

HOME NIEUWS COLUMNS ZELF KOKEN UIT ETEN FLEXI-WAT? ACTIES CONTACT

SMAAKEXPLOSIES MET
LISETTE KREISCHER

MOBILE FLEXITARIA
IN ZAANDAM

BEN JIJ FLEXITARIËR?
Hoeveel dagen per week eet
je vlees?

0 1 2 3 4 5 6 7

MOBILE FLEXITARIA

De Mobile Flexitaria tourt
langs de festivals!

Columns • 30 okt 2012

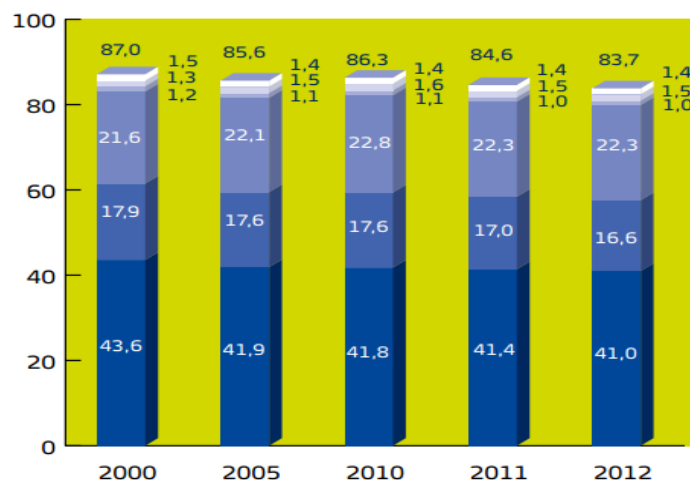
Nieuws • 10 Jun 2012

MOBILE FLEXITARIA

RESULTS

- Meat consumption decreases
 - From 5,7 (2011) towards 5,3 days/wk (2012)
- Flexitarian awareness increases
 - No meat because of environment 14% (2011) -> 23%(2012)

Total consumption of meat and meat products in the Netherlands (in kg per capita)



Note: the total consumption is the amount that is actually consumed in the form of meat and meat products. This is about half the consumption based on the carcass weight (the weight including bones).



NATUUR & MILIEU GIVES THE DUTCH A TASTE OF MEAT SUBSTITUTES

2 million people tasted a free meat substitute.



12 million were reached by our [campaign](#).



Familiarity with the term “Flexitarian” went up from 15 to **26%**



Sales of meat substitutes went up structurally in the participating supermarket chain, bij **7%**



INTERNATIONAL MEDIA



[Le Figaro, April 16th](#)

[Huffington Post France, April 26th](#)

Végétariens contre bouchers : la guerre du steak aura bien lieu

Publication: 27/04/2013 16h25 CEST | Mis à jour: 27/04/2013 18h53 CEST

J'aime 1 758 personnes aiment ça. Soyez le premier de vos amis.

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RECEVOIR LES ALERTES:

Entrez votre email

S'INSCRIRE

SUIVRE: [Video](#), [Alimentation](#), [Association Végétarienne De France](#), [Consommation Viande](#), [Jeudi Veggie](#), [Viande](#), [Végétariens](#), [Végétarisme](#), [France C'est La Vie News](#)

Aujourd'hui, les Néerlandais demeurent des acteurs clefs de la production de viande, mais certains en sont revenus. Parce qu'il s'agit d'une nation de tradition neutre, les Pays-Bas ont l'art du compromis. Depuis le 10 avril, l'ONG écologiste [Natuur & Milieu](#) organise chaque semaine des distributions de substituts de viande : hamburgers végétariens, croquettes végétales, poulet sans volaille (bluffant), 2 millions de ces produits élaborés par la Vegetarische Slager, la boucherie végétarienne, seront écoulés d'ici la fin de l'opération au début du mois de mai. Objectif: populariser ces produits dont le goût, l'apparence et la texture rappellent en tout point la viande sans âme qui remplit la majorité de nos assiettes.

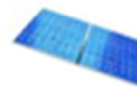
Suite de l'article sous la vidéo:



DAMN FOOD WASTE



le



Bekroond duurzaam, maar dan lekker.

