PAGE
PISA AGRICULTURAL ECONOMICS
Food and rural studies for sustainability

UNIVERSITÀ DI PISA

Why do the food system(s) need to change?

EURAGRI Webinar

6 December 2024

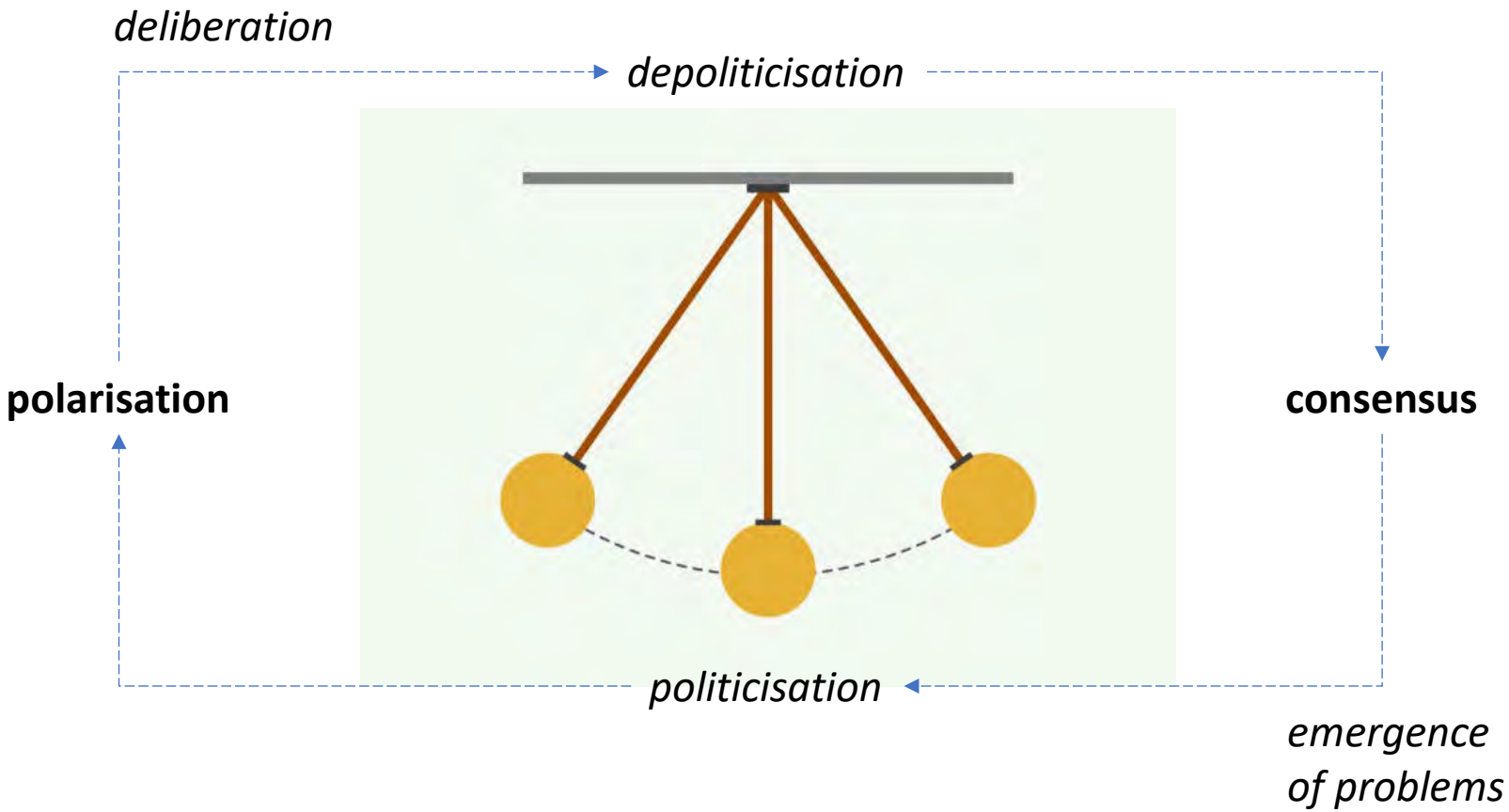
Gianluca Brunori

The sustainability consensus

«If policymakers and other stakeholders are to be successful in tackling emerging challenges regarding food security and nutrition for all, while at the same time ensuring sustainable natural resource use,
they will need to expand their viewpoint to include the full scope of food systems» (UNEP, 2019)

The end of the Sustainability Consensus?

Between consensus and polarization



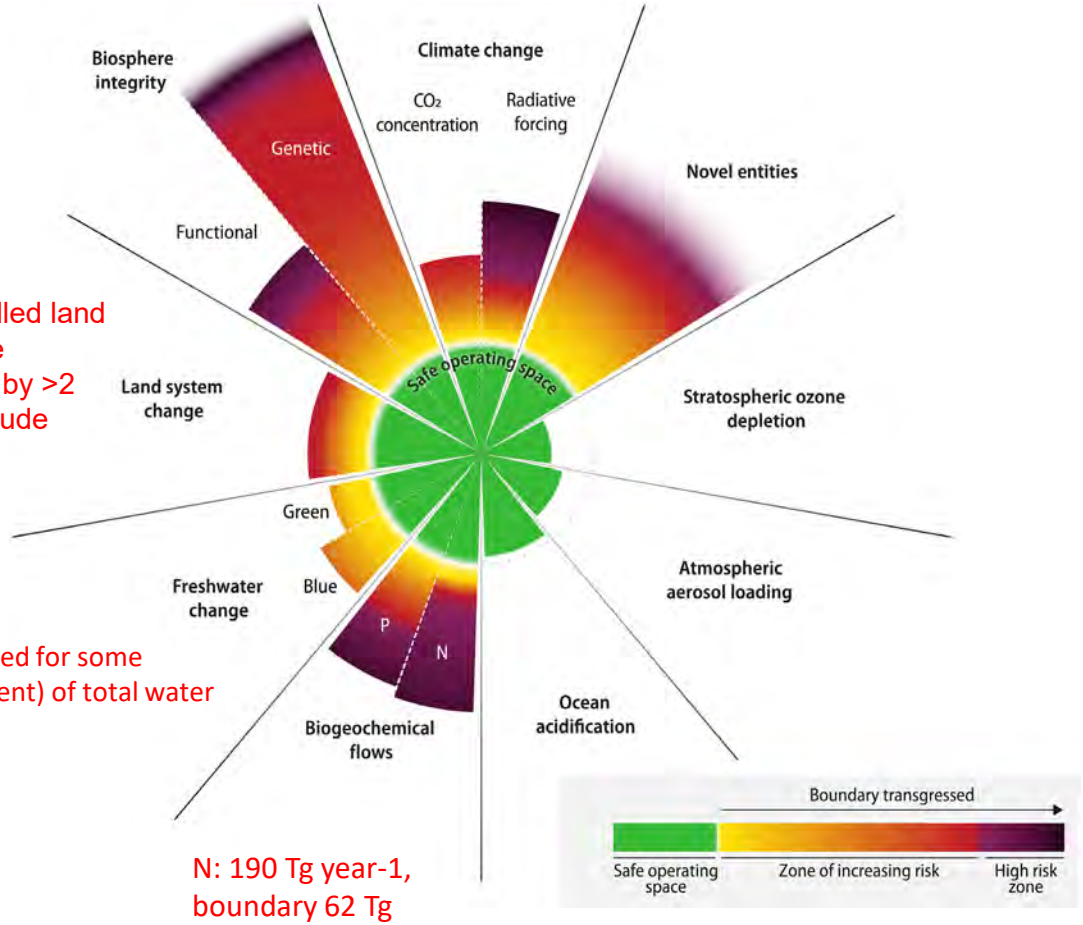
Is sustainable transformation still possible?
Can a new sustainability consensus be achieved?

