



WWF

FOOD

# Sustainable and climate-friendly Food-Based Dietary Guidelines in different countries

May 2, 2022 - DTU

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WWF-NL



## WWF-NL vision

We want a sustainable and healthy food system that is in harmony with our nature, providing enough nutritious food for this and future generations.

# Sustainable Healthy Diets: new definition WHO/FAO (2019)



- “Sustainable Healthy Diets are dietary patterns that promote all dimensions of individuals’ health and wellbeing; have low environmental pressure and impact; are accessible, affordable, safe and equitable; and are culturally acceptable.
- .... And support the preservation of biodiversity and planetary health.”

# FENS Task Force: Copenhagen (2018) – Dublin (2019)



The Task Force ... concluded that environmental aspects should be included in the future conceptual framework for FBDG. A change in terminology to sustainable FDBG (SFBDG) could reflect this.

*British Journal of Nutrition*, page 1 of 7

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**Food-Based Dietary Guidelines – development of a conceptual framework for future Food-Based Dietary Guidelines in Europe: report of a Federation of European Nutrition Societies Task-Force Workshop in Copenhagen, 12–13 March 2018**

Inge Tetens<sup>1\*</sup>, Christopher A. Birt<sup>2</sup>, Elizabeth Brink<sup>3</sup>, Stephanie Bodenbach<sup>4</sup>, Susanne Bugel<sup>1</sup>, Stefaan De Henauw<sup>5</sup>, Trine Grønlund<sup>6</sup>, Chantel Julia<sup>7</sup>, Åse Bonde Konde<sup>8</sup>, Daane Kromhout<sup>9</sup>, Undine Lehmann<sup>10</sup>, Quenia dos Santos<sup>11</sup>, Milka Sokolovic<sup>12</sup>, Stefan Storcksdieck genannt Bonsmann<sup>13</sup>, Caroline van Rossum<sup>14</sup> and Heiner Boeing<sup>15</sup>

# EC: Joint Research Centre database (2019)



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[Methodology](#)

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[Nutrition](#)

[Fats](#)

[Fibre](#)

[Protein](#)

[Salt](#)

[Fruit and Vegetables](#)

[Sugars and Sweeteners](#)

[Water](#)

[Whole Grain](#)

[Food-Based Dietary Guidelines in](#)

## Health Promotion and Disease Prevention Knowledge Gateway



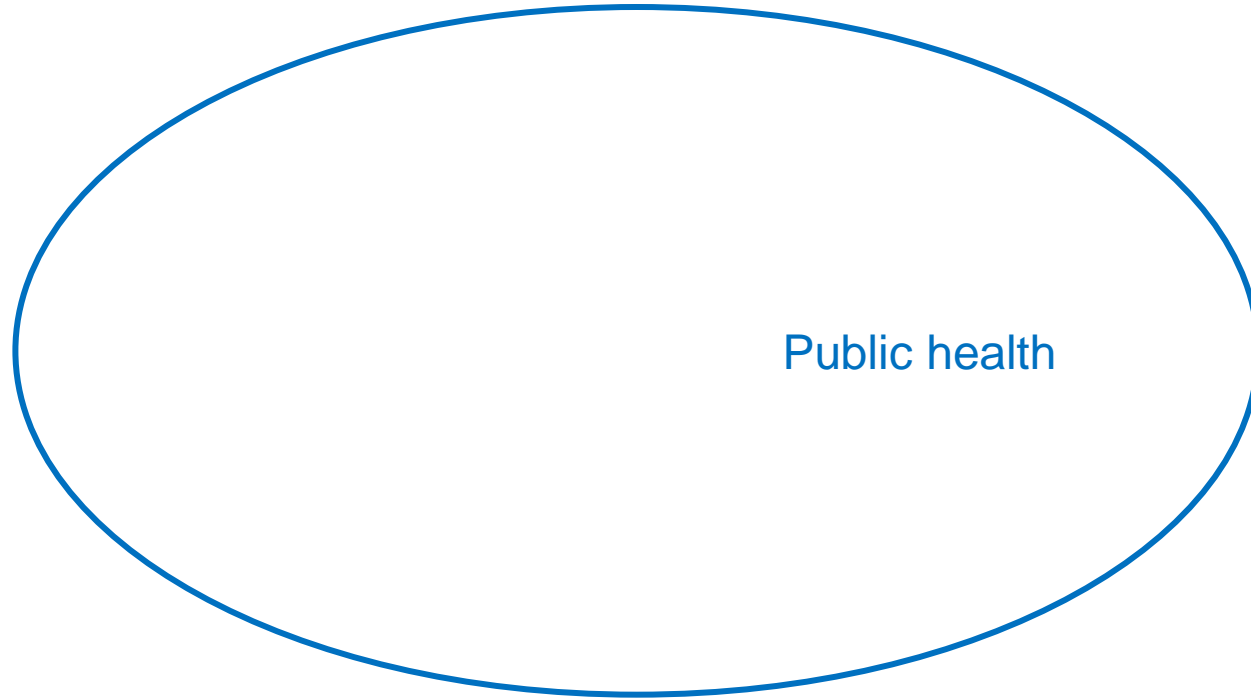
### Food-Based Dietary Guidelines in Europe

