Systems thinking through the lens of food

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Green Europe: Active Citizenship and the Environment GrACE
Trento 3-6 April 2025

Introduction

- The webinar ‘Food & Climate’
- Planetary stewardship
- Systems thinking: some conceptual tools; systems mapping
- Why food systems?
- Food systems thinking in a school setting
- Conclusions

Food and climate

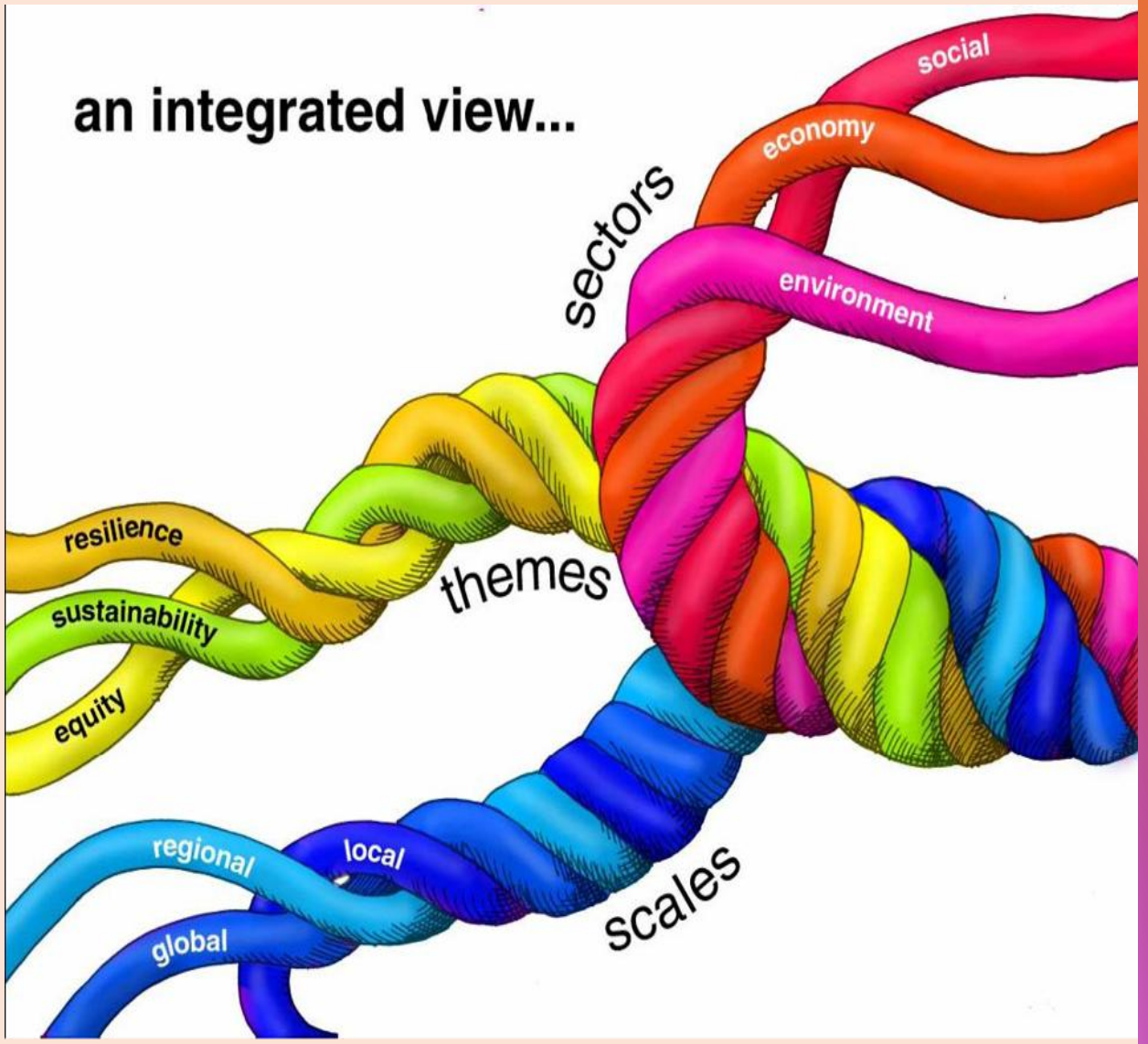
- Environmental impacts of the food system: multiple, inter-connected:
  - Land-use change; habitat & biodiversity loss; freshwater; N & P cycles
- Global food system responsible for c.1/3 of total anthropogenic greenhouse gas emissions (GHGe) & livestock 18% of total
- Connecting the food on our plate with global environmental changes: the Planetary Boundaries model
- Climate breakdown threatens global food security: atmospheric heating, drought, floods, wildfires, sea-level rise,
- Climate will influence what is on our plate in the future
- BUT: what is on our plate can have an influence on climate processes
- Besides, there are dietary health benefits in exploring these options

