

How to bring health and sustainability together in food system research?

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Sustainable diets and food systems

***Sustainable diets
are***

diets with

low environmental impacts

which contribute to

food and nutrition security

and to

healthy life

for

present and future generations.

FAO, 2010

<https://www.fao.org/3/i/3004e/i/3004e.pdf>

***A sustainable food system
delivers***

food security and nutrition

for all

in such a way that the

***economic, social, and
environmental***

bases to generate food security and nutrition

for future generations

are not compromised.

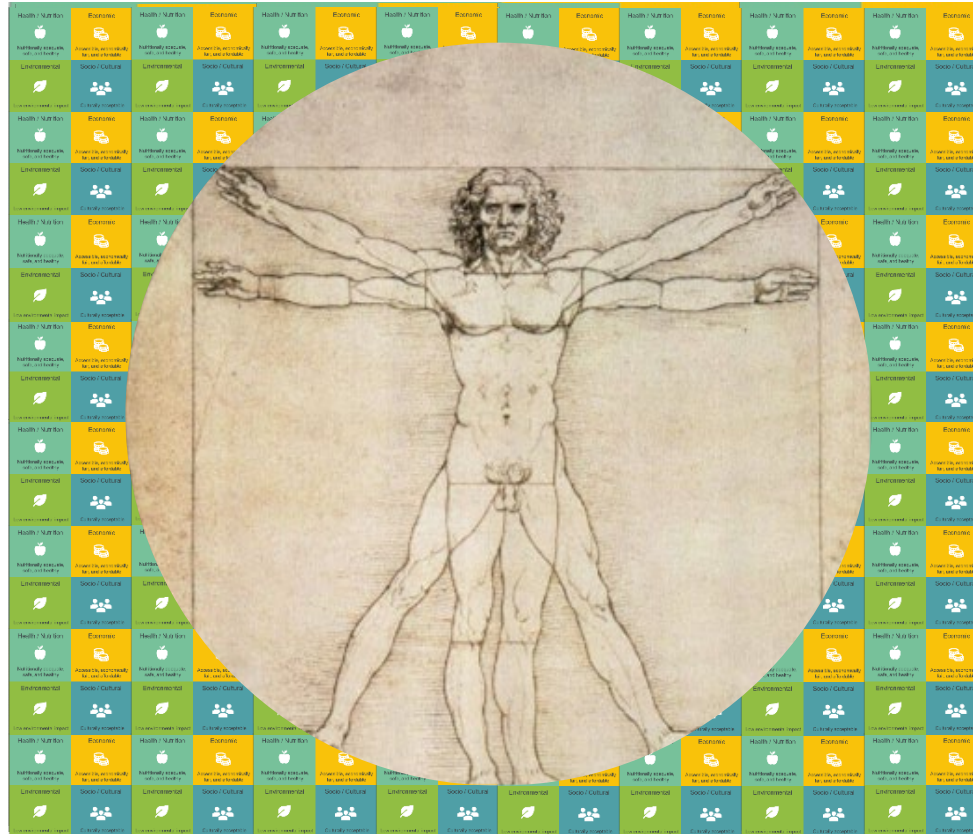
FAO, 2018

<http://www.fao.org/3/ca2079en/CA2079EN.pdf>

Healthy diets from sustainable food systems



...global diet in local context: human actors



Global

Regional

National

Local

Personal