The facts: planetary boundaries

The food system contributes up to 33% of global GHG

Soil loss from conventionally tilled land exceeds the rate of soil formation by >2 orders of magnitude (IPCC)

Agriculture accounted for some 2 950 km3 (72 percent) of total water withdrawals (FAO)



N: 190 Tg year-1, boundary 62 Tg

The environmental crisis is still looming

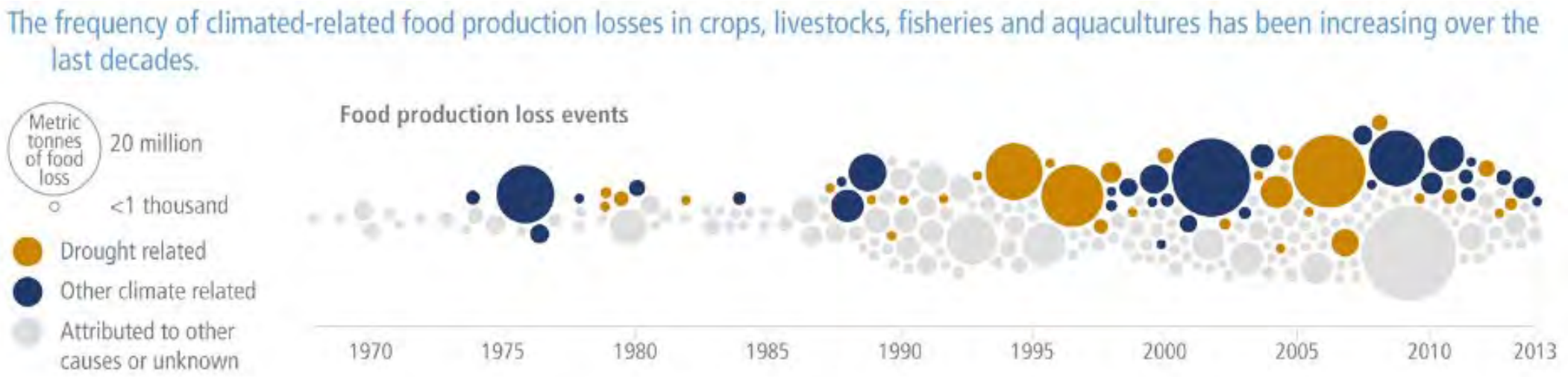
Richardson, K., Steffen, W., Lucht, W., Bendtsen, J., Cornell, S. E., Donges, J. F., ... & Rockström, J. (2023). Earth beyond six of nine planetary boundaries. Science advances, 9(37), eadh2458.

the food sector is a dominant user of our natural resources (UNEP, 2019)

