

# Systems Thinking and Public Health

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# Structure of talk



General Introduction

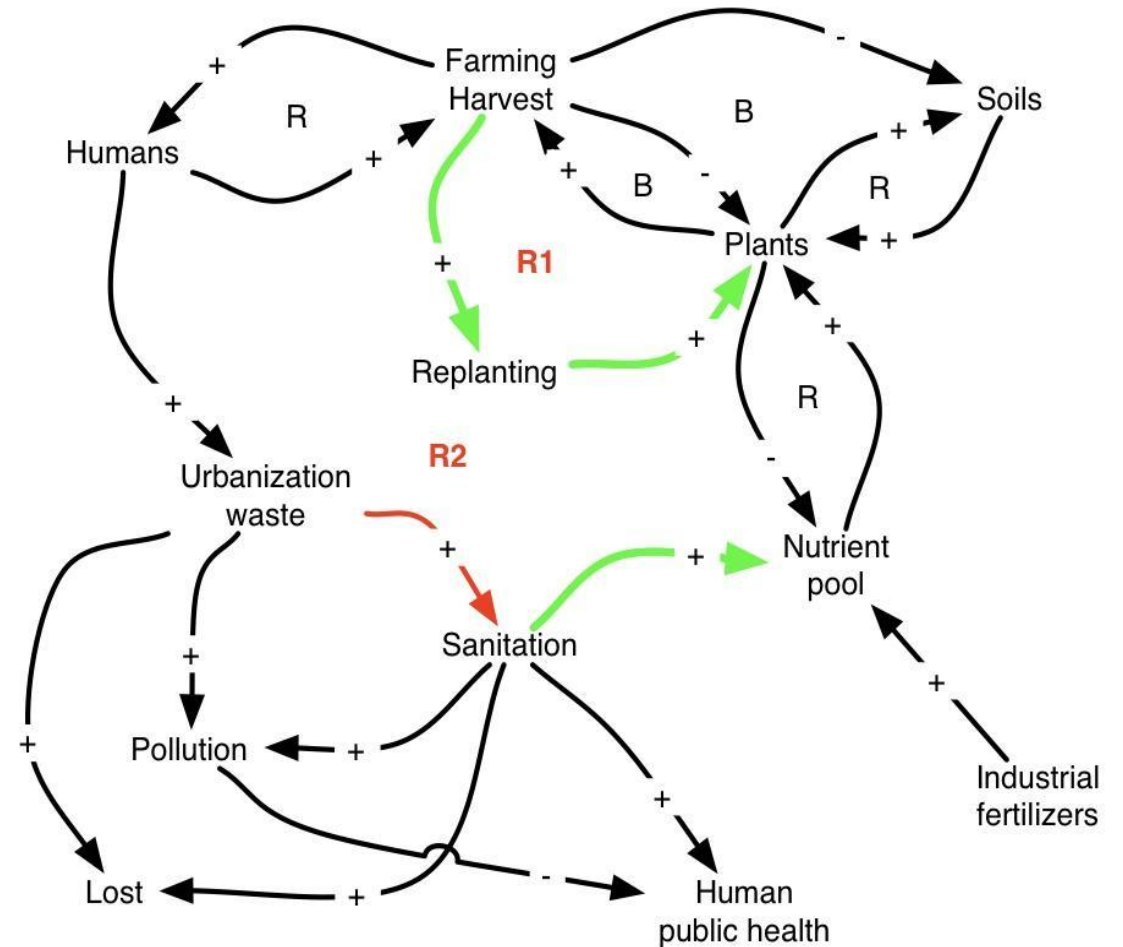
The Knowledge Adventure of  
Systems

Societal learning from the  
pandemic?

Ways that systems tools and  
approaches might be useful in  
Public Health

# Complexity, systems thinking & Wales

Interlinked, complex issues of sustainability and wellbeing require a change of mindset, but also new tools that can handle complexity and interdisciplinarity. The current situation is one of great stress but also of opportunity to change thinking and really scale up the effectiveness of the many good measures through more joined up thinking and practice. Times of crisis can really help to inspire people to work together, and systems thinking gives us some enjoyable and effective tools to use.