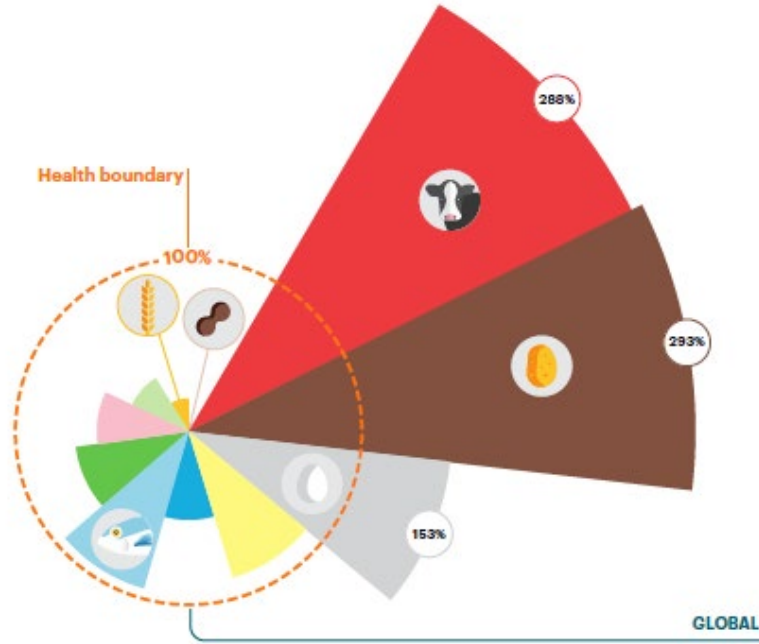
Cellular

Molecular

Synergies and trade-offs between objectives

SUSTAINABLE DIETS

EAT-Lancet Reference Diet (2019) & global diversity



<https://earegions.org/eat-lancet-commission/>



Peter Menzel, Hungry Planet

Recurring questions

Dimensions?

- Health and environment: GHGE & env health; LU, WU, ... biodiversity?
- Economic & socio-cultural: to be addressed (context!)

Food groups?

- What are healthy proportions of food groups (100%) (epidemiology).
- What about red/ ruminant meat, meat/milk cattle? Tubers > carbohydrates? Fish catch/farm?
- Standardised to 2500 kcal/day: requirements and FBDGs proportional to energy?

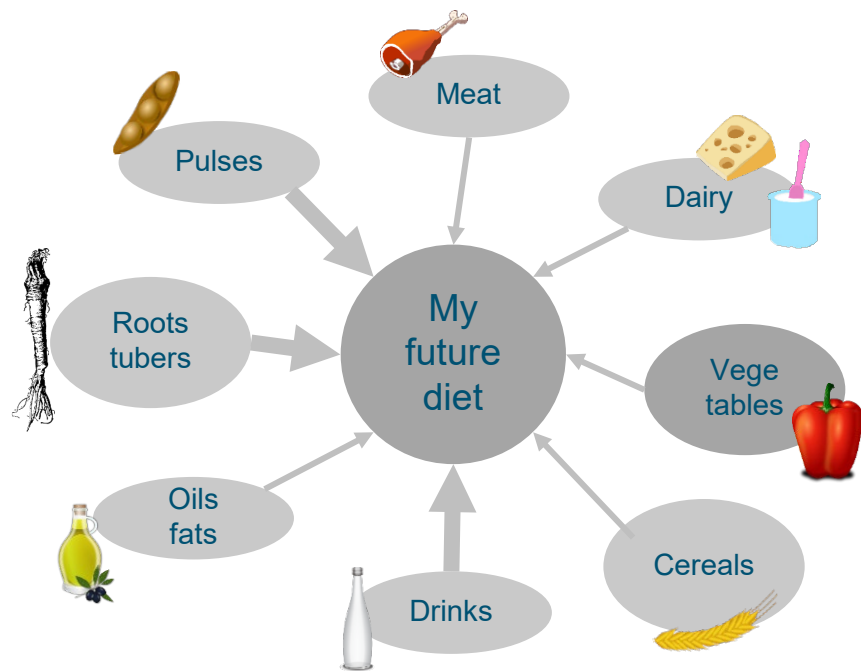
Global/regional?

- GHGE & climate global. Nitrogen and WU are regional. Eating cultures are local.

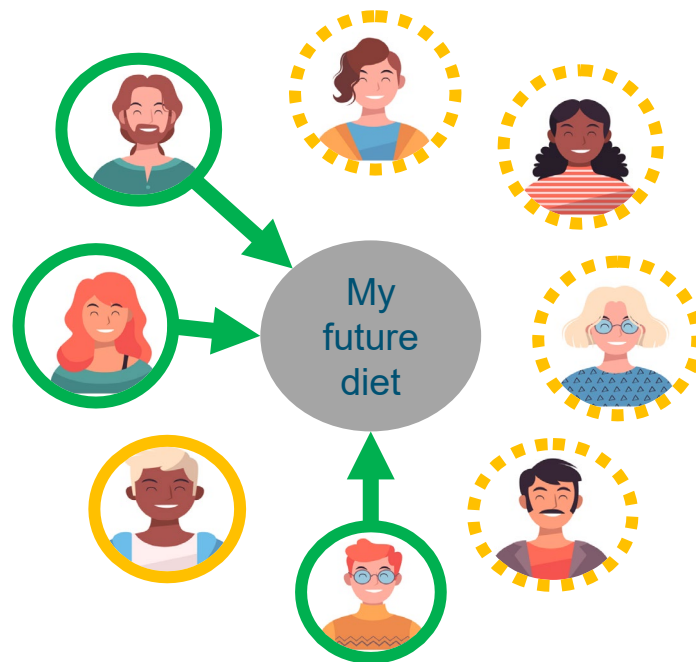
Population groups?