PAGE

System vulnerability

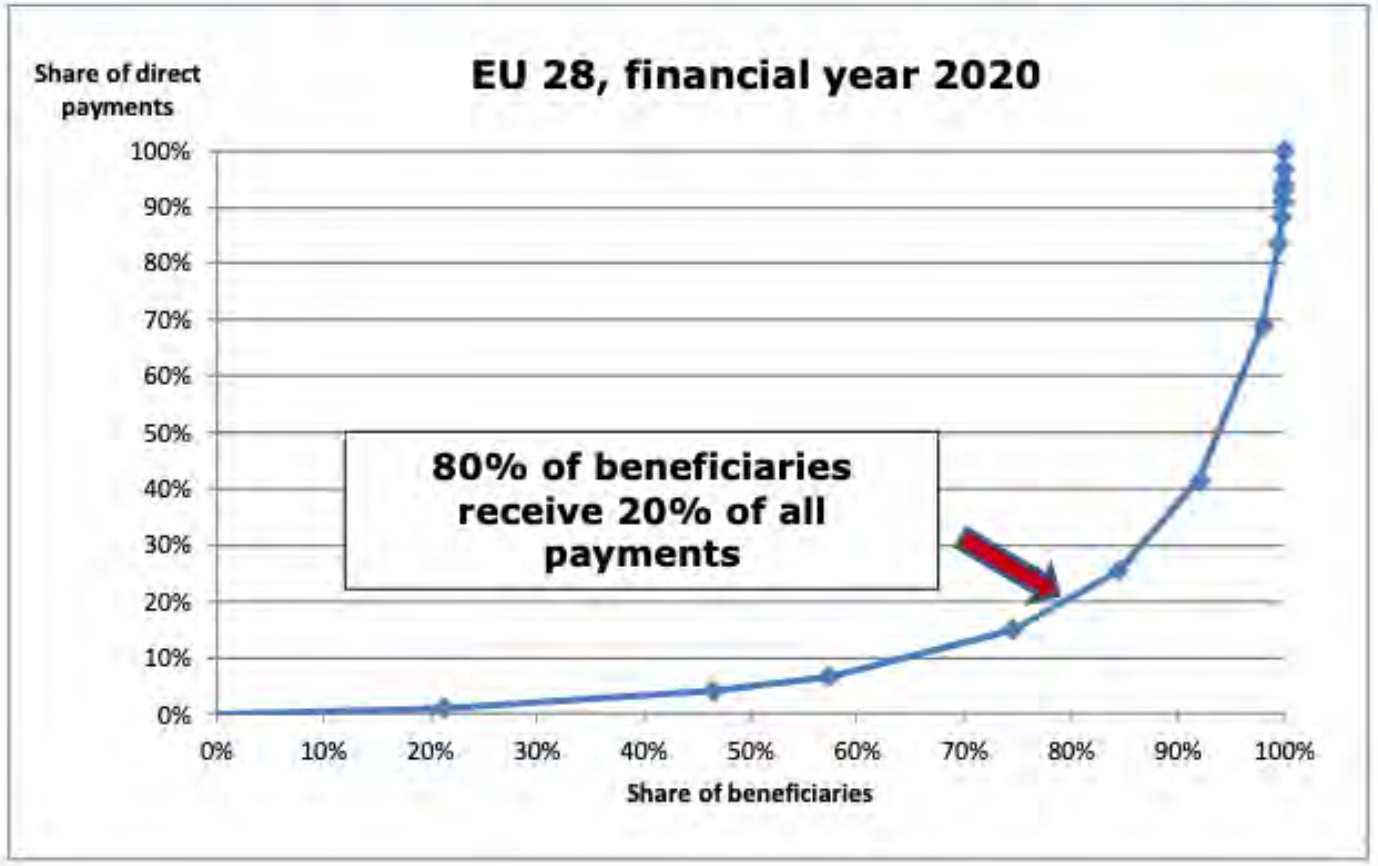
source: IPCC



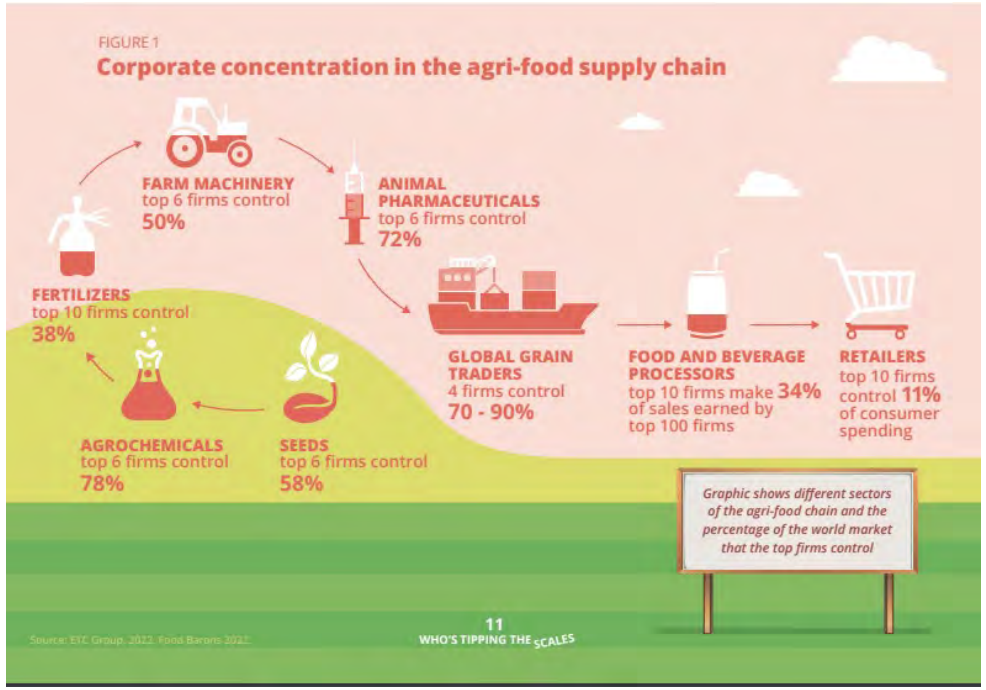
source: IPCC

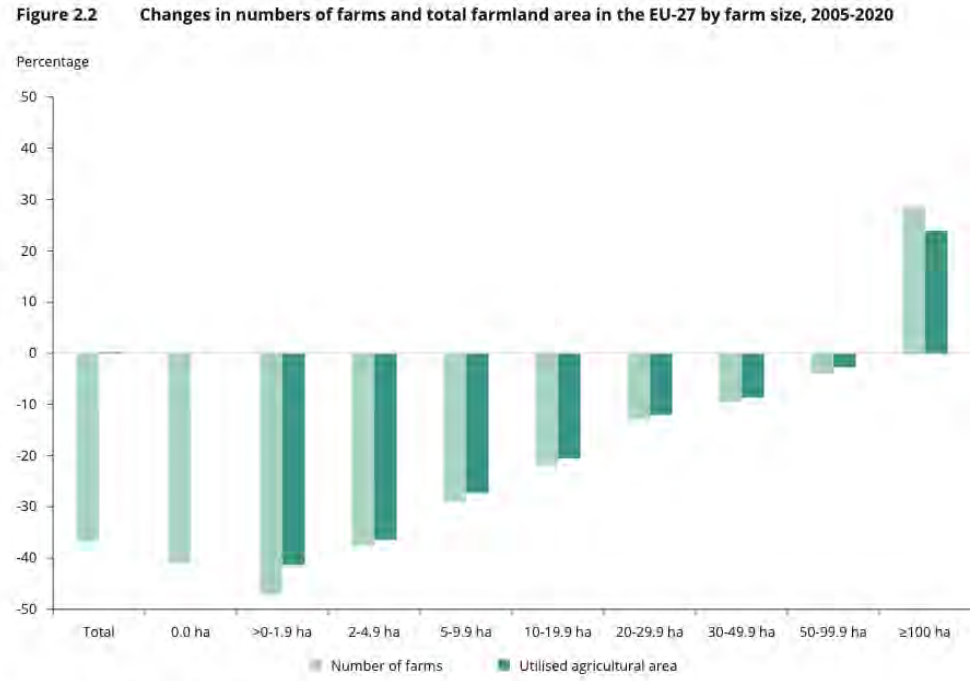
Inequalities

Distribution of direct payments among beneficiaries



Increasing concentration





source: IPES-food

Food health boundaries

Global

Limited intake

Optional foods