Environmental management to planetary stewardship

- Principles of environmental management: Precaution; Duty of Care, Subsidiarity, Transparency, Procedural equity, Polluter Pays
- Polycrisis: Pandemic, Putin, POTUS, Populist Politics, Planetary Perturbation
- Risk Society unknowns: micro-plastics, PFAS chemicals, air quality, obesity
- An era of uncertainty, volatility, unpredictability; vital importance of adaptation, resilience, diversification, redundancy, preparedness
- Embracing - rather than simplifying - the narrative; ‘staying with the trouble’ (Harraway) requires willingness to accept ambiguity; WWDKWDK
- Accepting a duty of planetary stewardship with humility rather than performing environmental managerialism with arrogance.

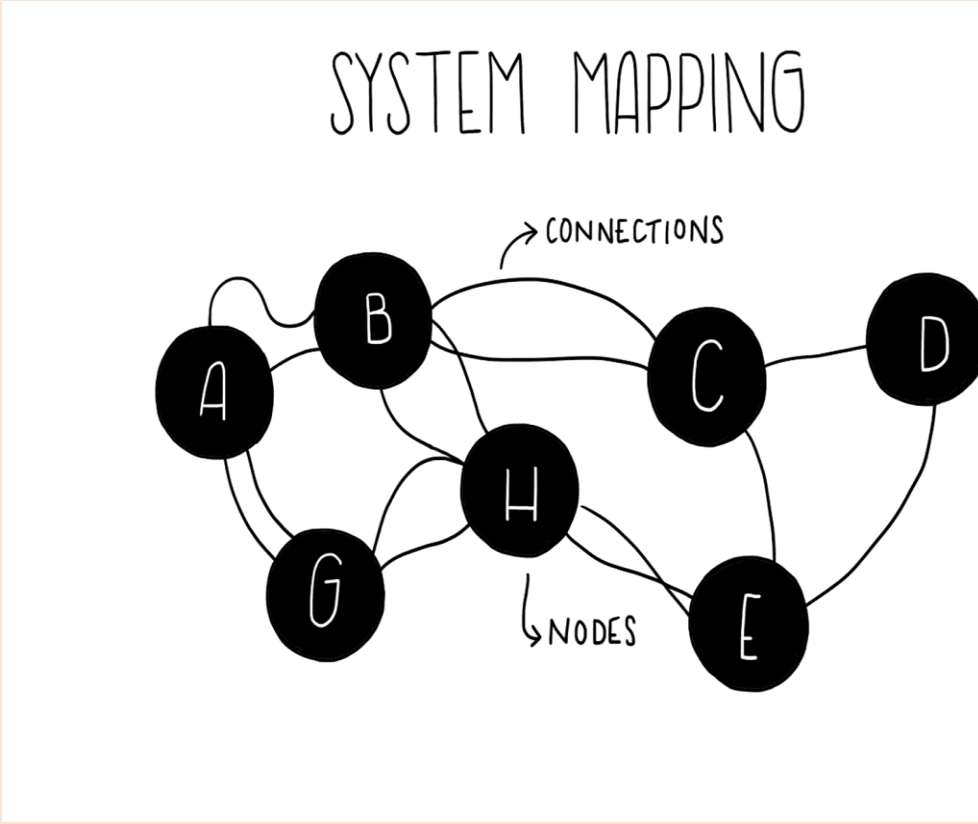
Systems thinking

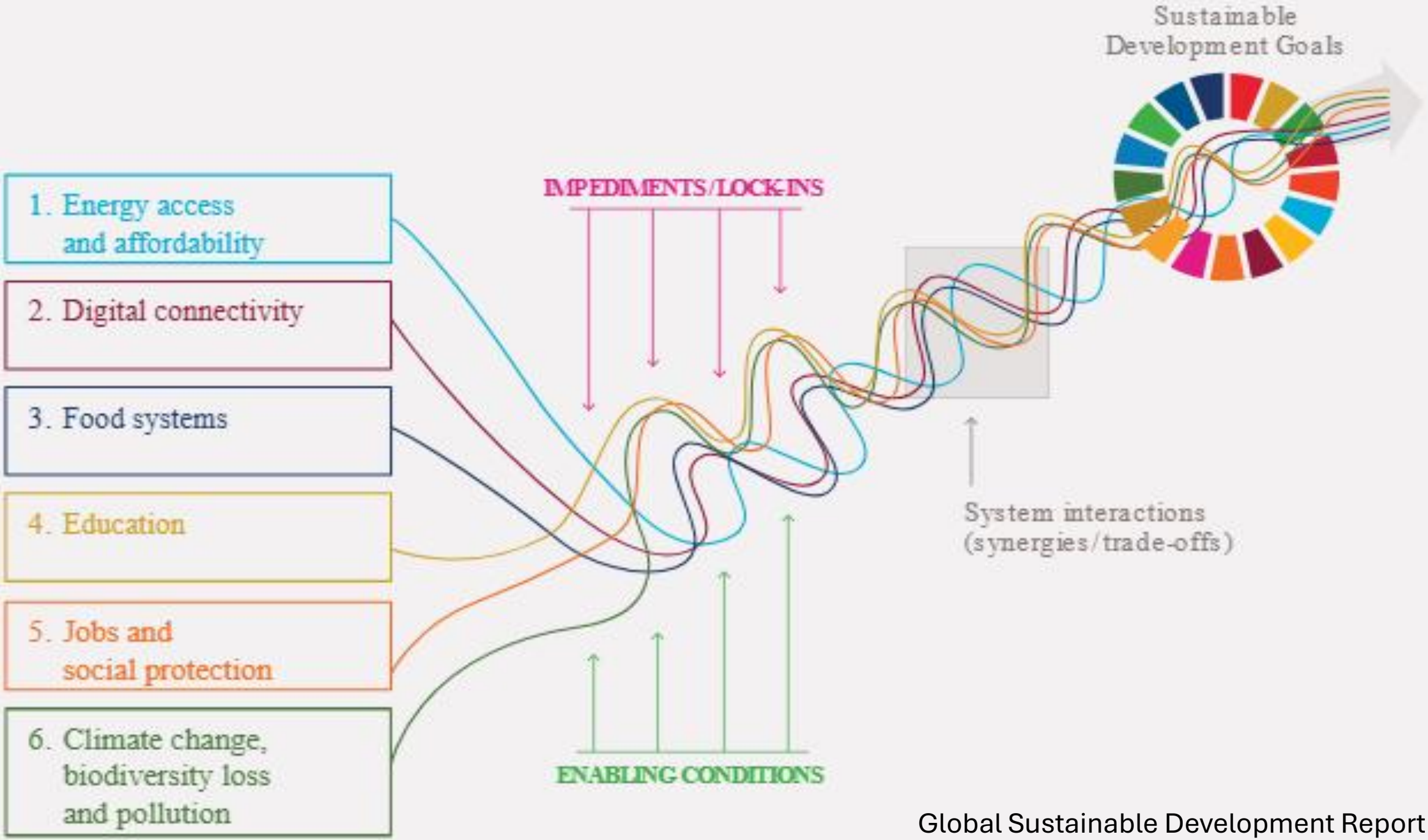
- A system is a set of components in dynamic interaction that deliver a set of functions
- Analyses complex systems across domains, scales & themes enabling holistic / integrative, & disentangled / individual examination
- Enables identification of cascading effects, feedback loops & other systemic features
- Resists reductionist & linear approaches (solutionism)



Systems mapping

- To better understand how a system works it is ‘mapped’, enabling better visualization of connections in systems
- Helps people see their own role within the system; also enables a shared understanding of different perspectives
- Helps to identify possible points of intervention & actions that may change the way the system functions to produce better outcomes
- A systems approach reveals relationships with components in interrelated systems, like energy, water, health and the environment.