- Nutritionally & economically vulnerables? (children, elderly, affordability?)

The healthiest diet, constrained by GHGE, ...etc..

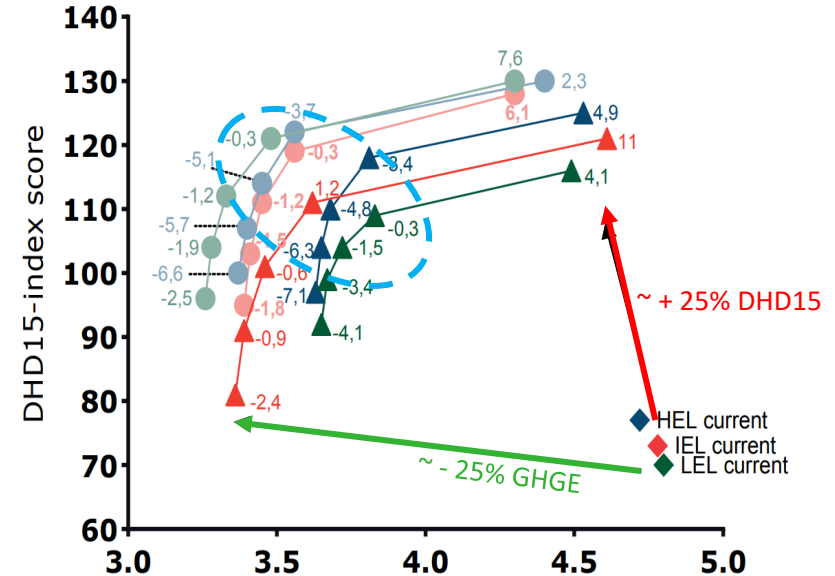
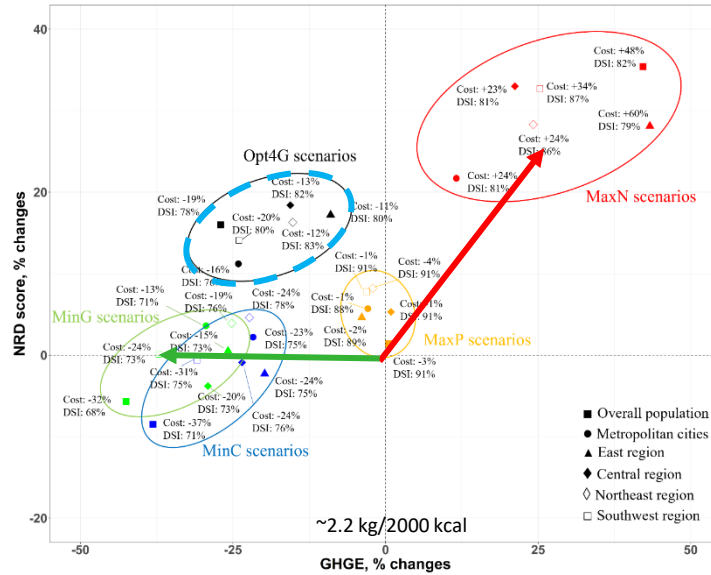


Best linear combination of products from FCDB
Dot on horizon. As if foods can be chosen independently.
Hard to incorporate cultural acceptability.



Best linear combination of 'days' in surveys, Small steps in near future. Combines 'best practices from peers in the same cultural & economic context (acceptability)