# Many kinds of systems we work with everyday.....

TYPES OF SYSTEMS	AREAS OF LIFE	COMPLEX DETERMINANTS OF HEALTH
CULTURAL	Religion, drama, poetry, art, forms of learning; psychology and beliefs, interfaith; emotional care	Negative impacts of stress, sorrow anxiety, trauma. Positive impacts- participating in cultural activities
SOCIAL, ECONOMIC, POLITICAL	Social norms, access to finance; banking, tax; local and national government, climate measures; law & regulations;	Access to needed finance, support and resources limited; social discrimination and prejudice; legal constraints & impacts; exclusion
PRODUCTION, CONSUMPTION & HEALTHCARE	Shopping for goods, travel, using the internet system, working to produce goods and services; giving physical care and support.	Access to healthy food, shelter and warmth; ability to travel safely; access to communications; work related illness and injury
BIOPHYSICAL INCLUDING 'NATURAL' SYSTEMS	Our embodied location, our state of physical health; exposure to violence, and	Access to nature; fresh air; state of local environment; loss of species and local nature;

# Wellbeing Goals

Wales has potential to respond positively to challenges at different scales (e.g. biodiversity loss, climate change, inequality, health). The Wellbeing of Future Generations, Environment (Wales) Acts, and commitments to the international Wellbeing Economy governmental alliance are a good start. But there is a big practice gap.

have put in place principles and ways of working explicitly designed to embed long-term, joined-up, thinking and start fixing our natural and social systems. In addition, Wales has longstanding experience of many successful programs and capacity for community development that could be brought into a critical mass for change.

Wales Systems Forum believes that developing systems understanding and capacity could help make these potentials actual.

# The Knowledge Adventure of Systems

Some key moments and elements:

The ecological revolution – relational with feedbacks

Evolutionary thought – dynamics in historical time

Systems informed economic analysis – across the ideological spectrum

Systems Dynamics and modelling

Soft systems approaches – systems approaches to organizational change

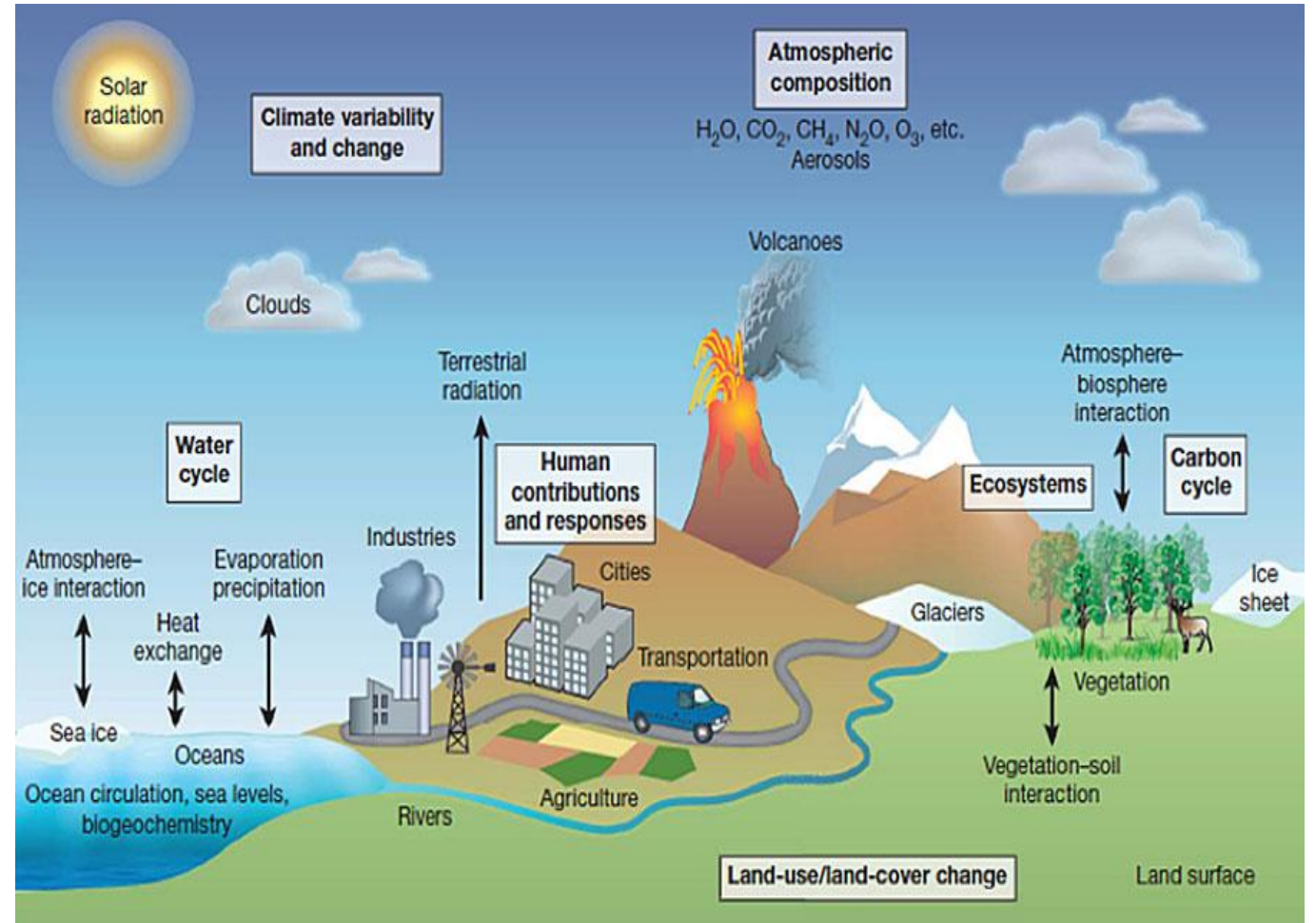
Senge and Seddon – patterns and goals in systems