Red meat

Starchy vegetables

Eggs

Poultry

Dairy foods

Emphasized foods

Fish

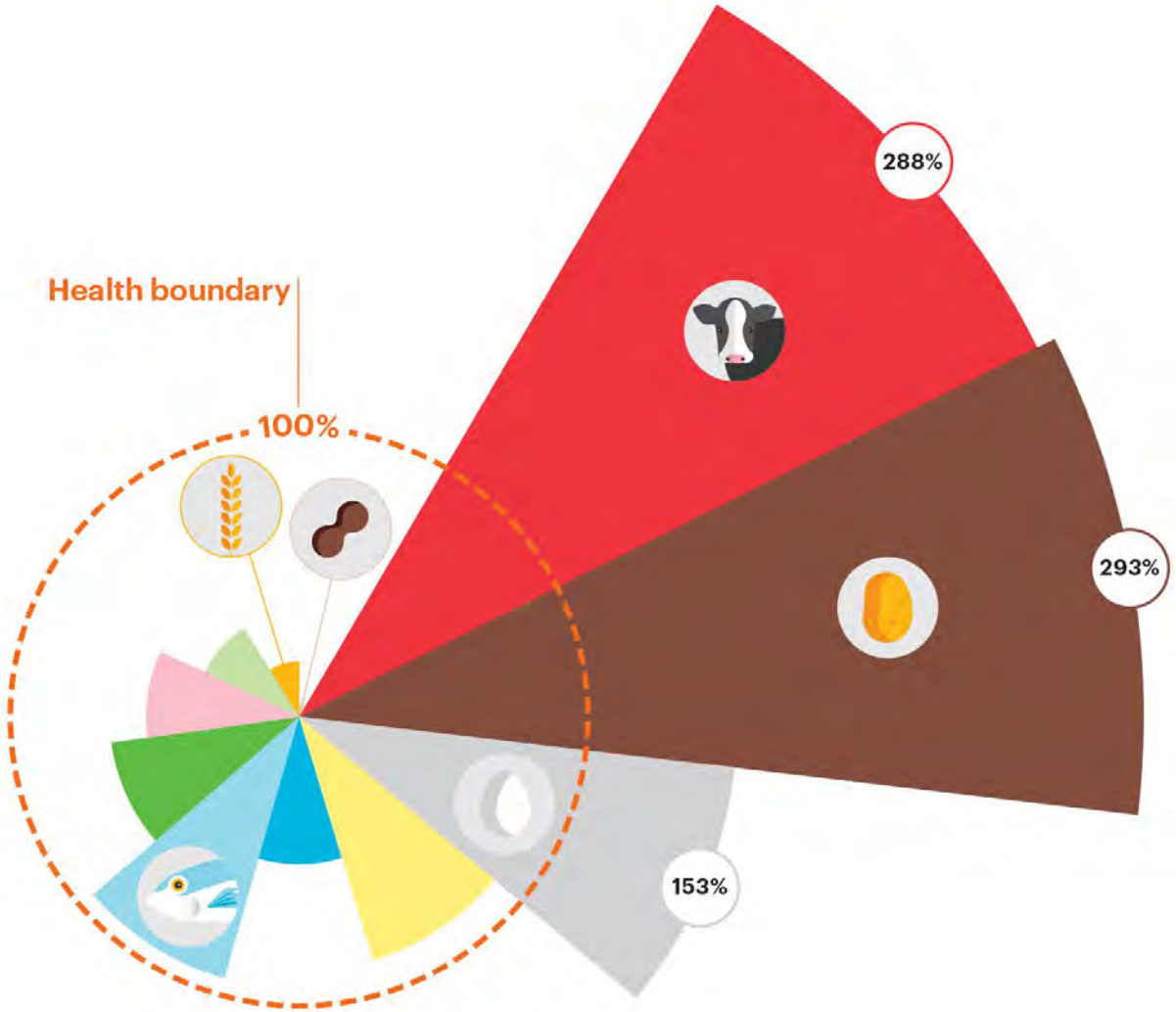
Vegetables

Fruit

Legumes

Whole grains

Nuts

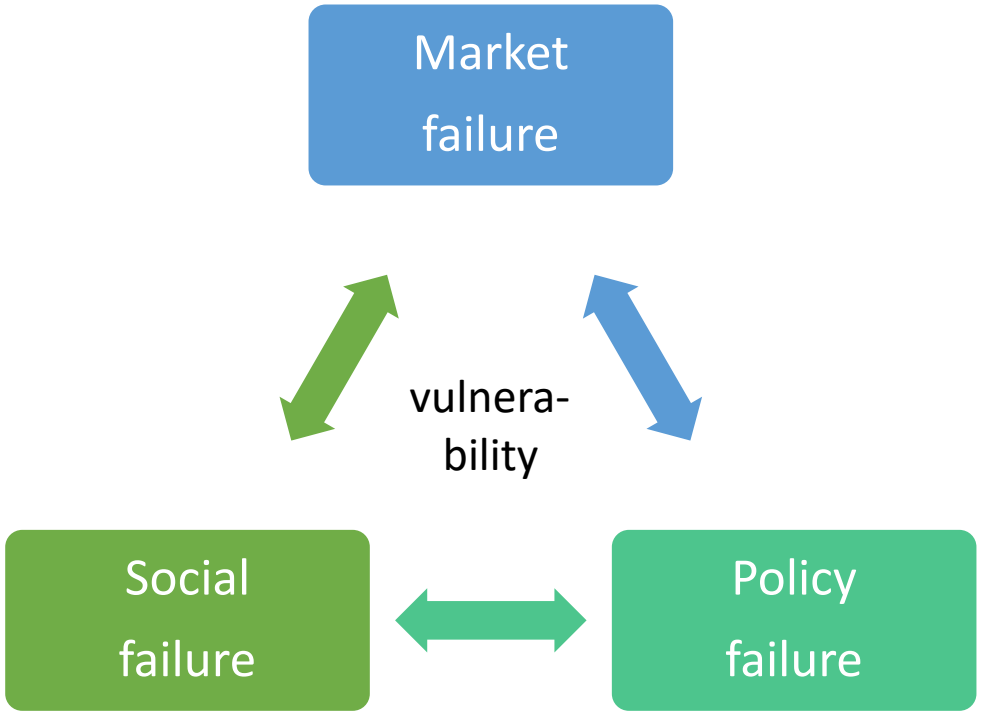


Determinants of system failure

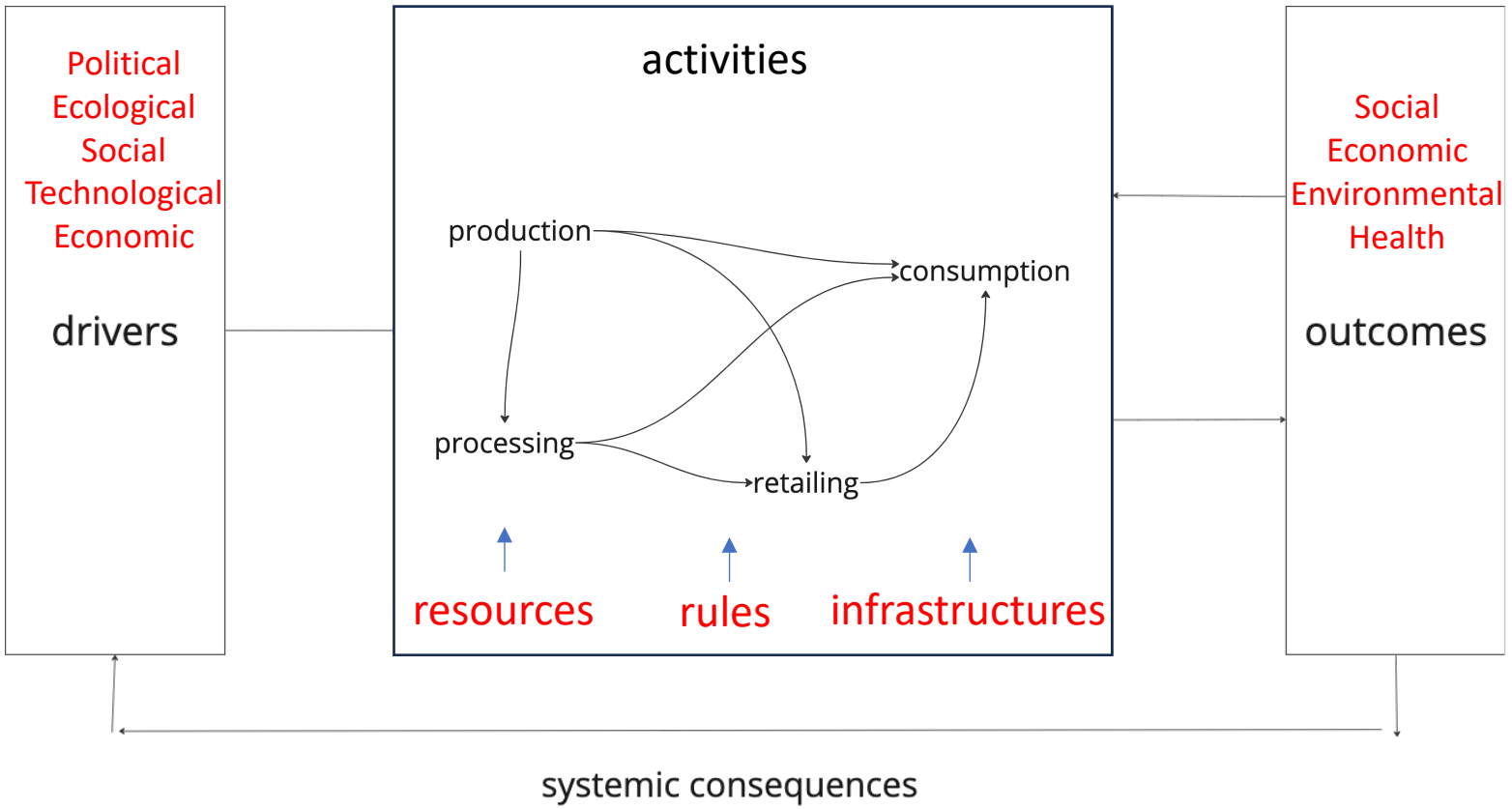
Market failure: prices don't reflect the 'true cost' of food