### Table of Contents

# UN Sustainable Development Goals for 2030: nutrition



# Public health nutrition: SDGs



# Environmental sustainability: SDGs

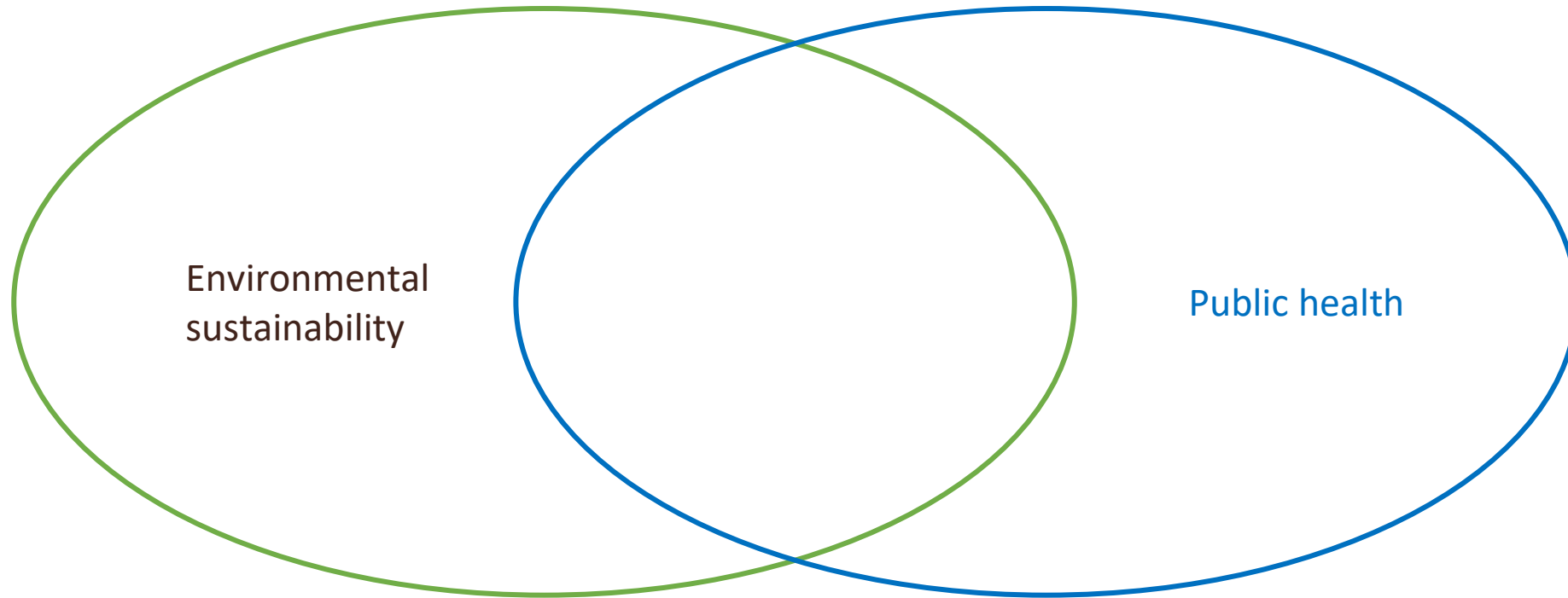


Environmental sustainability

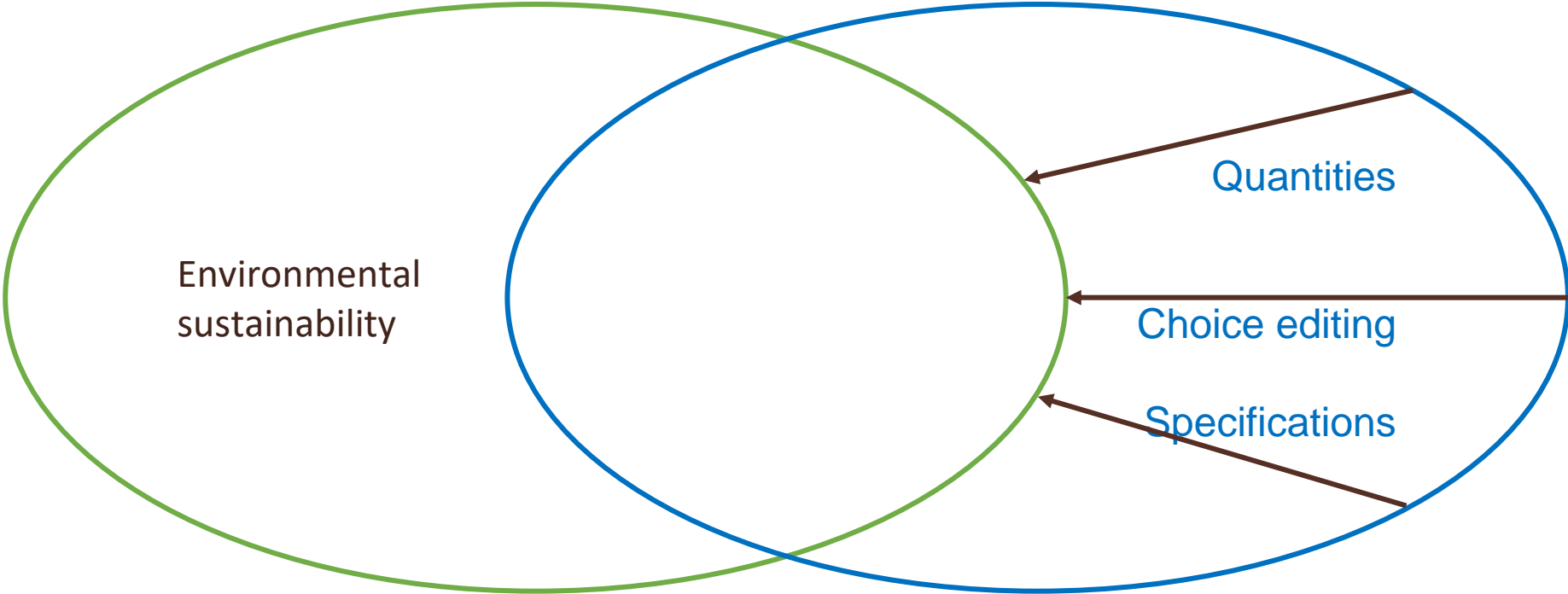




# Healthy diets $\neq$ sustainable diets



# Method 1: Additional rules

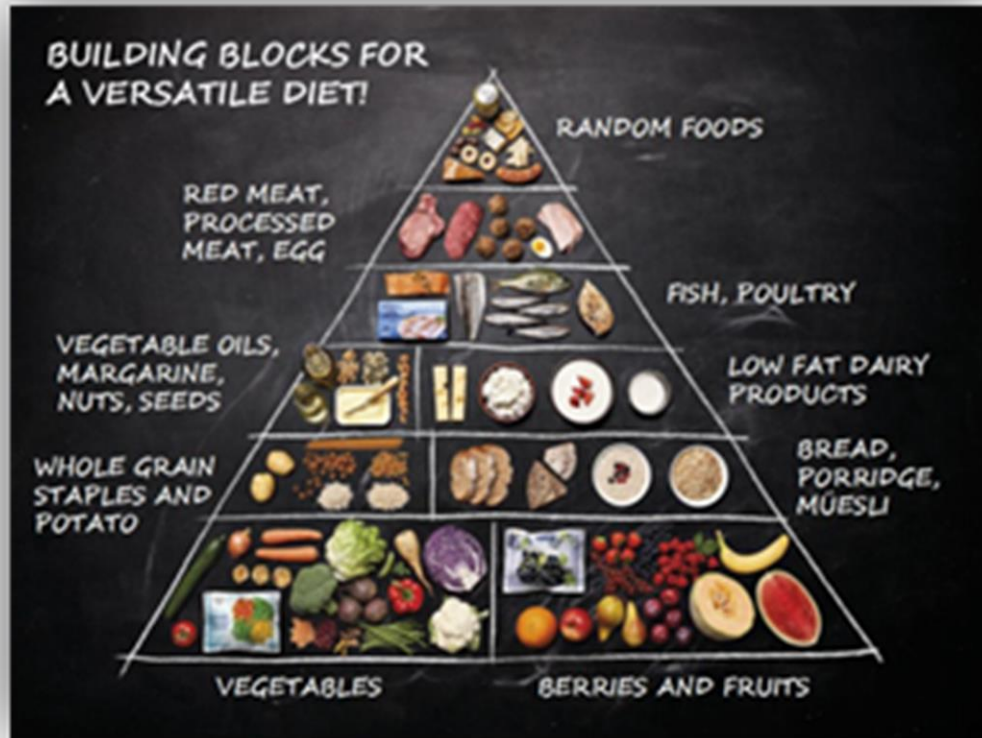


## Nordic countries: 5 recommendations (2012)

- **To reach a more sustainable diet requires more plantbased foods and less animal-based food.**
1. choosing primarily meat and fish with low environmental impact;
  2. eating more dried beans, peas, lentils, and cereals;
  3. choosing mainly field vegetables, root vegetables, potatoes, fruits, and berries that store well;
  4. choosing perishable products when they are in season;
  5. and minimizing waste.



# Finland (2014)



- Healthy choices, such as plant-based and less red meat are preferable for sustainability reasons.
- Reduce food waste.
- Weight control for sustainability reasons: higher energy needs for overweight people.

# Sweden (2015): “Find your way to eat greener, not too much and be active.”

**MORE**  
vegetables, fruit and berries  
fish and shellfish  
nuts and seeds  
exercise



**SWITCH TO**  
wholegrain  
healthy fats  
low-fat dairy products



**LESS**  
red and processed meat  
salt  
sugar  
alcohol



Hitta *ditt* sätt  
Att äta grönare, lagom mycket och röra på dig



Livsmedelsverket

# Brasilia: "The Golden Rule" (DF, 2014)

*"Always prefer natural and minimal processed foods  
and freshly made dishes and meals"*



*Rice, beans, bovine liver and sautéed zucchini*



*Green leaf salad, rice, beans, eggs and apple*



*Rice, beans, chicken leg, cabbage, pumpkin and orange*



*Rice, beans, omelet, caked cassava*



*Vegetable soup, cassava flour and acai berries*



*Green leaf salad, pasta and chicken*



*Rice, beans, chicken breast, pumpkin with okra and jenipapo jam*



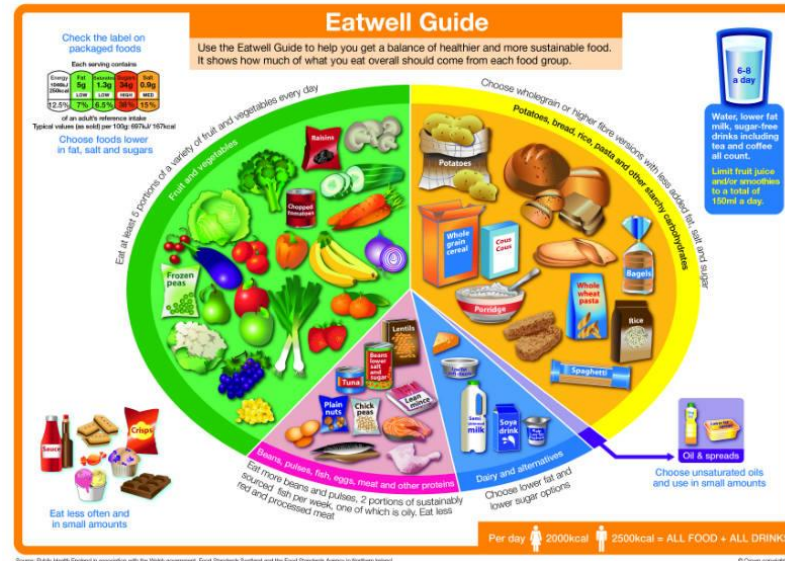
*Rice, beans, ground meat with vegetables*