Earth System Science and climate science

Systems in social science – including tipping points

Health, the Human System and social goals

Neuroscience, creativity and unconscious complex processing



# Key elements of systems dynamics



Key elements necessary for understanding systems include:

- Feedbacks
- Time lags
- Scales
- Tipping Points
- Transitional Strategies and Systems Transformation
- Uncertainty ('Wicked problems?')

# Learning from the pandemic

Systems thinking is increasingly recognised as essential in providing scientific-, analysis- and solution strategies for the complex challenges facing societies in this time. Here we consider the potential of systems thinking tools and analysis to help build coherent systemic and interdisciplinary overviews of complex social and biophysical phenomena. As societies we need to understand their significance for policy and strategy. The example we focus on here is the very important and widespread societal learning and insights gained from the (continuing) experience of the Covid 19 (and other variants) pandemic.

Like a great deal of implicit learning this needs to be consciously identified to be firmed up and made more applicable.

Thanks to my colleague Sustainability Professor *Vala Ragnarsdottir* for contributing to this section.





# Areas to analyse

The range of topic areas that have been written about and/or studied in both formal research and more informal media include:

- The deterioration of the world ecosystems making the proximity of animals and humans closer and the likelihood of microbiota hopping species more likely;
- The revelation that emissions were lowered in the first year of pandemic due to less travel;
- Developing understanding of epidemiology as a systems science, with feedbacks from human behaviour, biological mutation and adaptation (the virus), and associated uncertainty and changes in policy;
- Revealing of existing social structures of inequality and complexes of disadvantage and vulnerability to illness;
- Revealing of a range of powers of government to intervene in economy for citizens' and social benefit, normally claimed to be impossible (hence fractures in economic myths);
- Revealing of the enabling of corruption by governments in various forms when oversight and accountability is minimised in emergencies;
- Revealing of the extent of the machinery of disinformation and renewed focus on algorithmic creation of anger and polarisation;
- Revealing who are the workers who keep society going (i.e. key workers) and who do the essential caring roles in society;