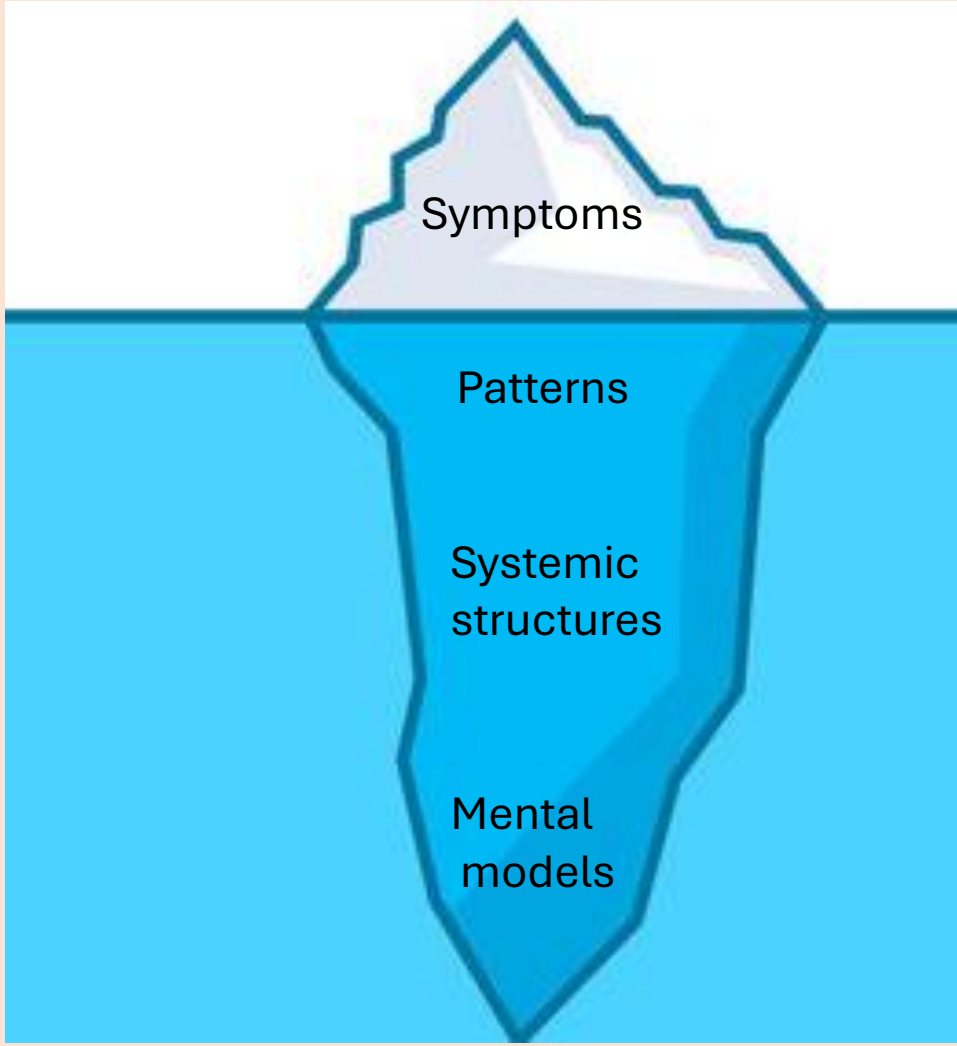




Global Sustainable Development Report 2023

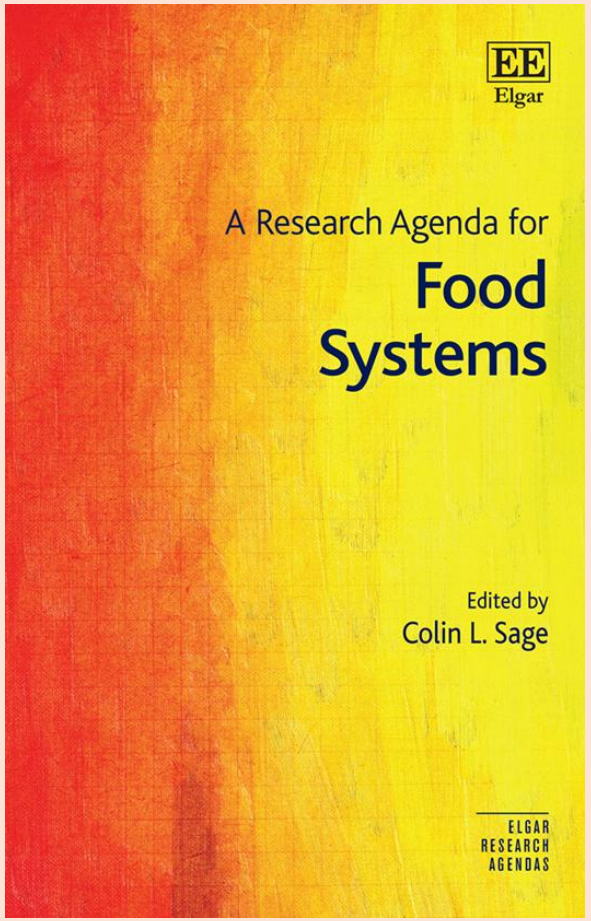
Key concepts in systems thinking

- Parts working together for a purpose
- Interconnectedness: elements, actors
- Dynamic & evolving
- Definitional boundaries
- Analysis (of parts) ⇨ Synthesis (of whole)
- Emergence: synergies of components
- Feedback loops: reinforcing, balancing
- Stakeholders & participatory methods
- Identifying points of intervention
- Redundancy: spare capacity in system