Societal failure: consumers' (and companies) embodied behavioral norms

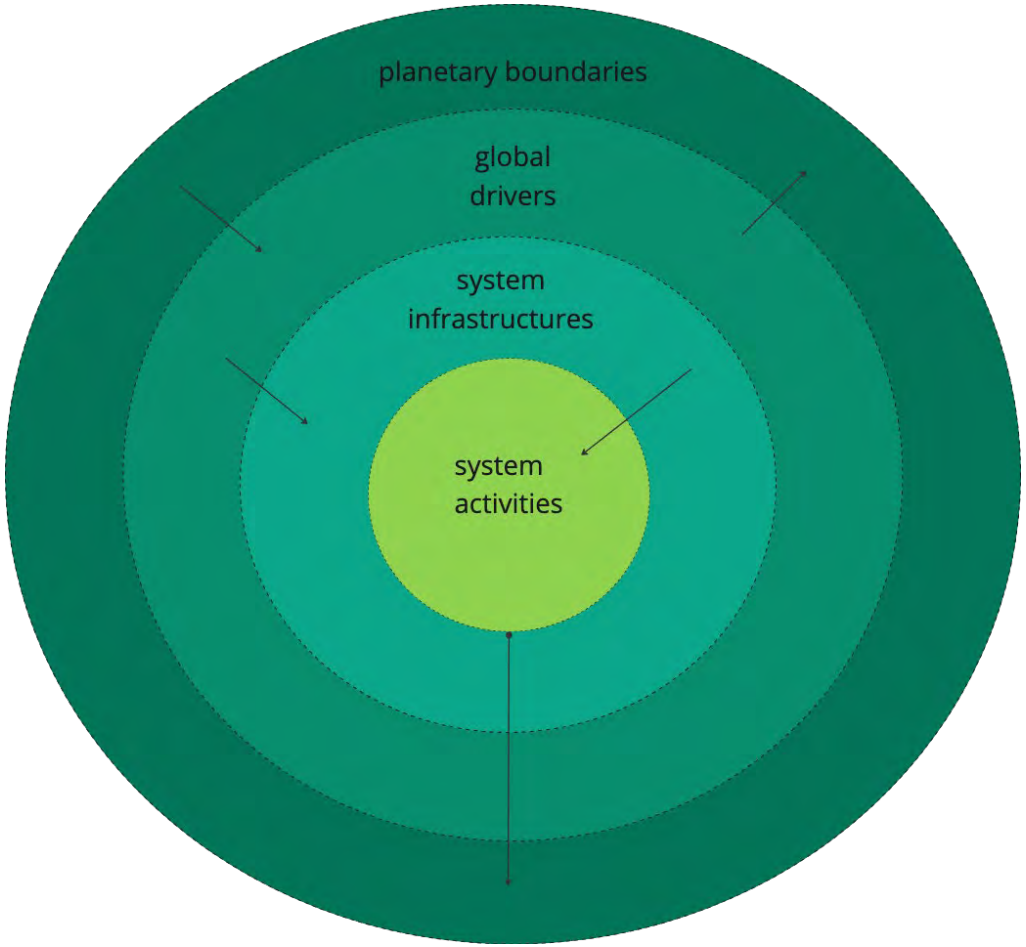
Policy failure: policies are inconsistent, incoherent, ineffective



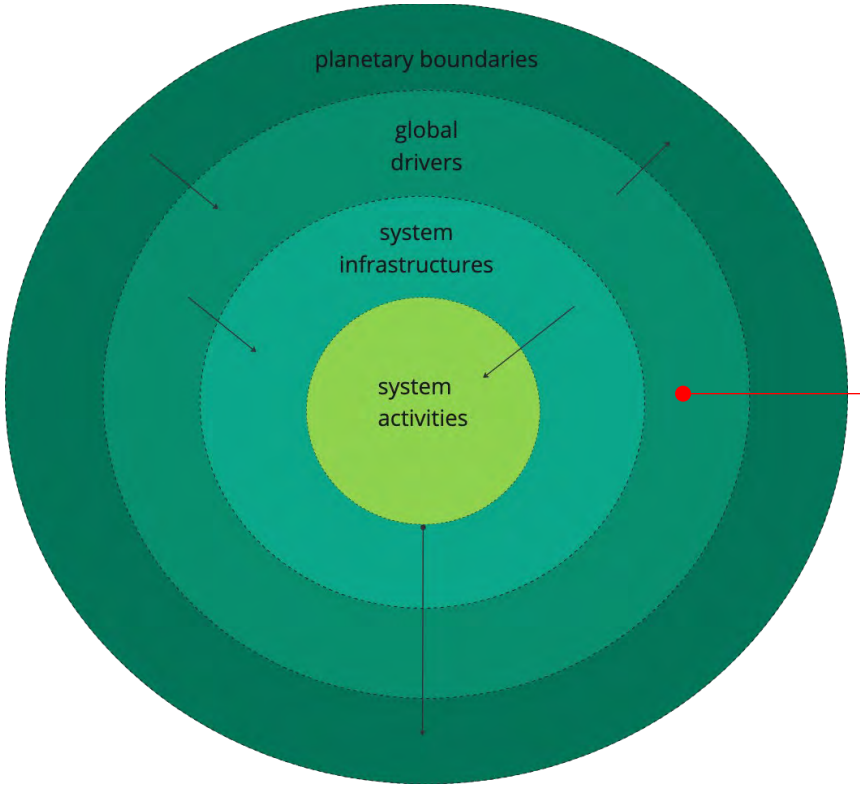
What do “food system(s)” approaches imply?

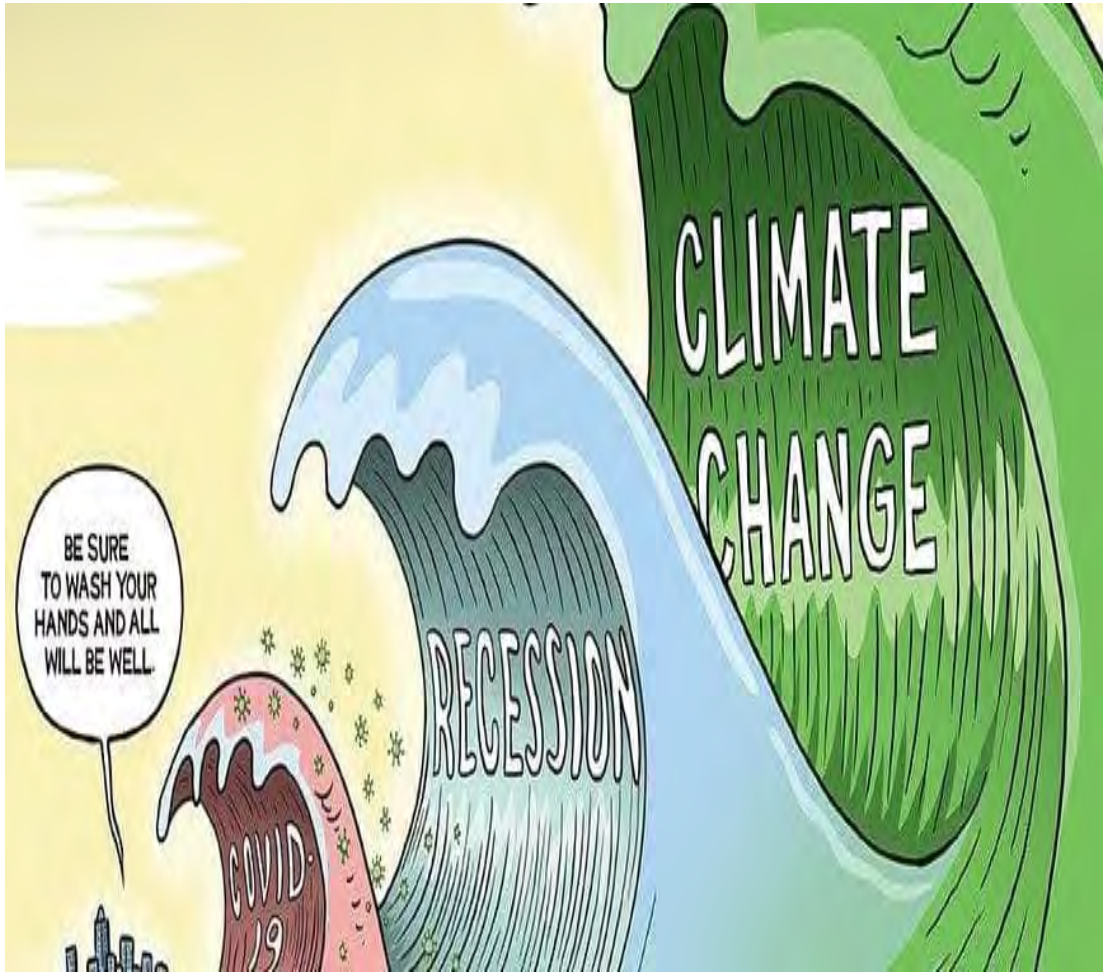


How to transform food systems?