# Other examples

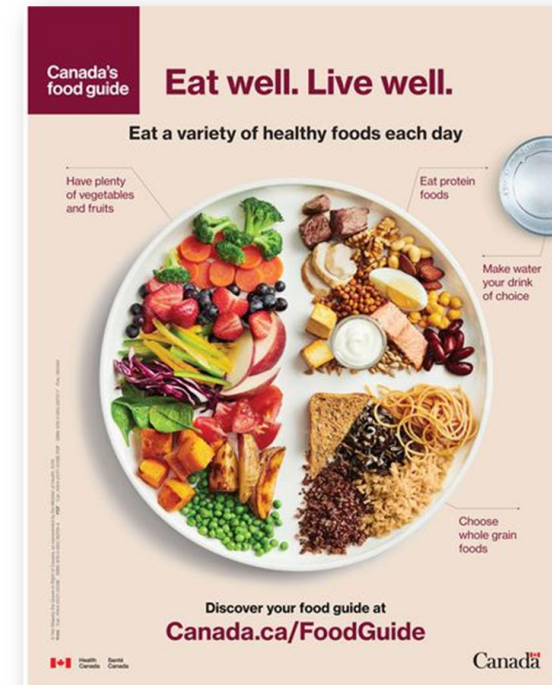
## USDA report (2015)

rejected

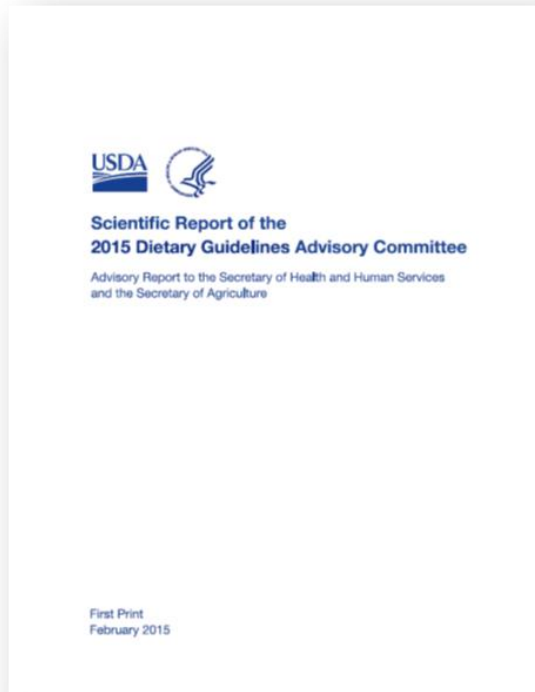
## UK (2016): Eatwell Guide









## Canada (2019)



The Eatwell Guide shows a considerably lower environmental impact than the current British diet: -32% in GHGE (CarbonTrust, 2016).

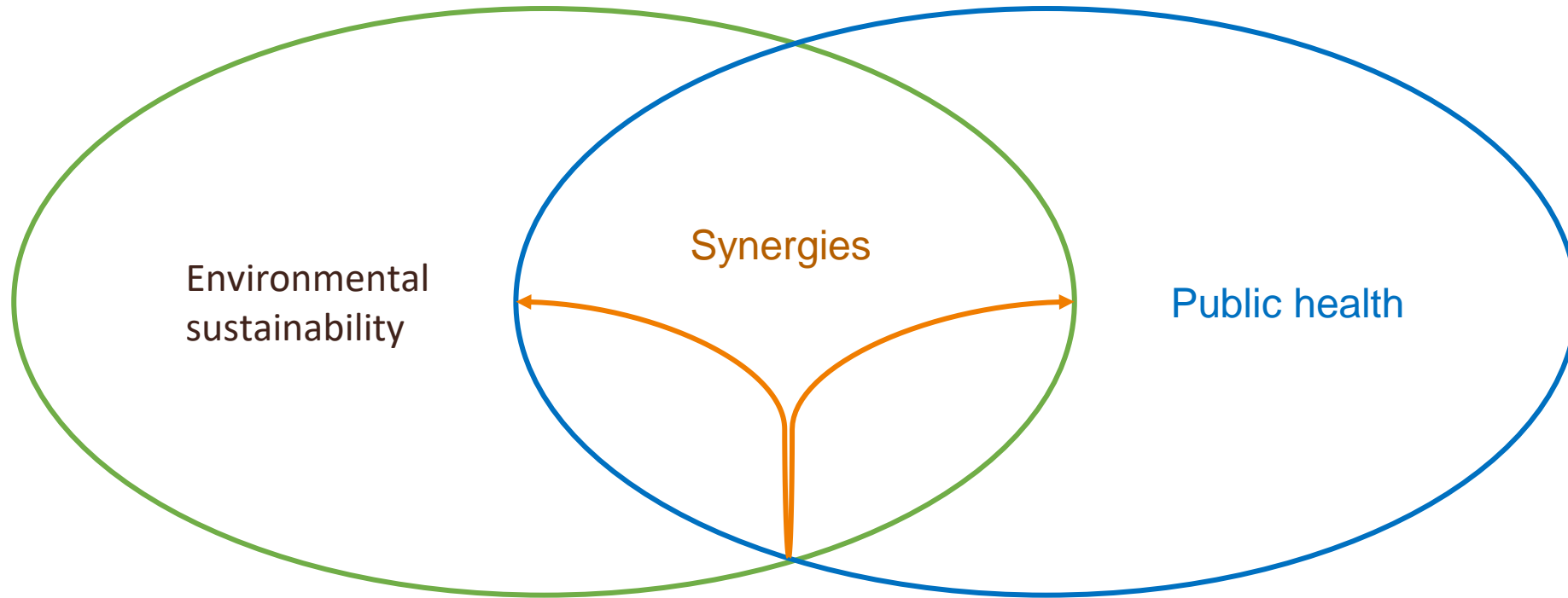


SDG	Messages	Finland	Brasil	Sweden	Netherlands	UK	Germany	Belgium	Estonia	Spain	Canada	Denmark
 13 CLIMATE ACTION	less animal-, more plant-based	v	v		v	v		v	v	v	v	v
	less meat total				v	v	v	v				v
 14 LIFE BELOW WATER	less red/ processed meat	v		v	v	v						v
	certified fish	v		v	v	v		v				
	less dairy/ substitutes			v		v		v				
 6 CLEAN WATER AND SANITATION	more pulses	v		v	v	v		v			v	v
	drink tap water	v			v	v		v			v	v
 3 GOOD HEALTH AND WELL-BEING	less ultra-processed foods		v					v			v	
	more vegetables and fruits	v	v	v	v	v	v	v				v
	seasonal vegetables	v	v	v	v	v	v	v	v	v		
 15 LIFE ON LAND	local products	v					v	v	v	v		
	certified/ organic/ fair			v		v	v	v	v	v		
 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	less food waste	v			v		v	v		v	v	