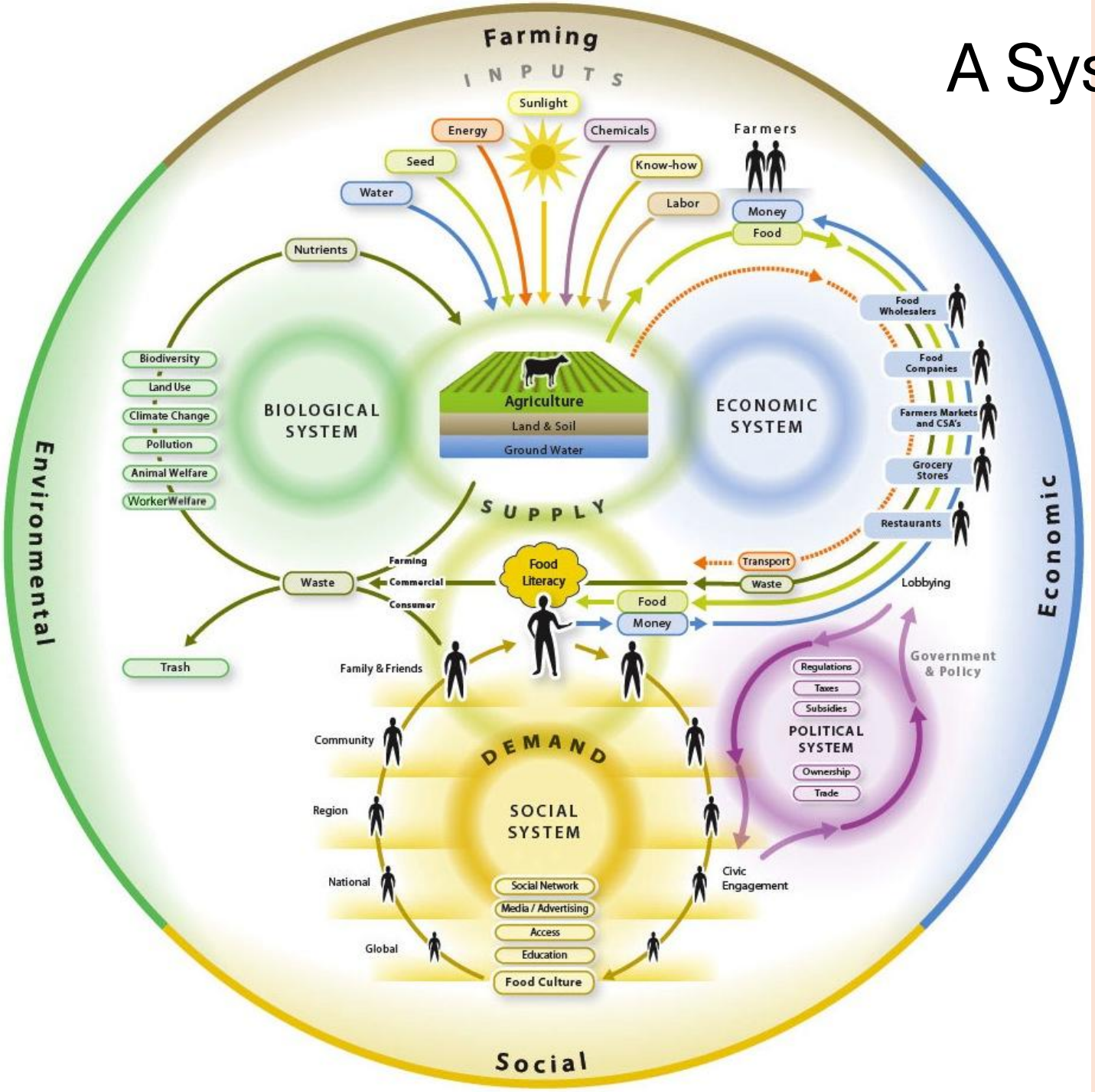


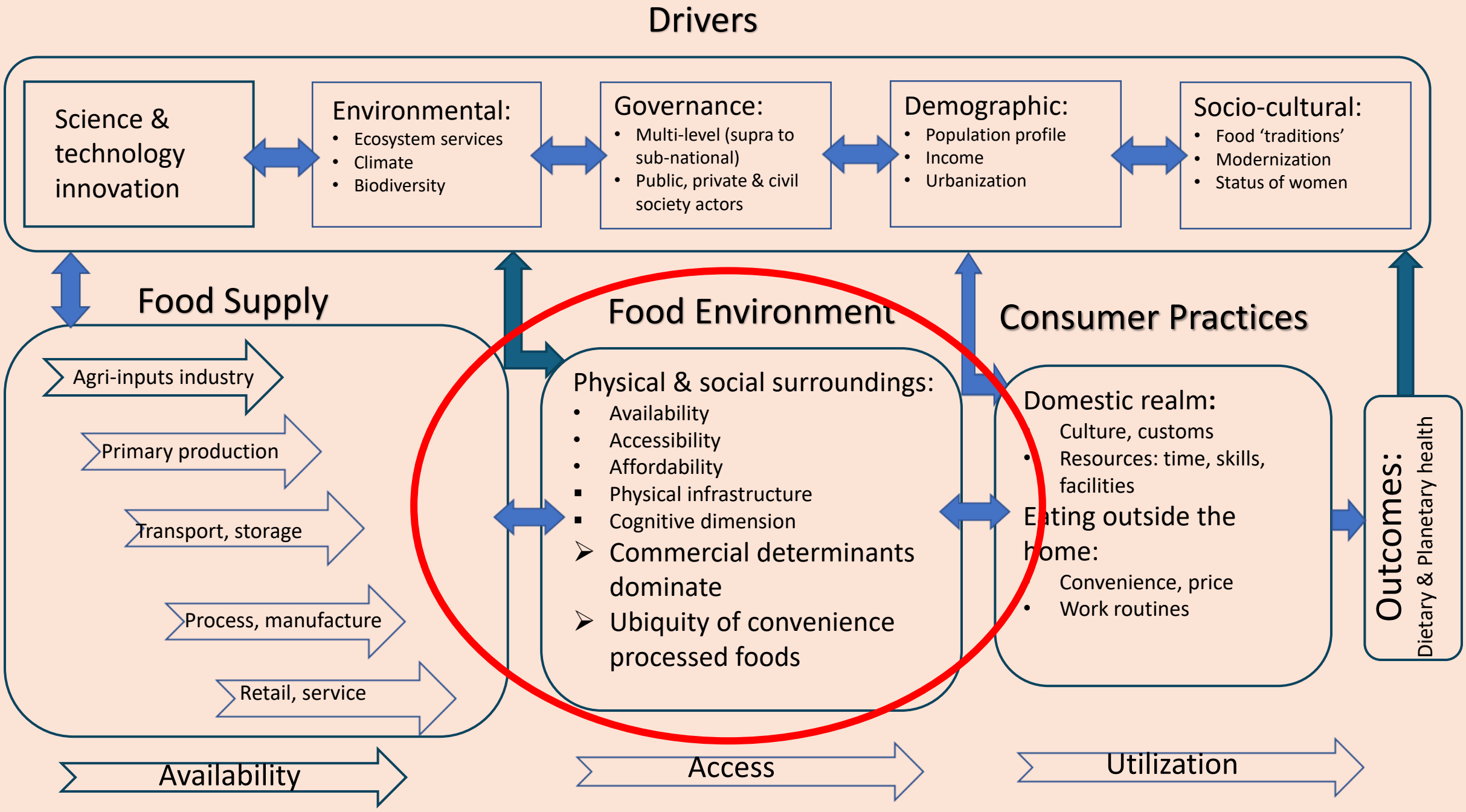
Food systems

- Paying attention to food *systems* reveals failures in:
  - Feeding people nutritionally, sustainably & equitably;
  - Resource use (land, water, energy);
  - Waste streams (food, packaging, emissions);
- Building more sustainable food systems requires asking questions: What is on our plates? Why? How did it get here? Who gets to eat?
- Draws together a concern for nutritional security, social justice & producing within planetary boundaries
- Offers an opportunity for exercising individual agency