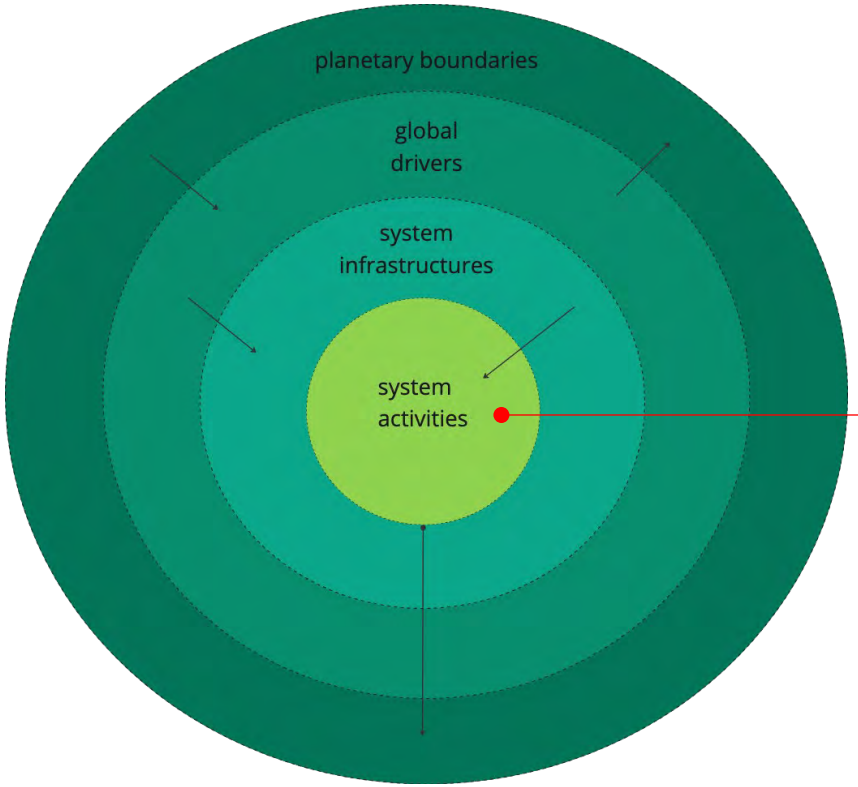


Actions for transformation: addressing multiple crises



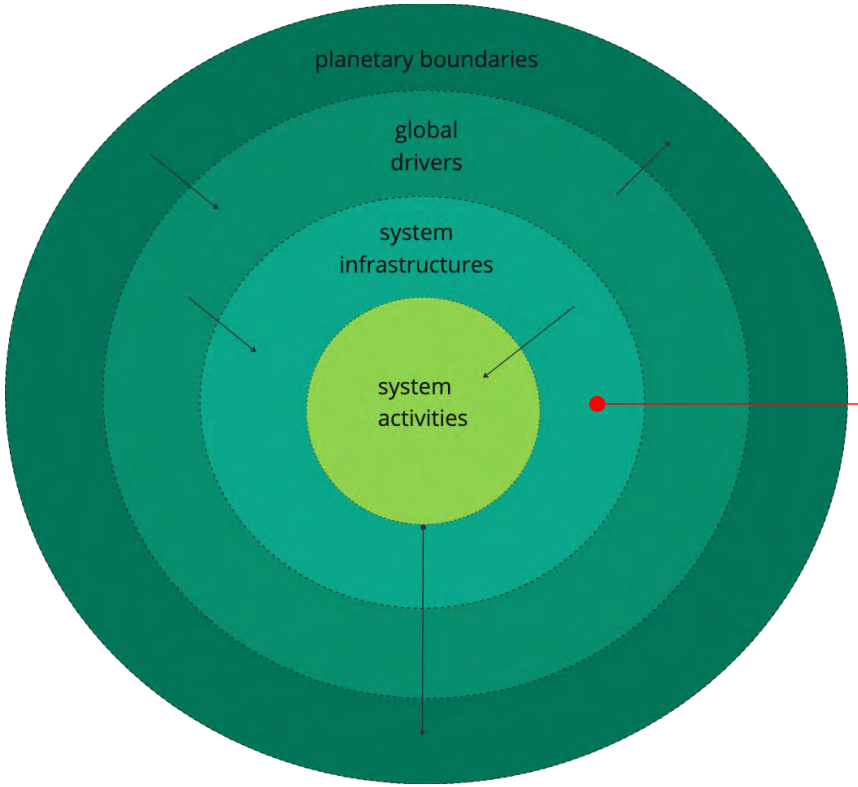


Actions for transformation: system activities



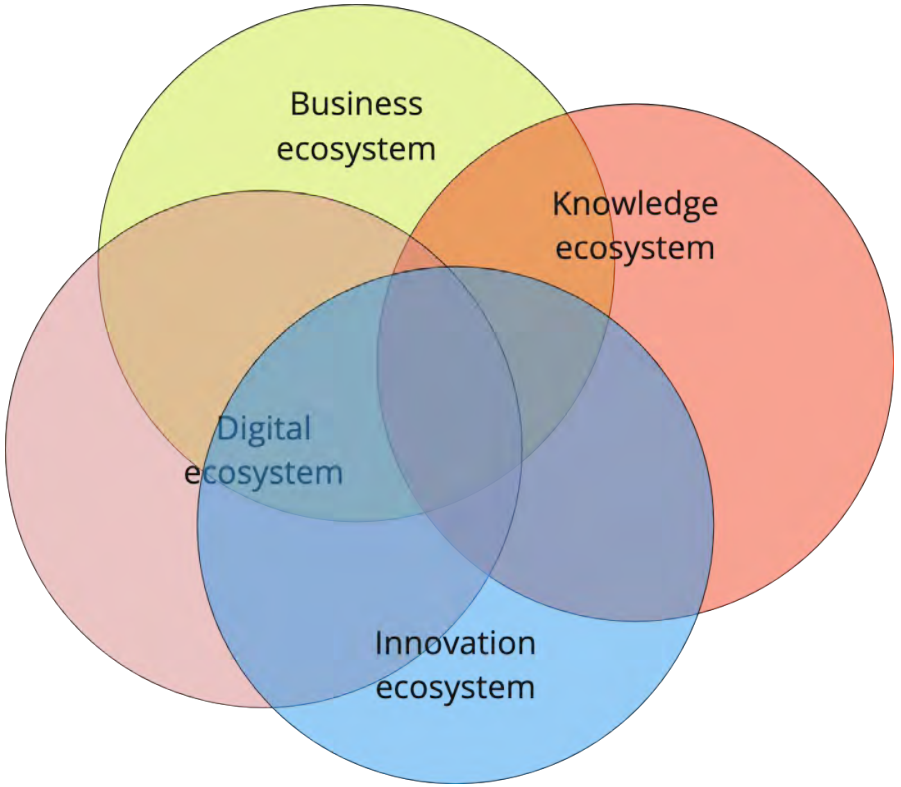
Action	Areas of ambiguity / dissent
Change agricultural practices • diversification • reduction of chemical inputs • animal welfare	Agroecology vs regenerative vs sustainable intensification Role of digital and bio-technologies Production levels
Reducing waste: • introducing circular economy principles • changing actors' practices	Cascading
Redesign food: • nutritional density • mild processing • fermentations • protein substitution	Tradition vs innovation Synthetic food
Change consumption patterns • diversity • adequacy • moderation	Role of animal proteins Role of big players Eat local – Eat global Limit to individual freedom