De nieuwe Unox Extra Wagons Bekroond heeft een duurzaamheidsplan. Unox Extra Wagons Bekroond is in het productieproces van Natuur & Milieu-afgeleverd tot een duurzaamheidsplan. En dat zijn we natuurlijk ook trots op. Het resultaat van een plan. De Unox Extra Wagons Bekroond heeft 30% minder CO₂ uitstoot dan andere merken. Het is niet alleen duurzaam, maar ook lekker. Duurzaamheid heeft de wereld aan ons. Het is niet alleen duurzaam, maar ook lekker. Het is niet alleen duurzaam, maar ook lekker.



Unox. Blijft Unox.



UPSCALING DUTCH EXPERIENCES TO EUROPE



OUR INTERNATIONAL AMBITIONS (1)

- **Build a common vision on sustainable food production and consumption**
 - Menu of the future
 - Action agenda for policymakers and food companies
- **Intensify activities in NL as pilots for EU**
 - Flexitarian campaign
 - Damn Food Waste Events
 - 500.000 No Food Waste Toolkids



OUR INTERNATIONAL AMBITIONS (2)

- **Explore possibilities in Europe**
 - Build NGO network on sustainable protein consumption
 - Build EU / Global Flexitarian Campaign
 - Spread experiences from the Netherlands
 - Explore possibilities with organizations and companies within EU
- **Increase urgency in EU**
 - NGO's
 - EU policymakers,
 - Companies
 - Foundations