Optimized diets in China and NL: Different trade offs

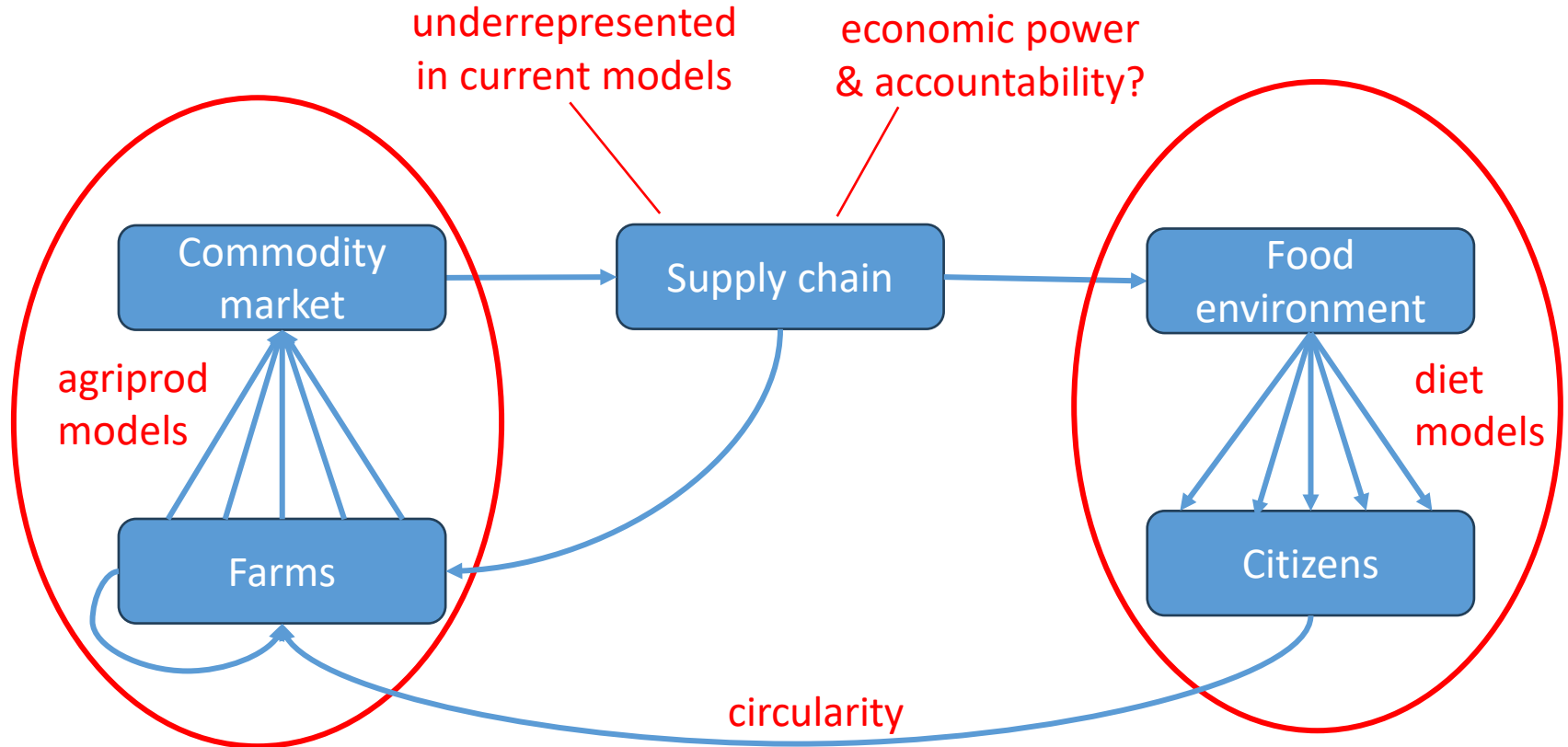


Synergies & trade-offs differ by cultural context.

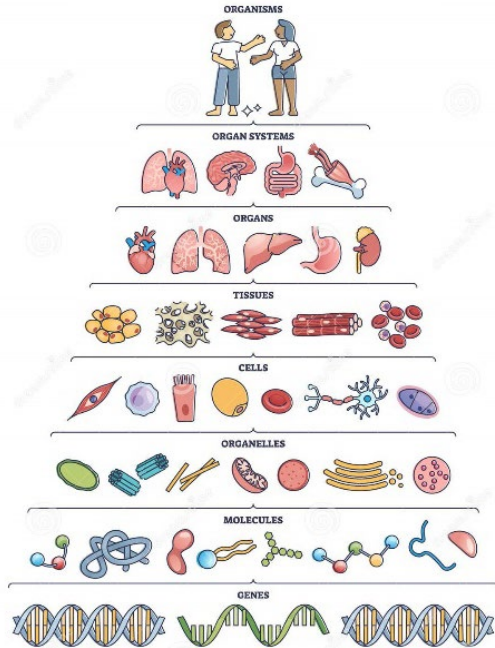
- Models → include disease risk & public health impact, affordability → policies
- Proof of the pudding needed
- Controlled trials of env-friendly diets → healthier? (prot qual, micr, biomarkers)?
 - Field trials → evaluate feasibility of sustainable diets.