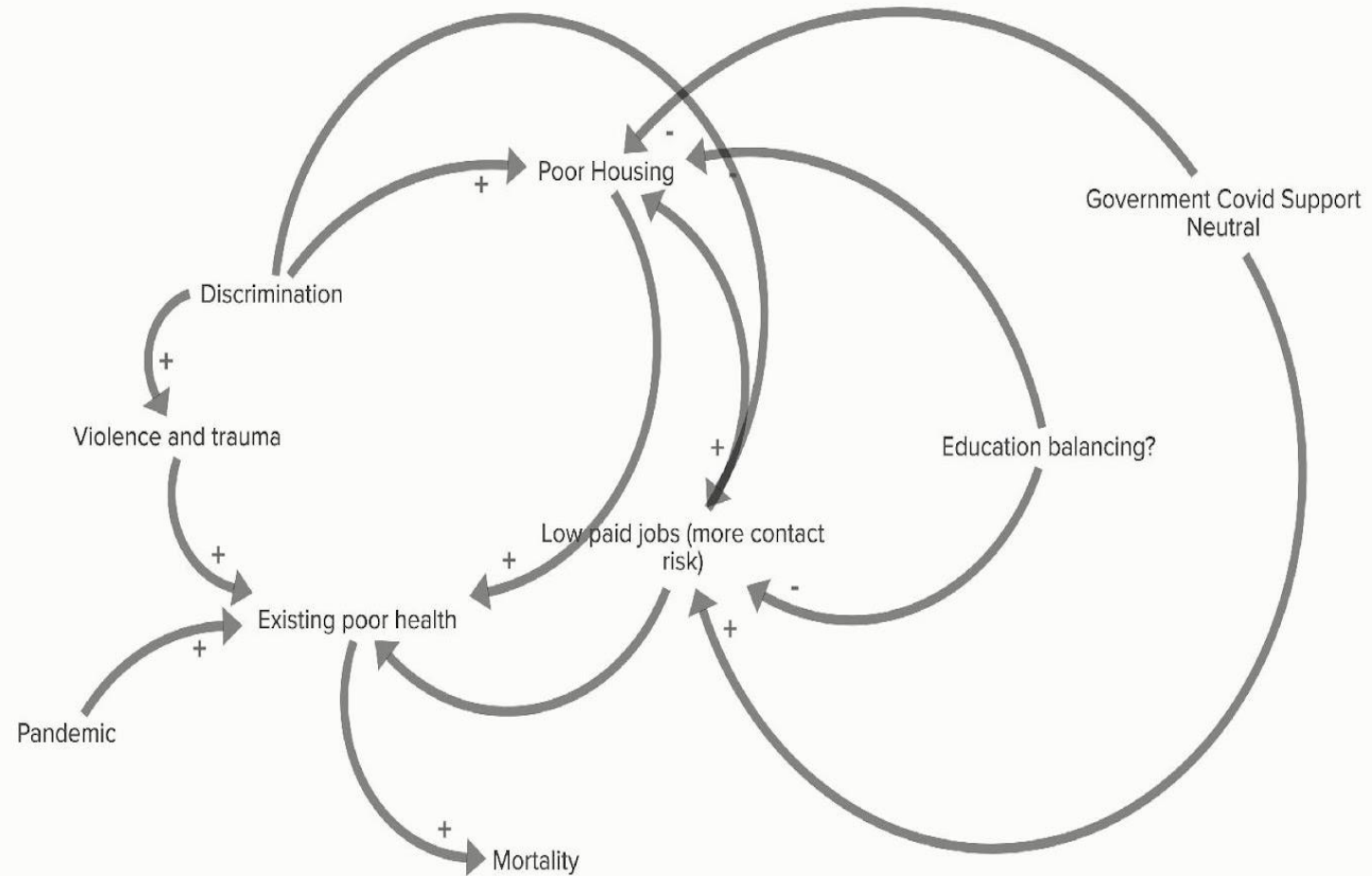
# More.....