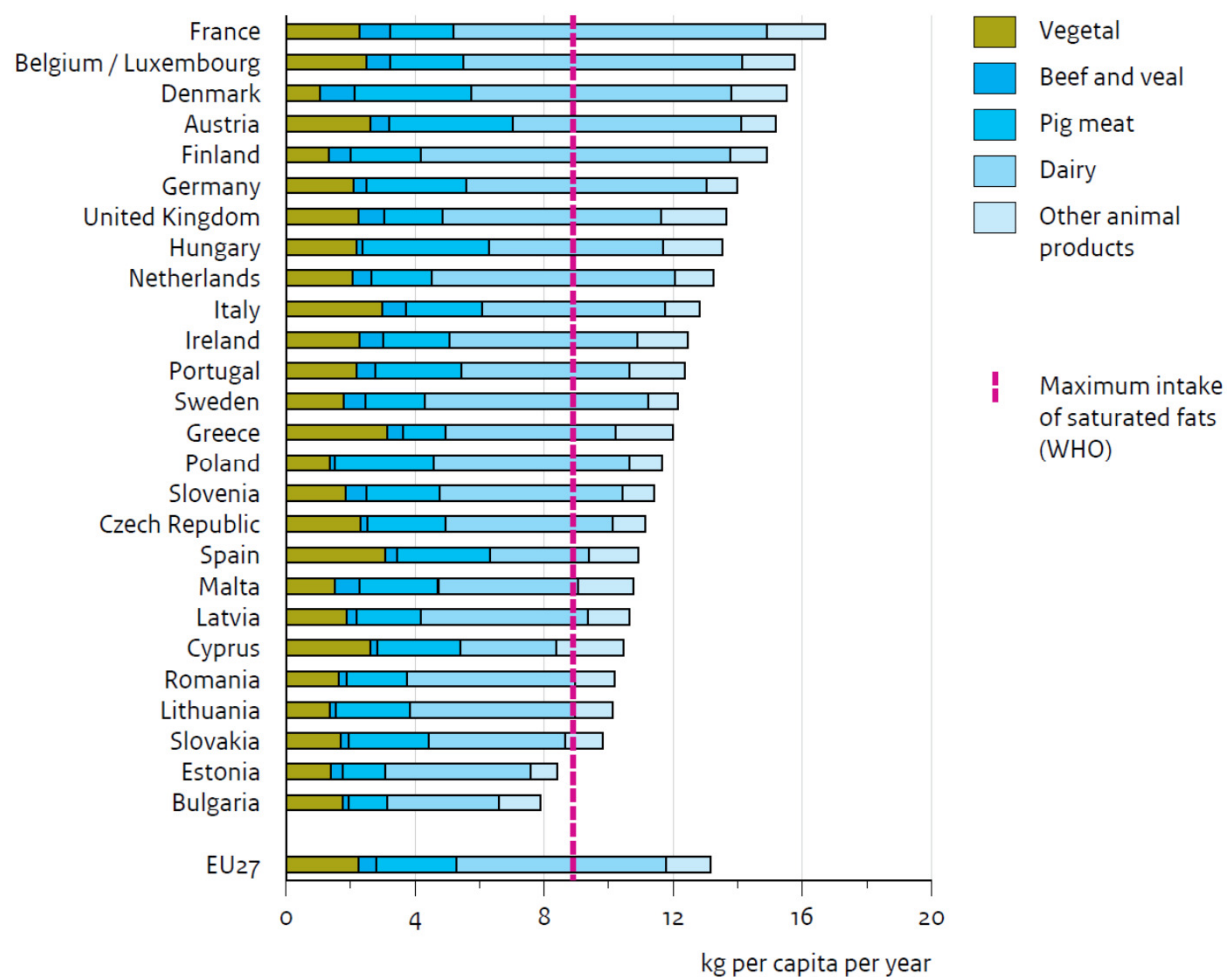


SOME DATA ON HEALTH AND MEAT & DAIRY CONSUMPTION



Figure 4

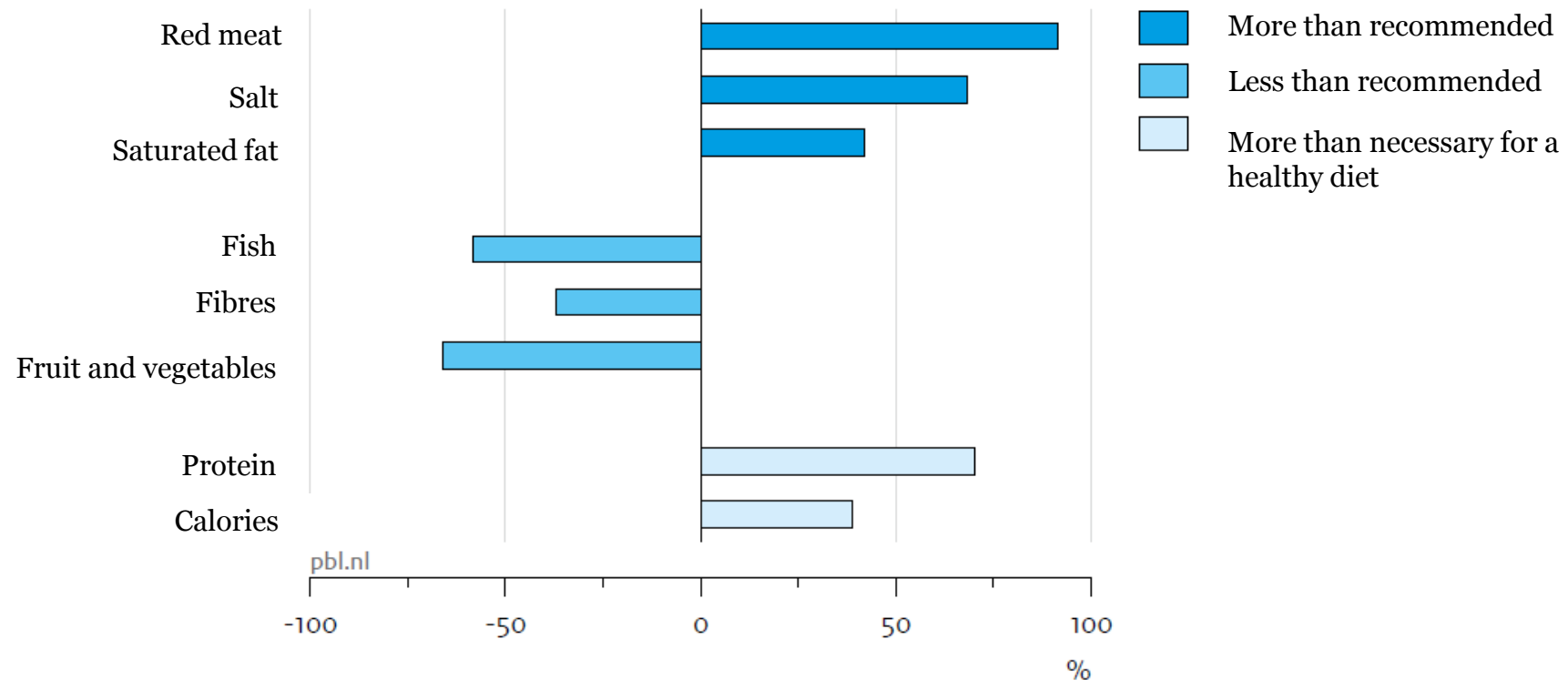
Intake of saturated fats in EU27, 2007



Source: PBL analysis based on FAO (2010); NEVO (2010)