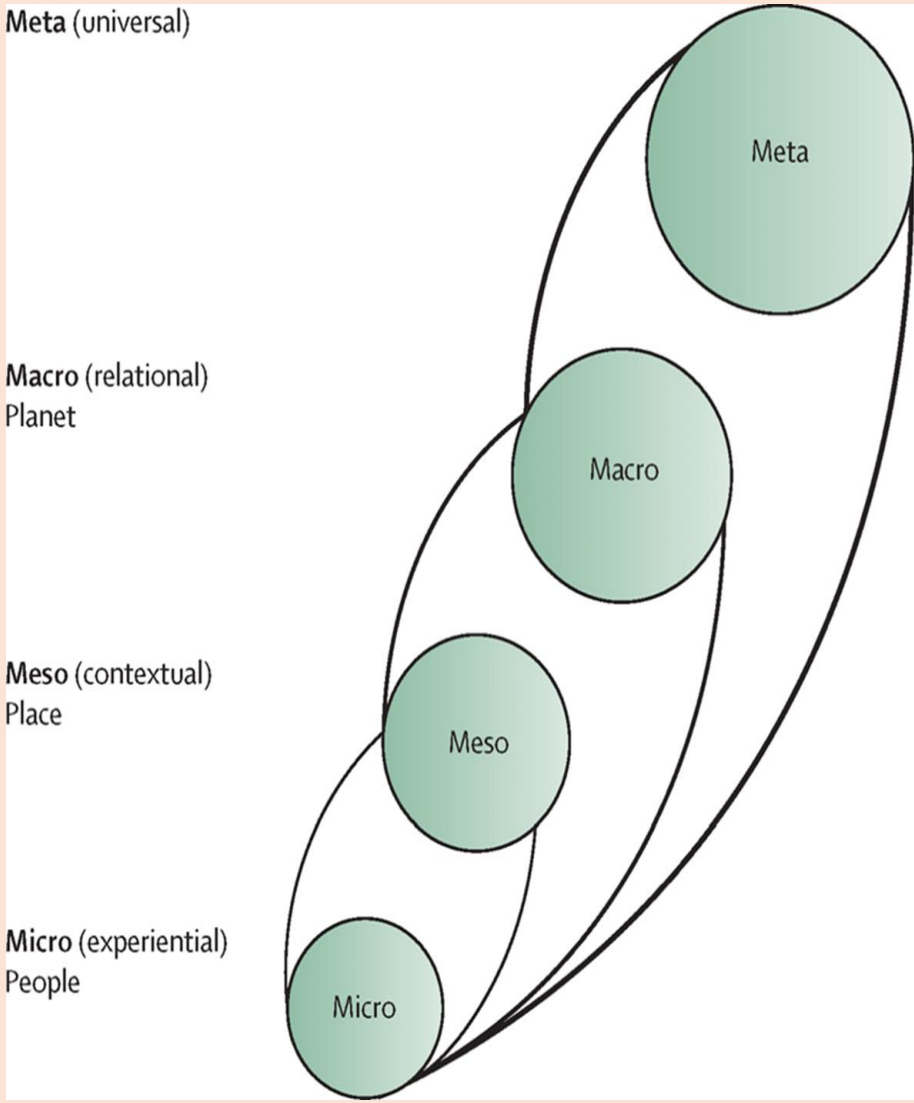
A System of Systems




Drivers
Science & technology innovation
Environmental:
• Ecosystem services
• Climate
• Biodiversity
Governance:
• Multi-level (supra to sub-national)
• Public, private & civil society actors
Demographic:
• Population profile
• Income
• Urbanization
Socio-cultural:
• Food 'traditions'
• Modernization
• Status of women
Food Supply
Agri-inputs industry
Primary production
Transport, storage
Process, manufacture
Retail, service
Food Environment
Physical & social surroundings:
• Availability
• Accessibility
• Affordability
▪ Physical infrastructure
▪ Cognitive dimension
➢ Commercial determinants dominate
➢ Ubiquity of convenience processed foods
Consumer Practices
Domestic realm:
• Culture, customs
• Resources: time, skills, facilities
Eating outside the home:
• Convenience, price
• Work routines
Outcomes:
Dietary & Planetary health
Availability
Access
Utilization

Food systems thinking: scalar issues

- Meta topics / global scale: land use change (LULUCF), freshwater (stocks, flows), climate impacts & effects, N & P cycles, biodiversity
- Economics & politics of global food trade
- Social & cultural dimensions of food – dietary practices, availability, food & nutritional security
- Philosophical/ethical concerns: valuing non-human species. Empathy.
- Meso scale: EU policies on food (Green Deal, F2F, CAP etc); national agricultures, stakeholder mapping (companies, farmers, citizens)
- Micro scale: region, city, district, school: characteristics, issues, actions.



Using the lens of food in the school curriculum

- Offers opportunities for chemistry, biology, environmental, economic, mathematical, technology & media studies disciplines.
- But: it is better taught across – rather than within - disciplinary silos
- Draws together: domains (social, environmental, economic), scale (school ⇨ global), flows (feedback loops), spatial & temporal change