- Lockdown provision of time for people to re-think work/life balance and values around work and what constitutes a meaningful (or good) life;
- People thinking about relationality in their lives, what it means and enables, and the importance of good relations with others, support networks online and off;
- Enforced changed patterns of working displaying adaptability and the possibility of doing things in new ways previously thought to be impossible;
- Social bonding and strength, resilience and weakness of different communities;
- People discovering the importance of time in nature as an aspect of mental health and wellbeing;
- Revealing of global interdependencies, extent of global scientific cooperation (and its limits), extent of social cooperation (and its limits);
- Revealing of the interactions between social, political and economic disruptions and the theory of change that has underpinned the attainment of the Sustainable Development Goals (still based on extrapolation of global growth);
- The actual setting of feminist recovery strategy from Hawaii to Scotland – focusing on the wellbeing of the female key workers;
- Female leaders emerging as leading strategists that focus on wellbeing rather than growth;

While the global 'hive mind' gets to work.....



# Investigating pandemic effects with CLDs: complex question – why did ethnic minorities have higher death rates?



# What areas of systems thinking might be most useful for Public Health in Wales?

Systems can help at strategic, operational and tactical levels and with professionals, other organisational relationships and stakeholder groups.

## Some topics

- Transitioning to better public health – what are the changes in other areas that are needed? Can we develop a strategy on that basis?
- Making the case for precautionary action and expenditure – how can we do that better?
- How can we better capture the value from joined-up approaches to health? How might a systems approach help with this?
- What is the ‘waste-water-food-health’ nexus? How can we make sense of our role in these complexes of topics?
- What does a systemic intervention mean? How does it differ from our usual practice?



# How Systems Thinking can help

Critical Systems Thinking - unpacking existing frameworks  
Analysing systems boundaries - Boundary Critique: who is inside/outside your systems view?  
Planning for goals as outcomes  
Planning feedback from participants and citizens into the system

Identifying systemic risks, and typical & recurrent traps (archetypes)  
Developing review and adaptive tools & capacities  
Understanding systems uncertainties and risks

Identifying the stuff you can do yourself with training and support  
Identifying stuff that may need to be commissioned or researched  
Identifying what you don't know

Transformational strategies built on analysis of leverage points to achieve goals  
Working with the human system - human psychology and behavioural aspects  
Framing organisational work and mission in easily accessible systems terms- communicating what you do



But its all about in invitation to go together  
on a systems learning journey



# A learning society

The need for joined-up systems thinking is acknowledged and designed into Wales' legislation, yet putting this into practice remains difficult and patchy. Despite the rhetoric and multiple promising practical initiatives, we still lack a practical and accessible governance framework and set of tools to enable the construction of shared whole-system insight that would allow actors at multiple levels (communities to government) to more effectively work together towards our Wellbeing Goals.





# Wales Systems Forum

**Jenneth Parker** Synthesis and big-picture thinking and interdisciplinary working. Background in education for sustainability, systems thinking and adult and community learning. Worked with social movements, NGOs, scientists, researchers, communities and government organisations.



**Jake Elster Jones** Background in applying interdisciplinary perspectives and research to address complex challenges with multiple stakeholders. Over 30 years working on sustainability with research, NGOs and government. Work with Revaluation in environment and health – an approach to building in richer systemic conceptions of value to organisational and project work.



# Wales Systems Forum

**Sheleagh Llewellyn** Longstanding community worker and experienced in bringing in local knowledge and facilitating inclusive organisational and project work. Working with NGOs and voluntary organisations to co-create and gain wider outcomes for systems change and local resilience. Sheleagh is also an expert in gaining joint fundraising for projects across NGOs, government and expert organisations.



**Mike Parker** Mike works with a neuroscience informed approach to social systemic individual and organisational change. For example how to understand and practice cognitive and emotional empathy without being overwhelmed. Mike works to develop trauma-informed organisations, including understanding social systemic causes of trauma, for example with Pobl, the major Welsh Housing Association.



# General info and contacts

The *Wales Systems Forum* has been set up as an independent Welsh body, by Welsh members of the Schumacher Institute for Sustainable Systems. The aim is to help extend systems understanding and capacity across all sectors of Welsh society.

We are in the process of forming a Not-for-Profit company to offer training and consultancy.

We will be developing a network of interested people from across different areas of work and disciplines & running regular free online seminar/discussion events online.

Contact us if you would like to be kept informed:

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