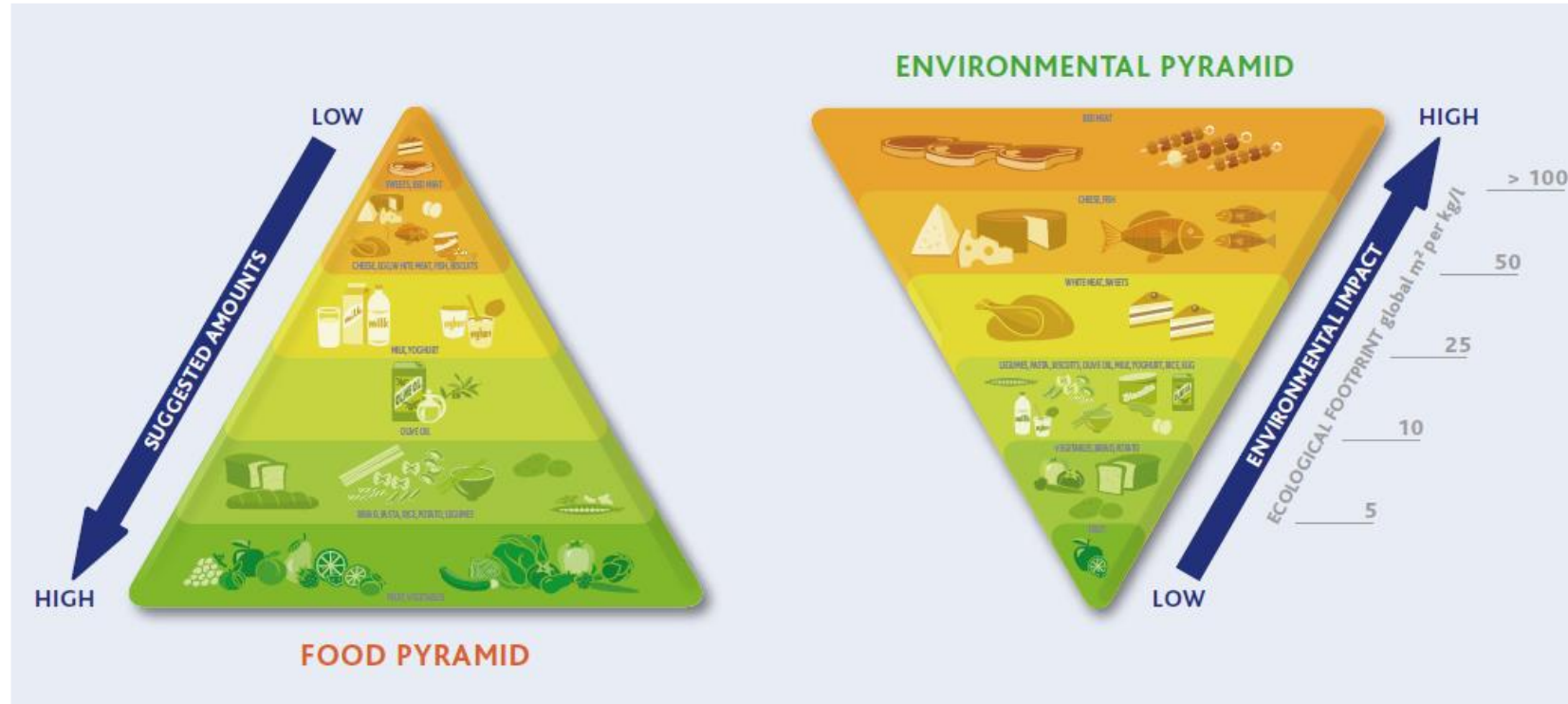
(See also Gonzalez Fischer & Garnett 2016; Mason & Lang, 2017)



# Method 2: Demonstrate synergies



# Double Pyramid (Italy, 2010): The lower the *footprint*, The more preferred



Barilla Center for Food & Nutrition

(Buchner B. et al., 2010)

# Nutrition Triangle Belgium (VIGL, 2017)

## Based on SNRF-index synergy & double pyramid



Ecological Economics 131 (2017) 389–398

Contents lists available at ScienceDirect

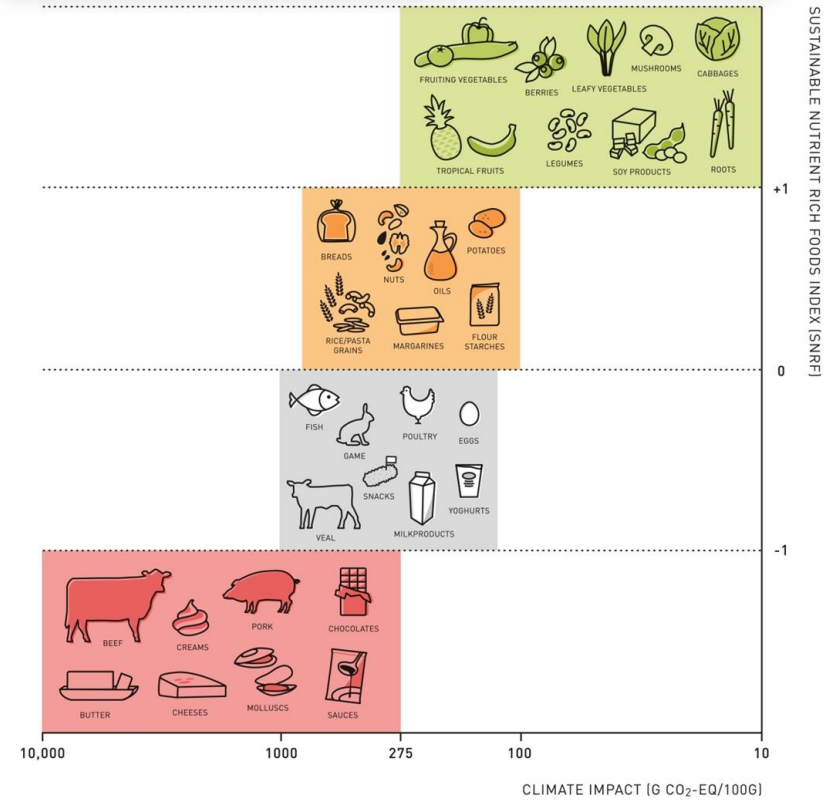
Ecological Economics

journal homepage: [www.elsevier.com/locate/ecocon](http://www.elsevier.com/locate/ecocon)

Proposing a Novel Index Reflecting Both Climate Impact and Nutritional Impact of Food Products

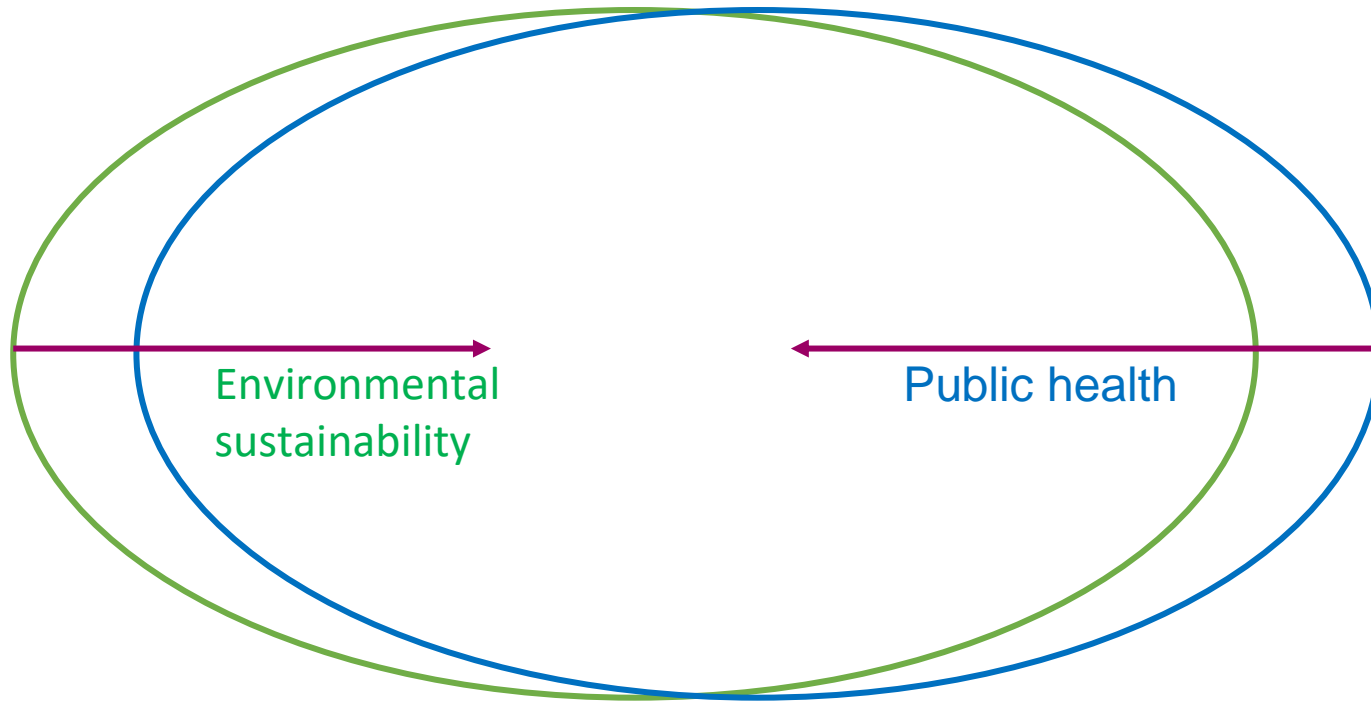
Corné van Dooren<sup>a,\*</sup>, Annelly Douma<sup>a</sup>, Harry Aiking<sup>b</sup>, Pier Vellinga<sup>b</sup>