Actions for transformation: infrastructures



- Physical
- Technological
- Social
- Knowledge
- Legal

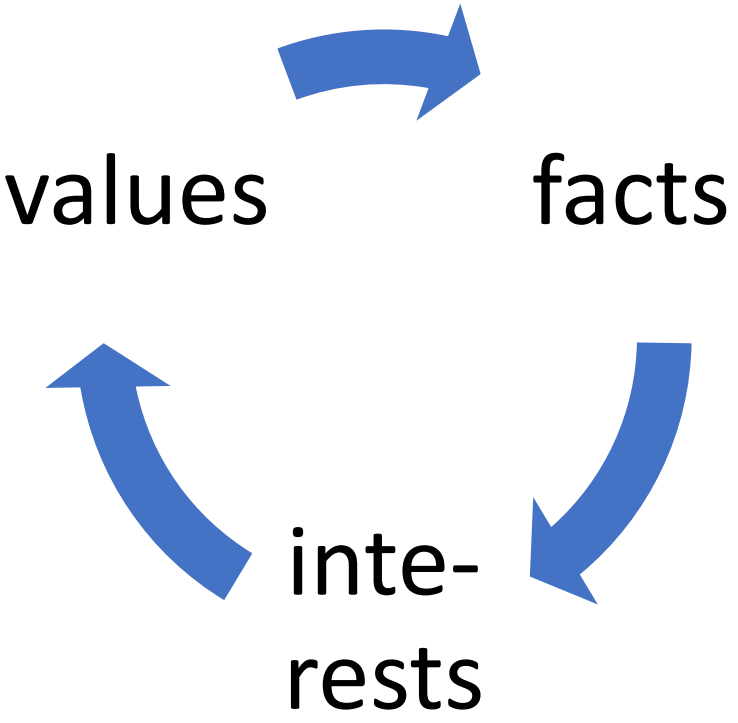
Knowledge infrastructures



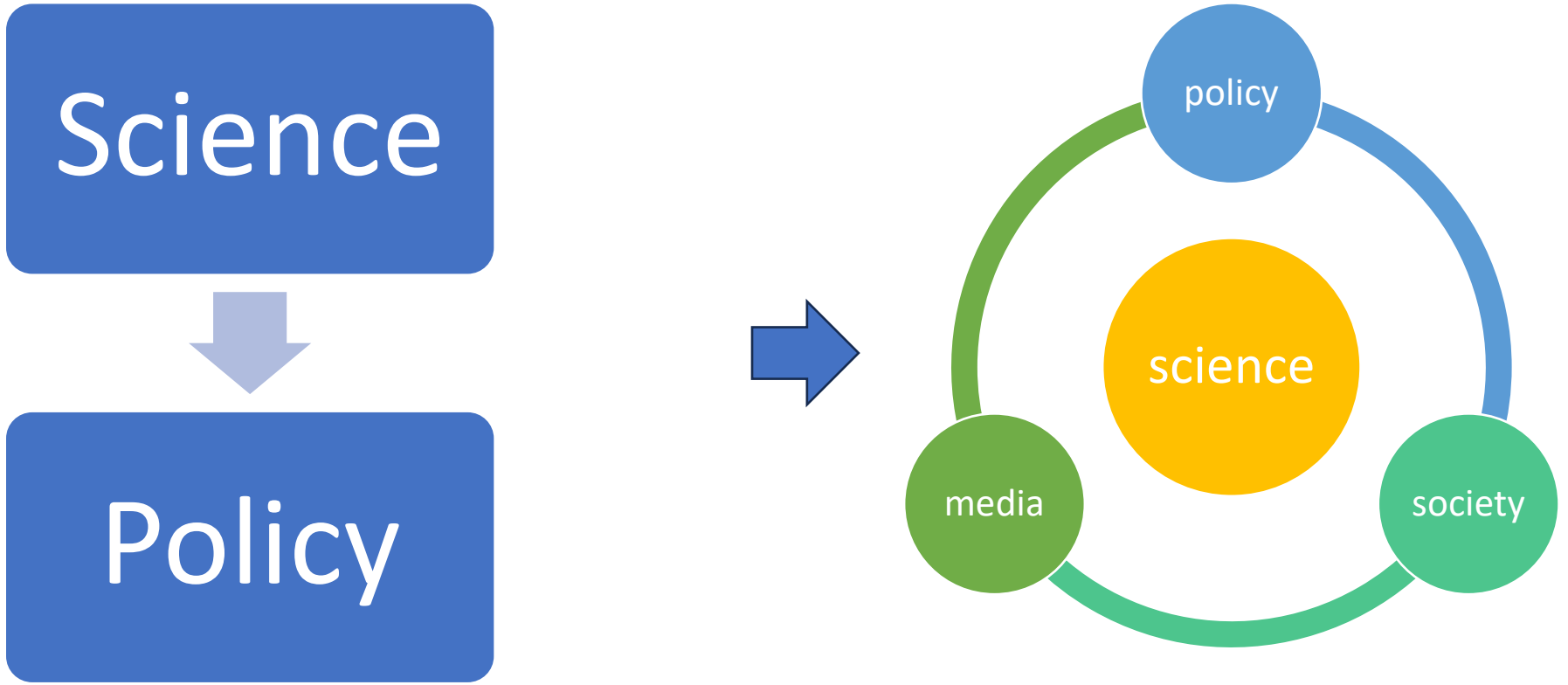
- Feedback information to actors' behavior
- Monitoring tools for policymakers
- Accountability information
- Social and institutional learning and innovation

A transition based on consensus

- Shared cognitive schemes: consensual interpretation of facts
- Shared values: starting from what unites, developing new values
- Transparency on interests: making it clear who gains and who loses



The role of scientific knowledge



Thank you!

UNIVERSITÀ DI PISA

PAGE
PISA AGRICULTURAL ECONOMICS
Food and rural studies for sustainability

Dipartimento di Scienze Agrarie,
Alimentari e Agro-ambientali

www.page.agr.unipi.it

Borlaug Malthusian?

