Planetary Health and Planetary Boundaries: Rethinking Food Systems that Value and Support Planetary Health for the 21st Century and Beyond

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Depicting food systems – for what purpose?

Food Production

Resource & Waste Recovery

Distribution & Aggregation

Preparation & Consumption

Food Processing

Markets & Purchasing

Marketing

Food System Elements

Adapted by Christy Shi, Center for Environmental Farming Systems.
From: Wilkins, J. and Eames-Sheavly, M. Discovering the Food System: An experiential learning program for young and inquiring minds. Cornell University, Departments of Nutritional Science and Horticulture. http://www.discoverfoodsyst.cornell.edu/
Depicting food systems – for what purpose?
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The Global Food System
Purposes of systems analysis

- Better understand issues and problems stemming from the interaction of system components and their key drivers
- Think logically and comprehensively about behavior over time of those components; reason about the structure and function of the system
- Share this understanding with others
- Make predictions by modeling interactions
- Test assumptions and theories of change
- Help to figure out intervention points
- Develop visions of alternatives, and imagine pathways to achieve them
Identifying leverage points


PLACES TO INTERVENE IN A SYSTEM:

12. Constants, parameters, numbers (subsidies, taxes, standards)
11. The sizes of buffers and other stabilizing stocks, relative to their flows
10. The structure of material stocks and flows (transport networks, population age structures)
  9. Length of delays, relative to the rate of system change
  8. The strength of negative feedback loops, relative to the impacts they are trying to correct against
  7. The gain around driving positive feedback loops
  6. The structure of information flows (who does and does not have access to what kinds of information)
  5. The rules of the system (such as incentives, punishments, constraints)
  4. The power to add, change, evolve, or self-organize system structure
  3. The goals of the system
  2. The mindset or paradigm out of which the system – its goals, power structure, rules, its culture-arises
  1. The power to transcend paradigms
State of Cultural Paradigms

State of Ecosystem

State of Community

Health Effects

Social Effects

Environmental Effects

Co-Effects

State of Human Health & Wellbeing

Relationships of sub-therapeutic antibiotic use (STA), antimicrobial resistance (AMR) and cultural paradigms

Ex. 1: Using systems analysis – Antibiotics in livestock

- Prevalence of AMR in humans
- Extent of STA use in livestock
- Prevalence of AMR bacteria in the environment
- Industrialized agriculture is positive, necessary, “scientific”
- Prevalence of diet-related disease
- Political power of Big Ag/Big Food
- Environmental impacts of industrialized agriculture
- Cultural paradigm
Systems analysis in antibiotics example

- Better understand issues and problems stemming from the interaction of system components and their key drivers
- Think logically and comprehensively about behavior over time of components in the system
- Share this understanding with others
- Make predictions by modeling interactions
- Test assumptions and theories of change
- Help to figure out intervention points
- Develop visions of alternatives, and imagine pathways to achieve them
Ex. 2: Using systems analysis - New England Food Vision

- Grow 50% of the food we consume in New England by 2060
- Achieve the right to food for all
- Create racial equity and food justice
- Develop thriving communities
- Achieve sustainable fishing and farming
- Keep at least 70% forest cover

What this will take:

- Triple the amount of current farmland (6 million acres) by returning to a similar landscape pattern as New England had in the mid-1900s
How can we reach the New England Food Vision?

Systems Mapping and Leverage Points project
Understanding the transformation-dynamics of the food system in New England

joint stakeholder identification
understanding the parts
understanding the whole
participatory leverage point identification

Source: Christoph Hinske, Institute for Strategic Clarity
How can we reach the New England Food Vision?
How can we reach the New England Food Vision?

Sustainable farming and fishing, healthy food for all, and thriving communities (FSNE vision)

Engage and mobilize people for action

clear understanding, collaborative relations, and all stakeholders shared will to act on NE food system

unrestricted access to information who decides (political)

evidence of well-being what criteria (cultural)

aligned and equitably allocated resources what rules (social)

50% of food consumed in NE produced in NE by 2040 how much (economic)

Democratic Empowerment

Identify, engage, and support leadership

A New Food Story

Link knowledge and narrative

Vibrant Ecological, Equitable Economy

Make the business case
Better understand issues and problems stemming from the interaction of system components

Think logically and comprehensively about behavior over time of components in the system

Share this understanding with others

Make predictions by modeling interactions

Test assumptions and theories of change

Help to figure out intervention points

Develop visions of alternatives, and imagine pathways to achieve them
How can we reach the New England Food Vision?

A PATHWAY TO THE VISION

NEW ENGLAND FOOD VISION
At least 50% of our food is produced in the region by 2060

- Sustainable farming & fishing
- Healthy food for all
- Racial equity & food justice
- Thriving communities

A NEW FOOD STORY

- A New England Food System with DIGNITY
- Mobilize People
- Cultivate Leaders
- Make the Business Case
- Inspire with knowledge and stories
- Democratic empowerment