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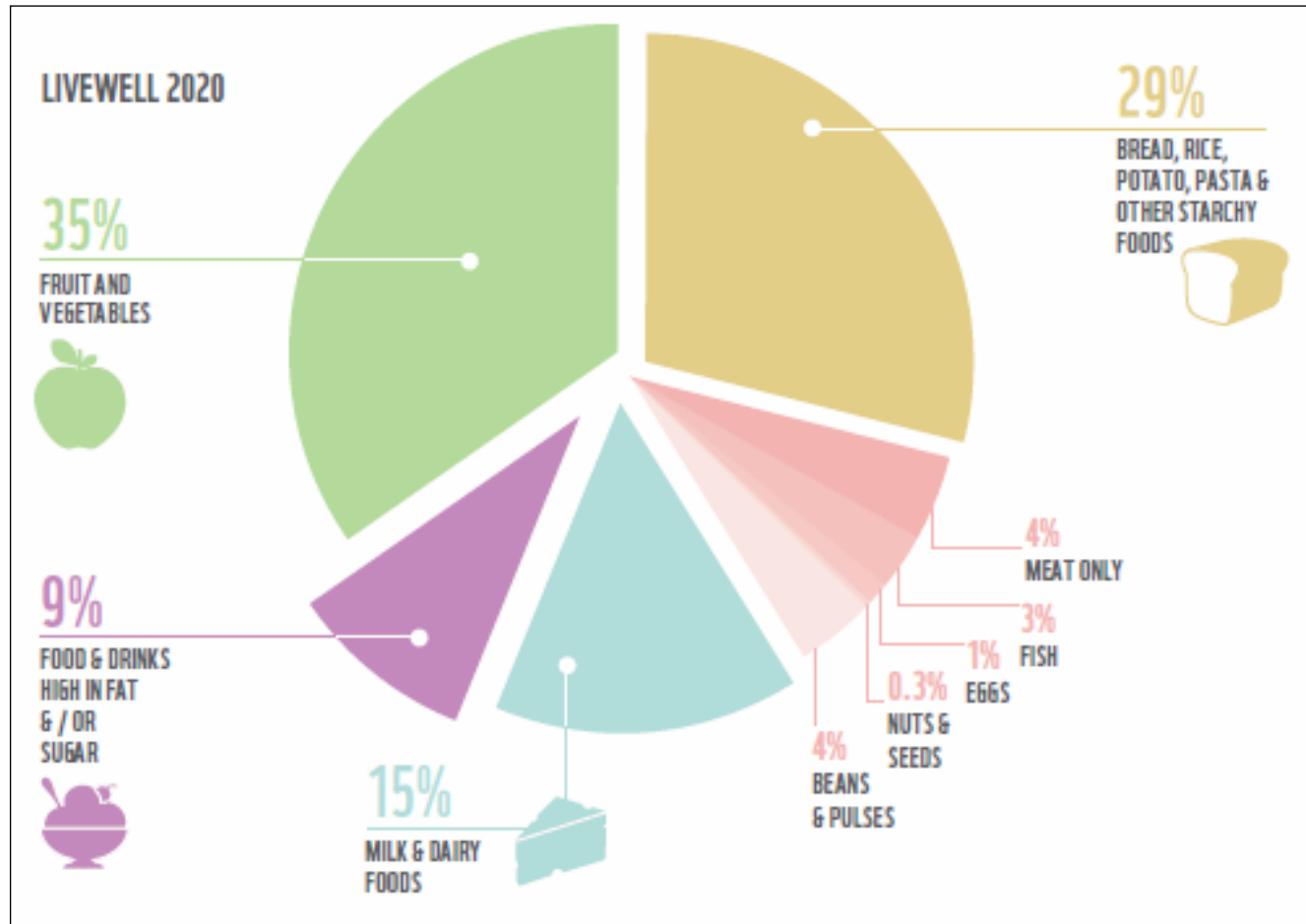
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# Method 3: Optimisation modelling

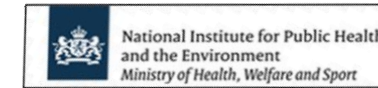
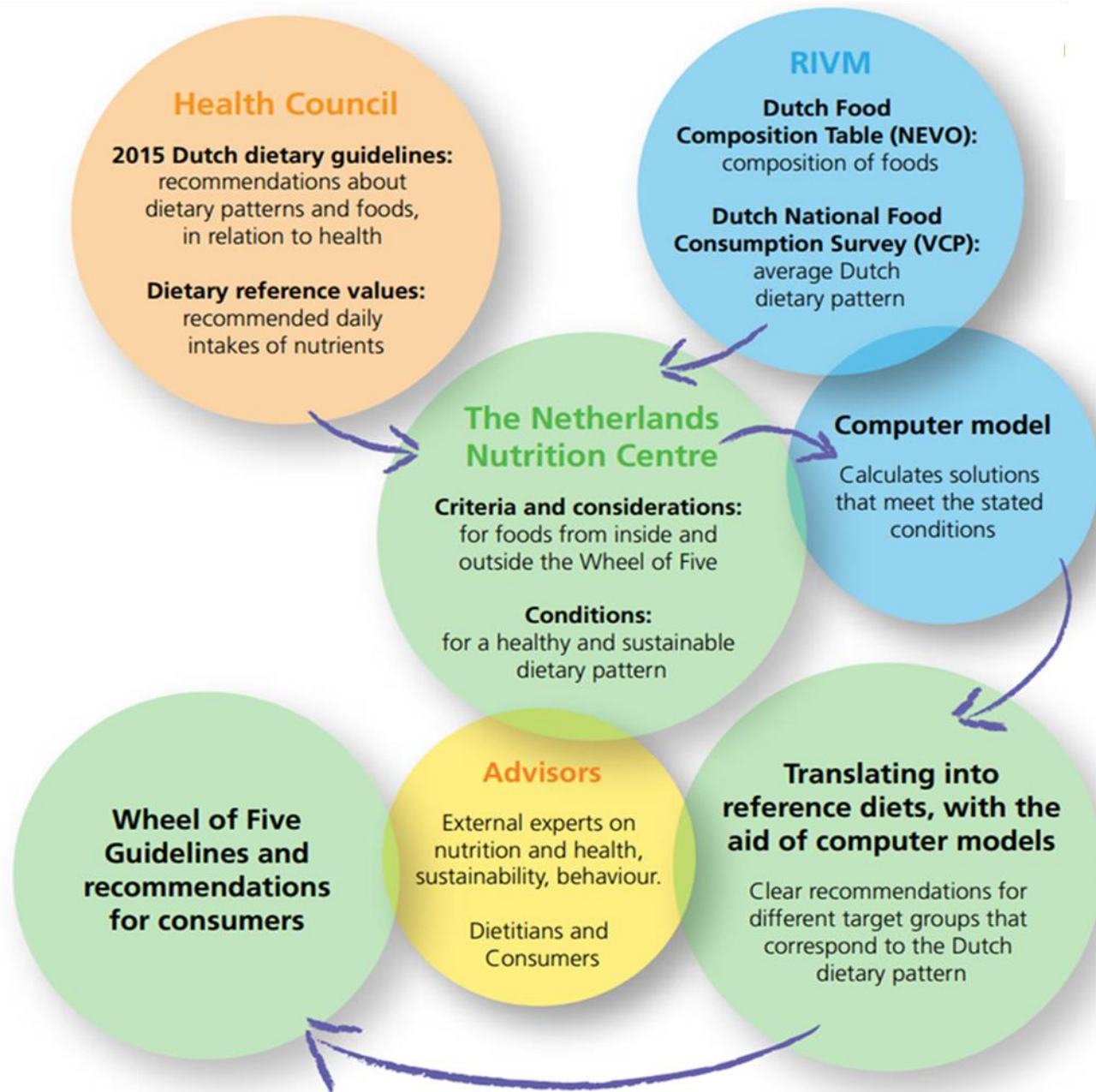


# Livewell plate UK (WWF-UK, 2011)

Goal: 25% reduction in greenhouse gas emissions through linear programming



(Macdiarmid J. et al., 2011)  
WWF/ Rowett Institute



eerlijk over eten  
**Voedingscentrum**

## Development of healthy and sustainable food-based dietary guidelines for the Netherlands

Elizabeth Brink<sup>1,\*</sup>, Caroline van Rossum<sup>2</sup>, Astrid Postma-Smeets<sup>1</sup>, Annette Stafleu<sup>1</sup>, Danielle Wolvers<sup>1</sup>, Corné van Dooren<sup>1</sup>, Ido Toxopeus<sup>2</sup>, Elly Buurma-Rethans<sup>2</sup>, Marjolein Geurts<sup>2</sup> and Marga Ocké<sup>2</sup>

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Submitted 13 July 2018: Final revision received 4 March 2019: Accepted 27 March 2019

# Wheel of Five (Netherlands 2016)

## Less meat and more plants



- Maximum of 500 grams of meat/week.
- Maximum of 300 grams of red meat/week.
- Fish: 1x/ week (was 2x/ week).
- Milk: somewhat lower recommendation (almost equal to the actual consumption).