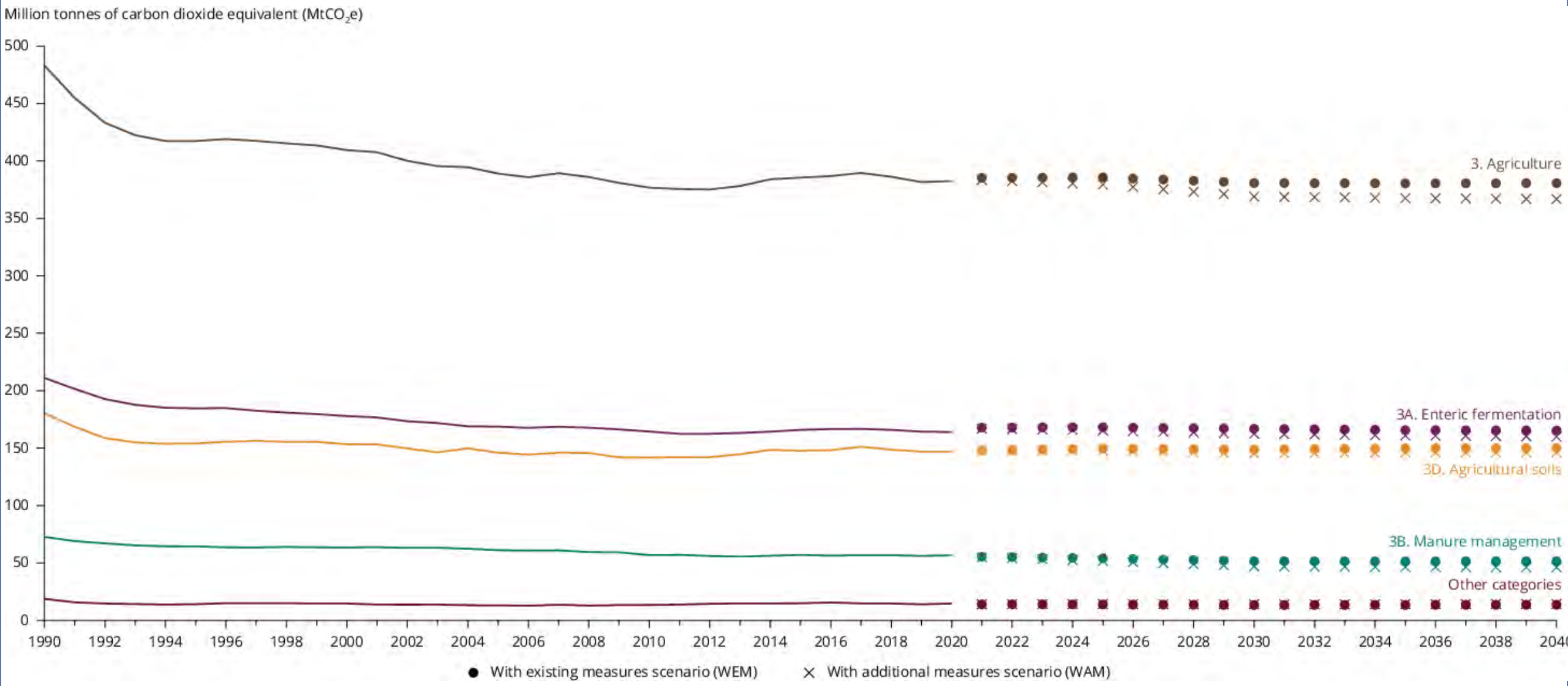
(Man) is using his powers for increasing the rate and amount of food production. But he is not yet using adequately his potential for decreasing the rate of human reproduction. (...)

There can be no permanent progress in the battle against hunger until the agencies that fight for increased food production and those that fight for population control unite in a common effort.

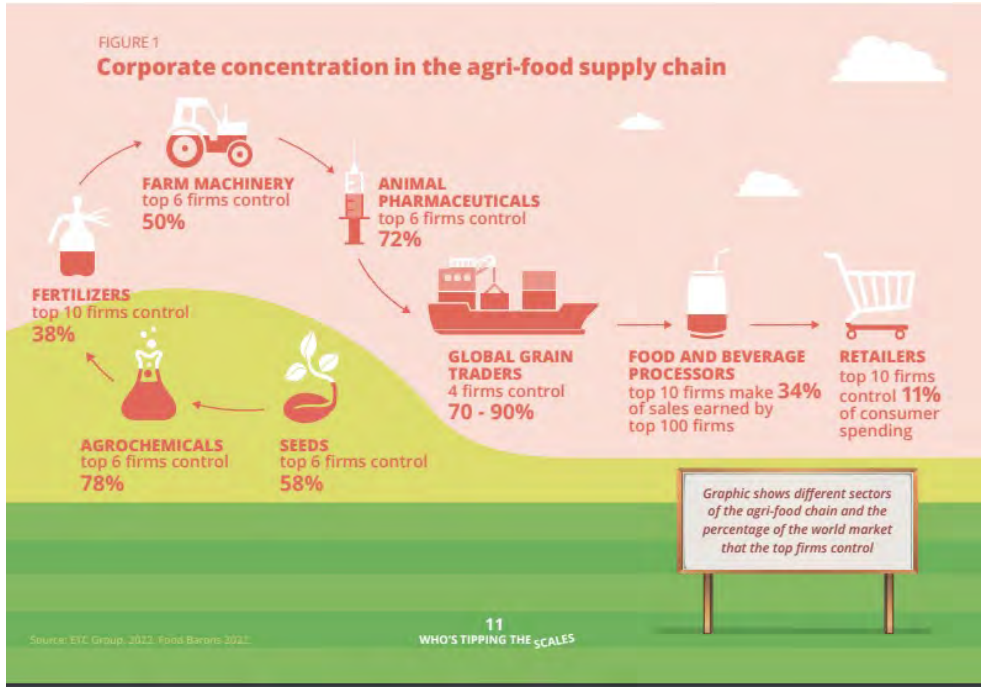
A new cycle of consensus building: where to start from?

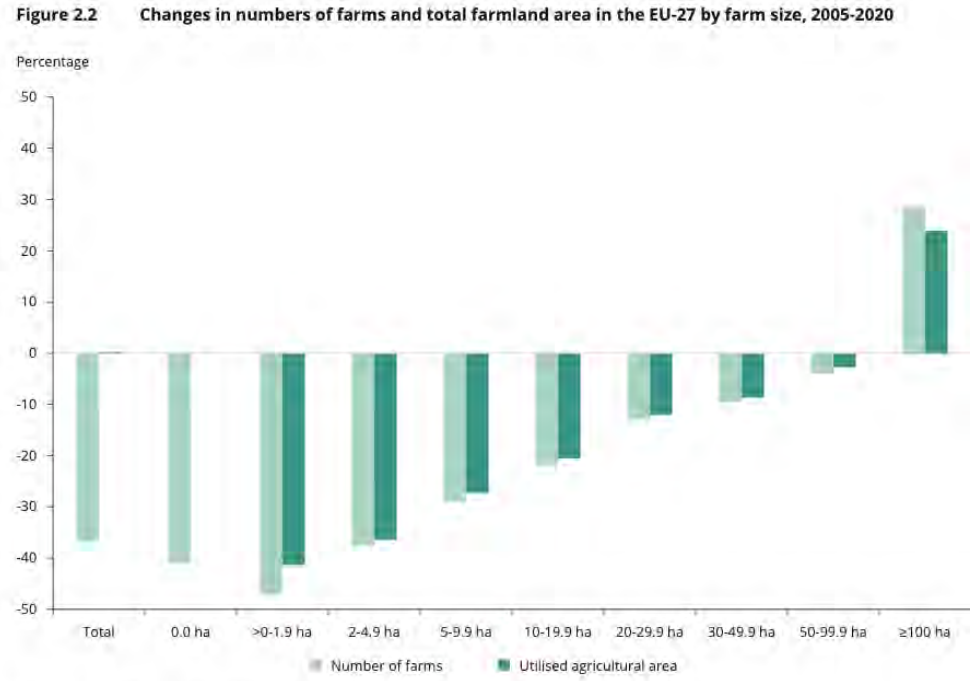
- The risks of ‘business as usual’
- Pathways of transition and roadmaps
- The actors of transition

GHG emissions 1990-2040



Increasing concentration





source: IPES-food