HOW CAN SYSTEMS THINKING HELP LEARNING CITIES OVERCOME HEALTH CHALLENGES?

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(UN)HEALTHY CITIES?

- Better health in cities & yet...
  - Obesity/overweight & NCDs
  - Climate-related risks
  - Mental health issues
  - Pollution-related illness
  - Tobacco/substance use
  - Road traffic accidents
  - Crime and safety
  - Antibiotic resistance
  - Dengue
  - Influenza and others...
  - Inequities
SYSTEMS PROBLEMS

- Characteristics
  - Detail and dynamic complexity
  - Multiple stakeholders
  - Multiple scales
  - Cross-sectoral/related to other problems
  - Resistance to change
  - Unanticipated outcomes

Source: http://www.innovationmanagement.se/2010/06/14/complexity-science-and-innovation/
FEEDBACK


Source: Ullah et al., https://www.semanticscholar.org/paper/Enhancing-the-Understanding-of-Corruption-through-Ullah-Arthanari/251fd9ba94f371a48647eb5c918
HEALTH IS CENTRAL TO SUSTAINABLE DEVELOPMENT

Affordability of prescription drugs

Partnerships for health

Deaths from conflict

Degradation of agricultural soils

Viability of fishery stocks

Climate change-induced famine

Exposure to toxic chemicals

Safe Housing

Harrassment

Innovation in healthcare

16 PEACE, JUSTICE, AND STRONG INSTITUTIONS

17 PARTNERSHIPS FOR THE GOALS

1 NO POVERTY

2 ZERO HUNGER

4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND SANITATION

7 AFFORDABLE AND CLEAN ENERGY

8 SUSTAINABLE INDUSTRIES, INNOVATION, AND INFRASTRUCTURE

9 URBAN AND SUSTAINABLE CITIES AND COMMUNITIES

10 REDUCED INEQUALITIES

11 SUSTAINABLE ECONOMIC GROWTH

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

14 LIFE BELOW WATER

15 LIFE ON LAND

3 GOOD HEALTH AND WELL-BEING

4 CLEANER PRODUCTION

5 HEALTH KNOWLEDGE

6 WATER-BORNE DISEASE

7 EXPOSURE TO INDOOR POLLUTION

8 EXPOSURE TO OCCUPATIONAL HAZARDS

9 INNOVATION IN HEALTHCARE

10 VIOLENCE AGAINST WOMEN

11 AFFORDABILITY OF PRESCRIPTION DRUGS

12 DEATHS FROM CONFLICT

13 DEGRADATION OF AGRICULTURAL SOILS

14 VIABILITY OF FISHERY STOCKS

15 CLIMATE CHANGE-INDUCED FAMINE

16 EXPOSURE TO TOXIC CHEMICALS

17 SAFE HOUSING
SYSTEMS APPROACHES

- **Systems methods to:**
  - Characterize and measure feedback
  - Identify leverage points for action
  - Forecast likely outcomes and compare policy scenarios

- **Broad engagement to:**
  - Improve communication
  - Provide more complete understanding of systems
  - Assess feasibility of actions
  - Promote stakeholder ownership

Based on Batterman et al (2009). Sustainable Control of Water-Related Infectious Diseases: A Review and Proposal for Interdisciplinary Health-Based Systems Research
HOW CAN LEARNING CITIES OVERCOME HEALTH AND SUSTAINABILITY CHALLENGES?

- Adopt a systems thinking framework for decision-making
  - Consider feedbacks/complexity
  - Foster connections
- Improve the data
  - Conduct health impact assessments
  - Seek knowledge from all stakeholders
  - Experiment and document rationale/outcomes
HOW CAN LEARNING CITIES OVERCOME HEALTH AND SUSTAINABILITY CHALLENGES?

- Identify important local linkages
- Disseminate insights through lifelong learning
  - Teach learners to conceptualize simple feedback
  - Promote complementary learning
  - Develop interdisciplinary ambassadors
- Ensure that learning loops work
  - Evaluate cross-sectoral engagement and transdisciplinary processes
  - Evidence of adaptation

https://www.icsu.org/publications/a-guide-to-sdg-interactions-from-science-to-implementation
HOW CAN LEARNING CITIES OVERCOME HEALTH AND SUSTAINABILITY CHALLENGES?

- Implement well-understood interventions
  - Green/public space
  - Public/active transport
  - Mixed use development
  - Renewable energy
  - Participatory governance
SOME BENEFITS OF SYSTEMS THINKING

- Can improve accuracy of policy models
- Provides for assessment where data is limited or in new contexts
- Allows for evaluation of simultaneous interventions by many actors
- Illuminates long-term outcomes which are otherwise invisible
- Fosters relationships between policy-makers and researchers, allowing simpler and more effective communication
- Builds linkages across sectors, allowing more relevant expertise to be applied
- Ensures that research addresses real problems, feasible interventions
- Generates accountability among involved decision-makers
- Makes for good narratives