# Netherlands: small effect on climate in diet with 500 g meat

“Most options within the scope of the dietary guidelines are more environmentally sustainable than the current diet”

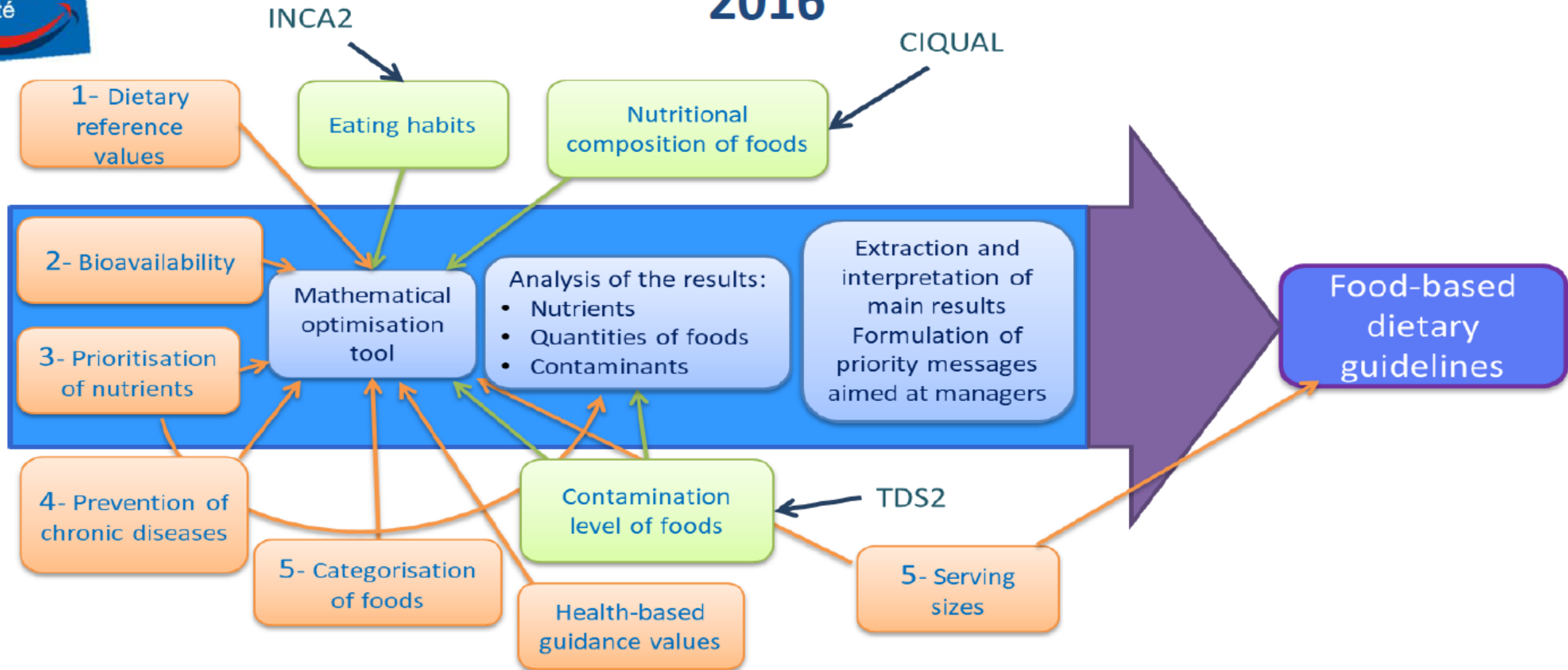
*(van de Kamp et al. 2018; Brink et al. 2016)*