SUSTAINABLE FOOD SYSTEMS

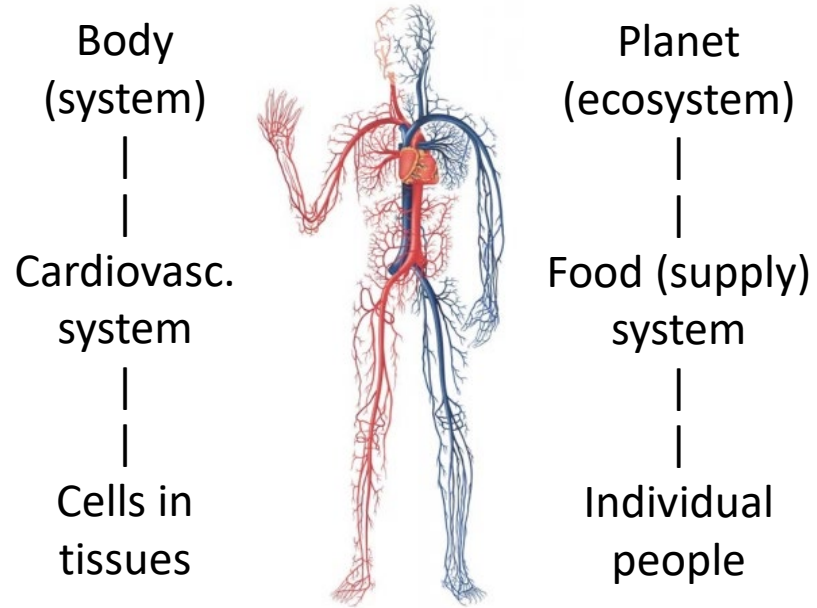
Food system >> Diet models



Systems 'approach' – dynamic equilibrium with environment



Reductionist approach: mechanisms, cause-effect, energy, matter, metabol.



Systems approach: dynamic equilibrium, self-organis, emergence, in/output, nodes, networks, growth scale

Develop and apply concepts, principles & methods of systems science.
Not just systems lens/approach. Need data, methods, skills.

ACCOUNTABLE ACTORS

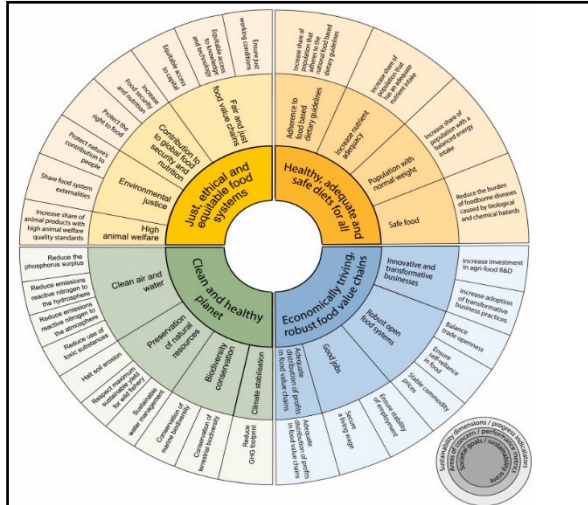
‘The Wealth of Nations’ to ‘Health of Nations’

Adam Smith (1776) & Thomas Malthus (1798)

> 2 centuries debate

Dennis Meadows (1972)
& Kate Raworth (2019)

Pushing the right buttons



Sustainability Compass for food system policies [\(Hebinck, 2021\)](#)

by accountable actors

Lancet: commercial determinants of health

“systems, practices, pathways through which commercial actors drive health and equity”
Tobacco, unhealthy food, fossil fuel, alcohol:
responsible for $\geq 1/3$ of global deaths per year.

Health & environmental factors, sociocultural and economic actors ([Biesbroek, PNAS, 2023](#))

Shared short-term interest of industry & government.
Justice/ethics: Tradeoffs HIC/LMIC, in EU, SES-groups.
Legal framework to foster intersectoral sust. policy.

Summary

SUGGESTED RESEARCH TOPICS

How to bring health and sustainability together in food system research?

Diet models

(evidence-based diets in context; sustainable FBDGs)

Synergies & trade-offs across context & scale (agri, health).

Proof of the pudding

- Controlled nutrition trials if sustainable diets.
- Field trials to evaluate feasibility of sustainable diets.

Assess disease risk & impact for setting policy agendas.

Food systems

(big picture by innovative methods)

Food systems lens/approach? Data and methodology!

Cross-talk agrifood, economic and socio-cultural methods.

Advance concepts, principles & methods of systems science.

Accountable actors

(diet-shift & system transition)

Power-relations: Shared interest of industry & government.

Justice/ethics: Tradeoffs HIC/LMIC, in EU, SES-groups.

Legal framework to foster intersectoral sust. policy.

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Thank you for
your attention!