FOOD CONSUMPTION COMPARED TO DIETARY GUIDELINES, 2007-2010

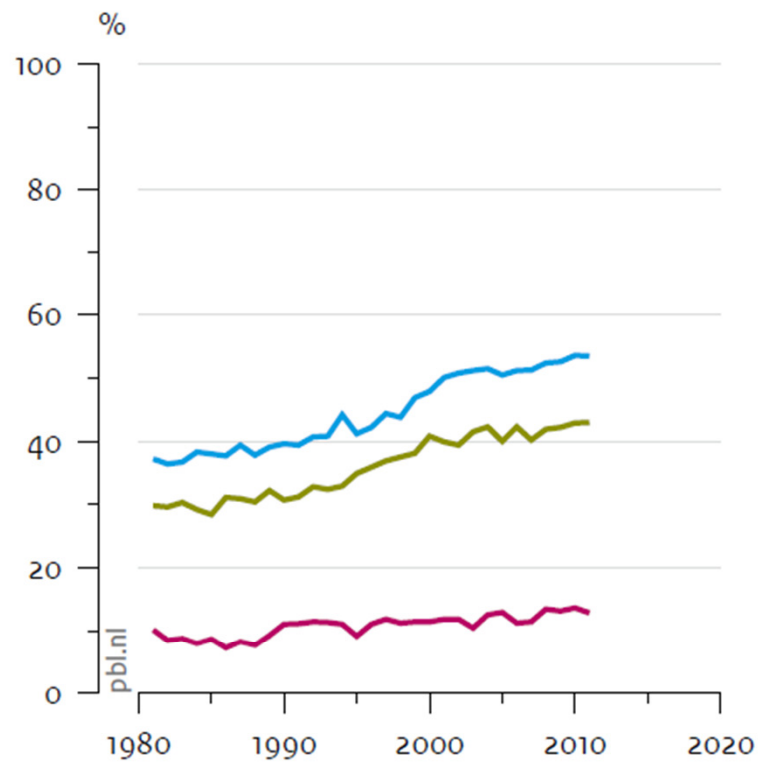


Source: PBL,
2012

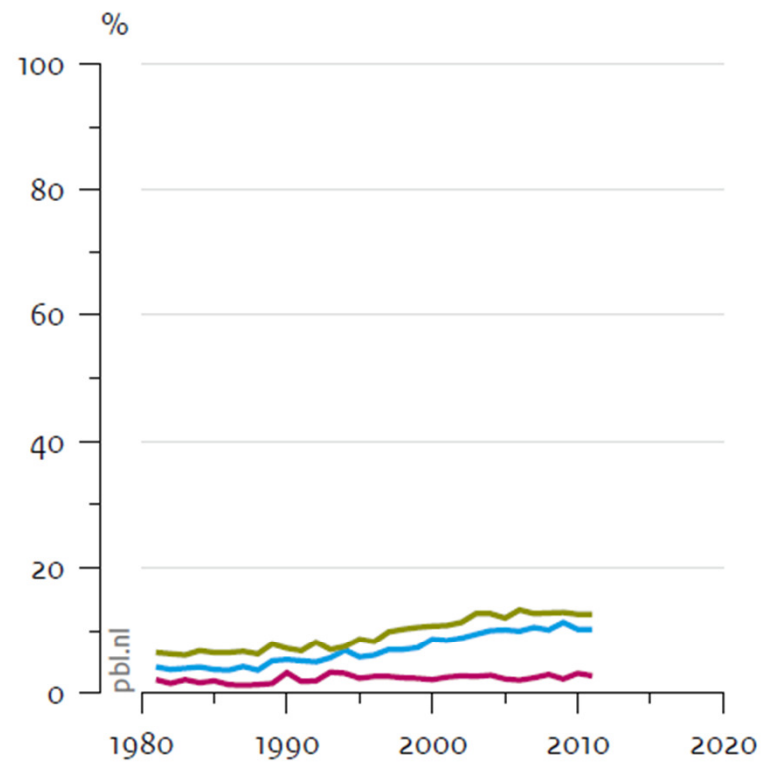


OVERWEIGHT AND OBESITY AMONG CHILDREN AND ADULTS

Overweight (BMI > 25)



Obesity (BMI > 50)



- Men (older than 20 years)
- Women (older than 20 years)
- Young people (4 - 20 years)