# French FBDG: Evolution of approaches

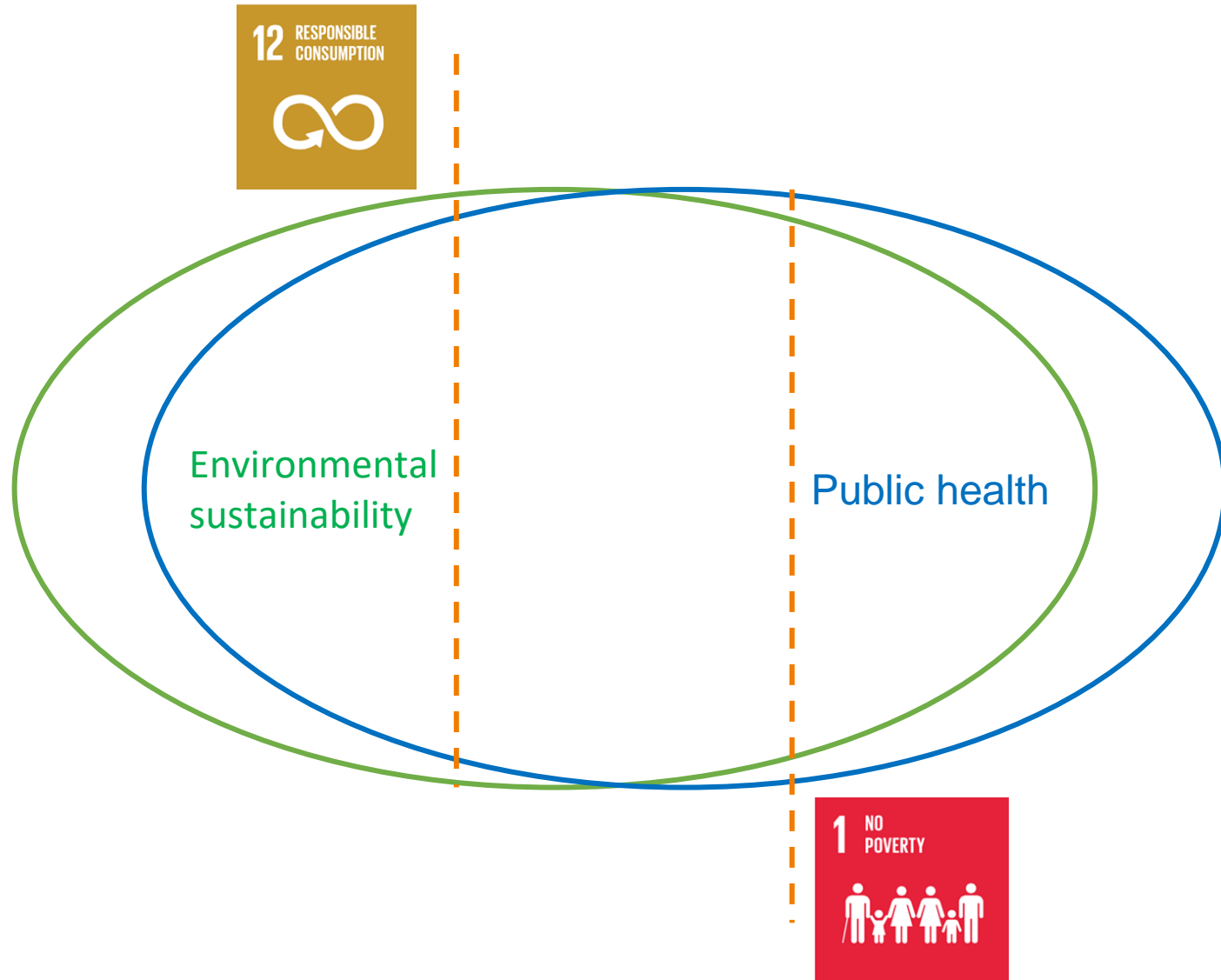
2016



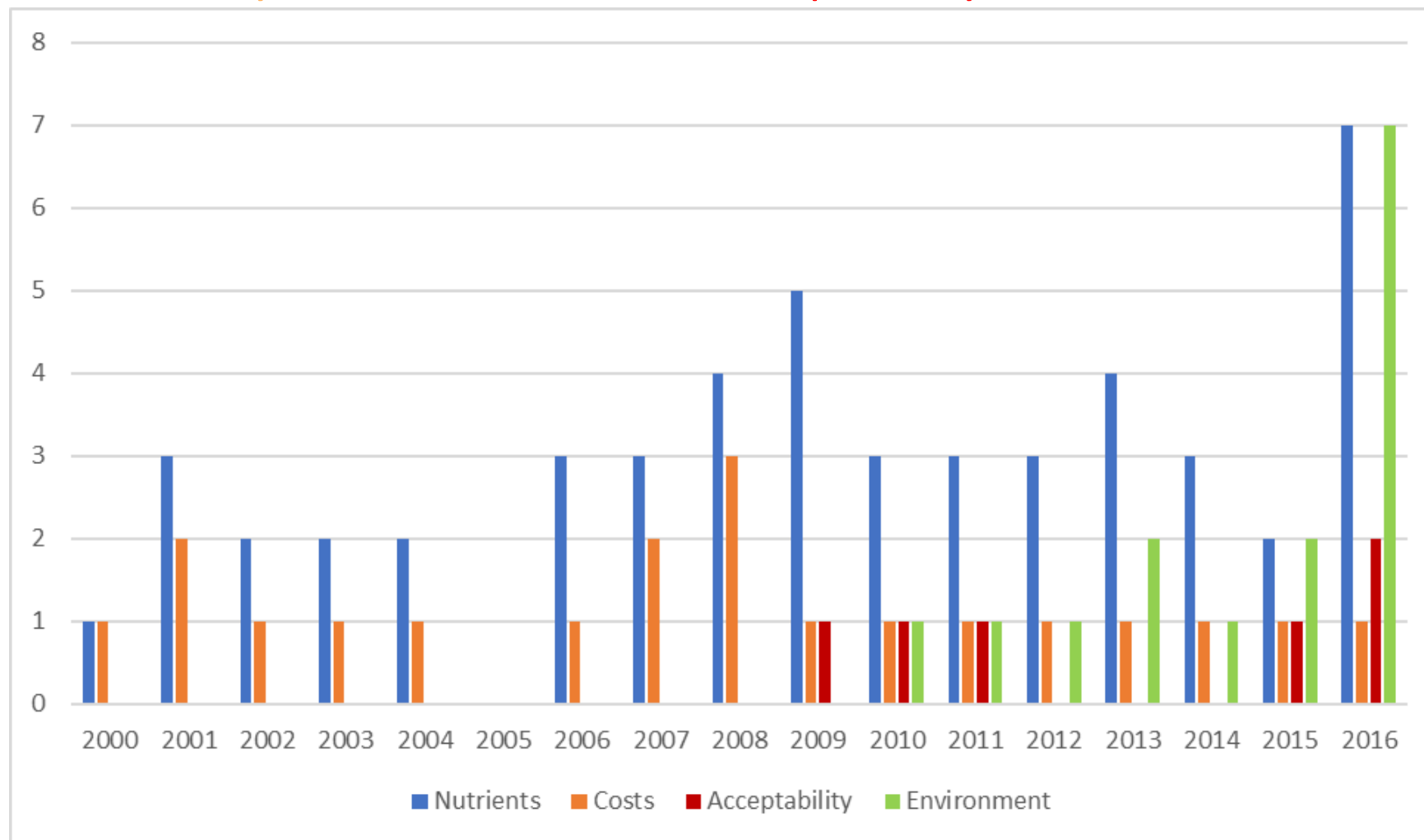
+ Global approach      - Dietary patterns not observed → acceptability?

# Method 4: SDGs as outcome

(additional constraints: acceptability & affordability)



## Increase in diet optimisation studies looking at constraints for affordability, environmental and acceptability



**A Review of the Use of Linear Programming to Optimize Diets, Nutritiously, Economically and Environmentally**

(van Dooren, 2018)

# Germany DGE (2019): started update FBDGs with optimisation modelling



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<https://www.dge.de>

## WORKSHOP

“INTEGRATION OF VARIOUS DIMENSIONS OF FBDGS VIA  
MATHEMATICAL APPROACHES: WHY AND HOW?”

23<sup>rd</sup> & 24<sup>th</sup> September 2019

German Nutrition Society

&

Federation of European Nutrition Societies

Bonn, 18.07.2019

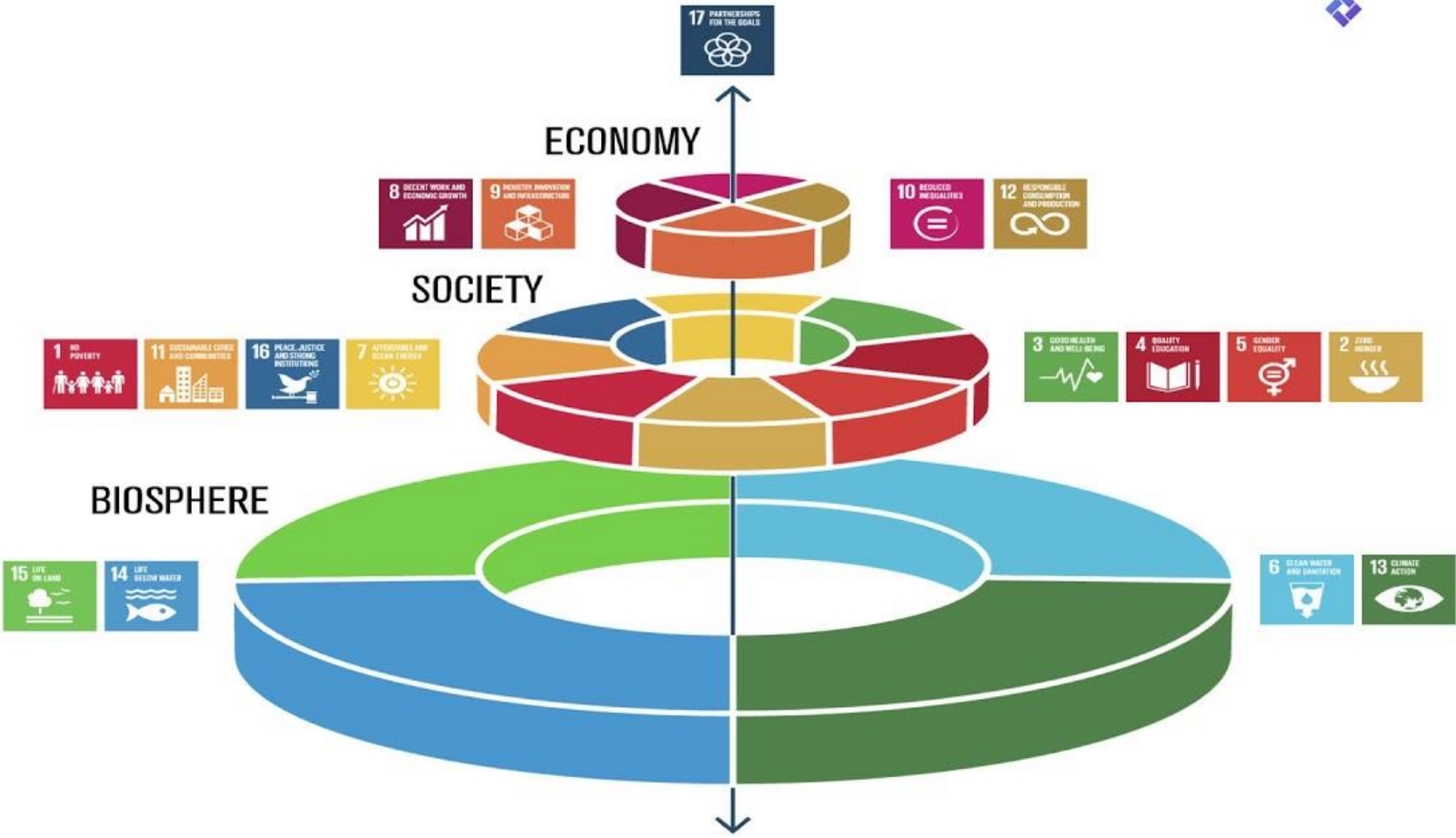
# Denmark (2021)



- Modelled
- In line with EAT Lancet diet
- Including additional rules
- Climate impact?