- Opportunities to enable students to become more active learners; acquire transferable skills: design & presentation, applying scientific knowledge to problem-solving situations
- Connecting different kinds of learning, knowledge, experience
- Encouraging critical thinking: challenging BAU assumptions
- Opportunity to harness intrinsic motivation, inspirational endeavour & interpersonal skills (collaborative learning).

Food as basis for climate action in schools

- No single blueprint: a strategy must evolve out of local physical & human resources
- Senior management must be aligned with a sustainability / climate action strategy as a ‘whole-of-school’ approach with a common ethos
- Creating a student food council: forum for deliberation & action
- Some considerations:
- How do children eat in school? (lunch, breakfast, vending machines)
  - Provision of cheap calories or vital dietary support? Options for improvement?
  - Food tastings: rehabilitating the palate for natural flavours/textures
- Where can food be brought into the curriculum?
  - And not silo-ed into geography but interconnected across subjects
- Opportunities for developing life skills outside the classroom
  - Cooking, gardening: after-school clubs?

Conclusions

- Schools are a vital crucible for engaging climate action & food is the most promising portal into lifestyle change including improving individual dietary practices & health for adulthood
- Food system mapping a powerful visualisation tool to engage students
- Keep it analogue! Paper, pens & ‘post-it’ labels work best around a table – but digital tools are available (kumu.io)
- Working collectively in the classroom to identify points of leverage in food systems will stimulate students to take action outside
- The synergy comes from planting seeds in the mind & in the soil
- Arthur Ashe: “Start where you are. Use what you have. Do what you can”

- https://reimagined-futures.kumu.io/food-systems-map-of-catalonia