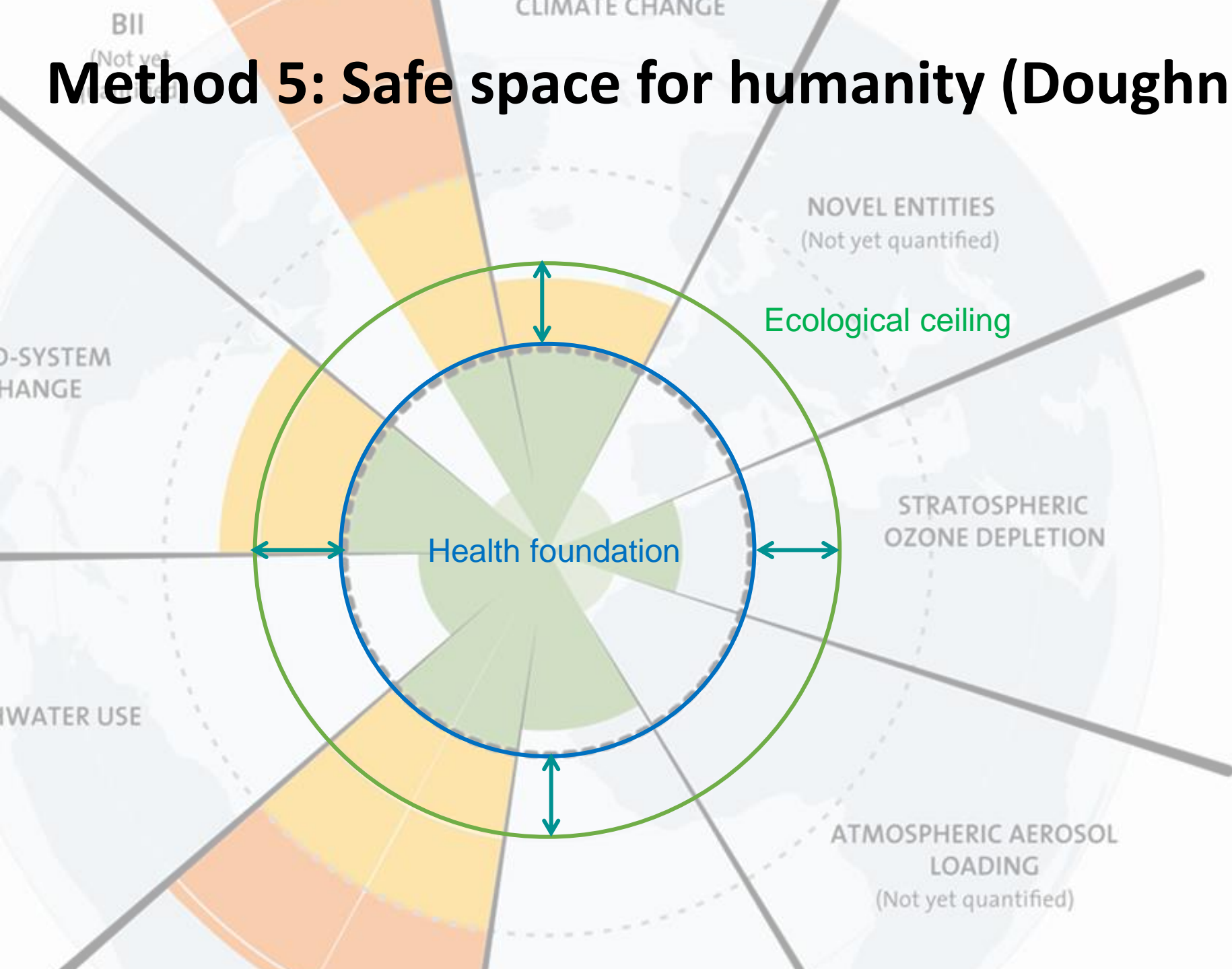
(Lassen et al, 2020)

# SDG's as ultimate outcome



(Stockholm Resilience Centre)

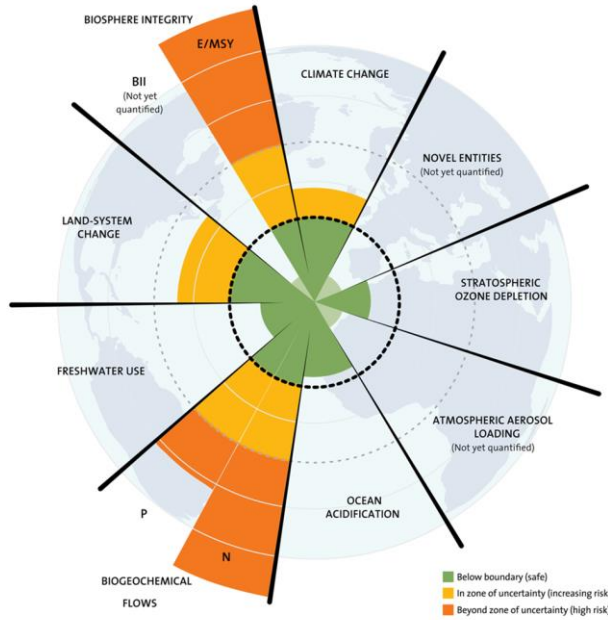
# Method 5: Safe space for humanity (Doughnut model)



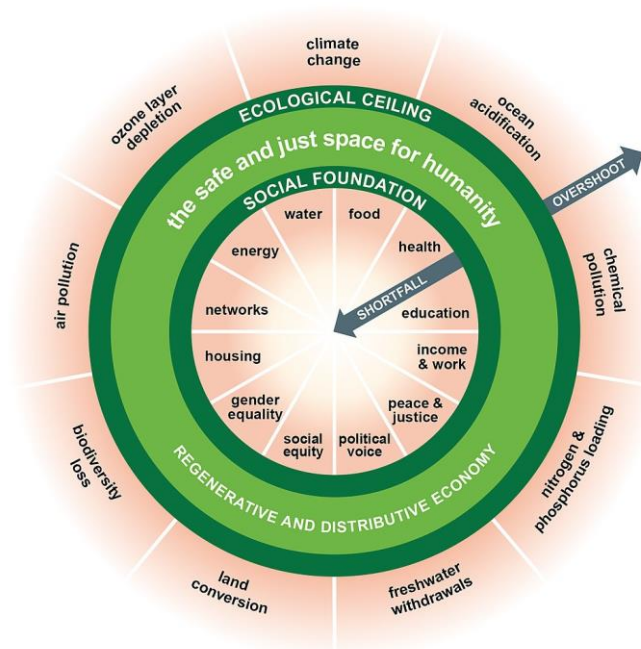
# Future: sustainability more integrated

more constraints = planetary boundaries = ecological ceiling

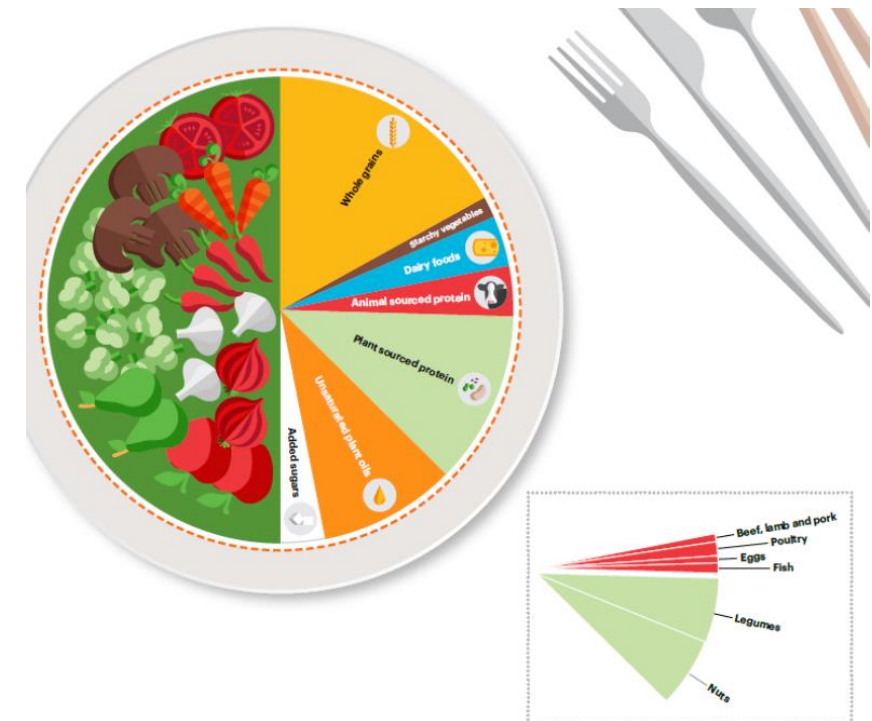
nutritional needs = social foundation (energy, water, food, health; SDGs)



Steffen et al. (2015)



Kate Raworth (2017)



EAT Lancet (2019)