

# NATURE BASED DESIGNS FOR HEALTH: Co-Producing the Future We Want



**Prof. Roderick J. Lawrence**  
University of Geneva  
Switzerland  
Roderick.Lawrence@unige.ch

# CO-PRODUCING THE FUTURE WANT

## **Plan**

1. Introduction
2. Urban Health : A Planetary Concern
3. Human Ecology: Conceptual Framework
4. Transdisciplinary Contributions
5. Synthesis & Conclusion.

# MULTIPLE FACTORS INFLUENCE HEALTH

**Health Status of Urban Populations  
is the outcome of -**



Cape Town

Environmental factors  
Economic factors  
Social & cultural (lifestyle) factors  
Technological factors  
Medical and health services  
Media and information  
Public policies and programmes

...in precise localities  
...at specific time periods

# ECOLOGICAL PUBLIC HEALTH

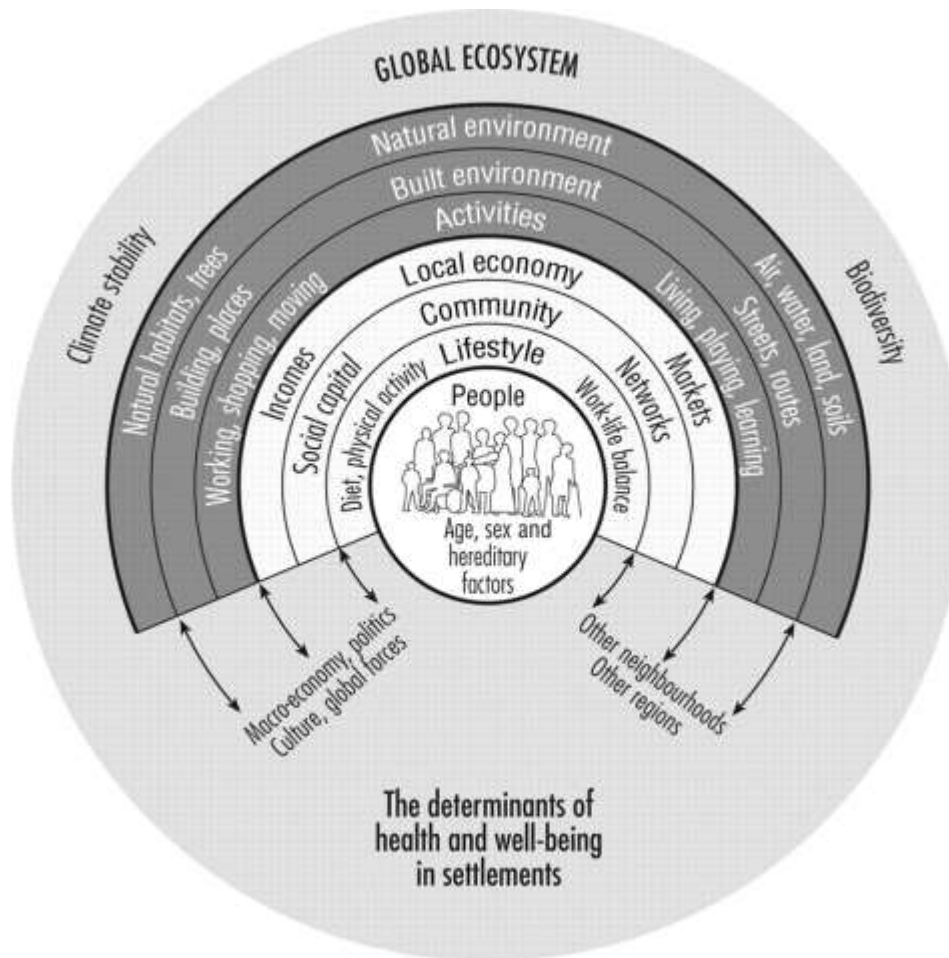
- **Ecological Public Health** has been conceptualised by these authors as **a new approach to public health**, with the ambition to “rethink public health on ecological principles”. (2012a:62)
- 5 models of Public Health (sanitary-environmental, social-behavioural, biomedical, techno-economic, ecological public health)
- EPH model highlights **the interrelations** between human beings and the biosphere
- *“A strength of the ecological public health model is that it draws upon and integrates parts of the other models. Secondly, it articulates modern thinking about complexity and system dynamics, addressing, for example, questions of non-linearity, variations in scales, feedback, and other emergent qualities of nature, biology, and human behaviour.”* (2012b:3)

## References:

Rayner G. & Lang T. (2012a) Ecological Public Health: Reshaping the Conditions for Good Health, Abindon, Oxon: Earthscan, pp.409.

Rayner G. & Lang T. (2012b) Ecological public health: the 21<sup>st</sup> century's big idea?, *BMJ* 2012,vol.35, pp.1-5

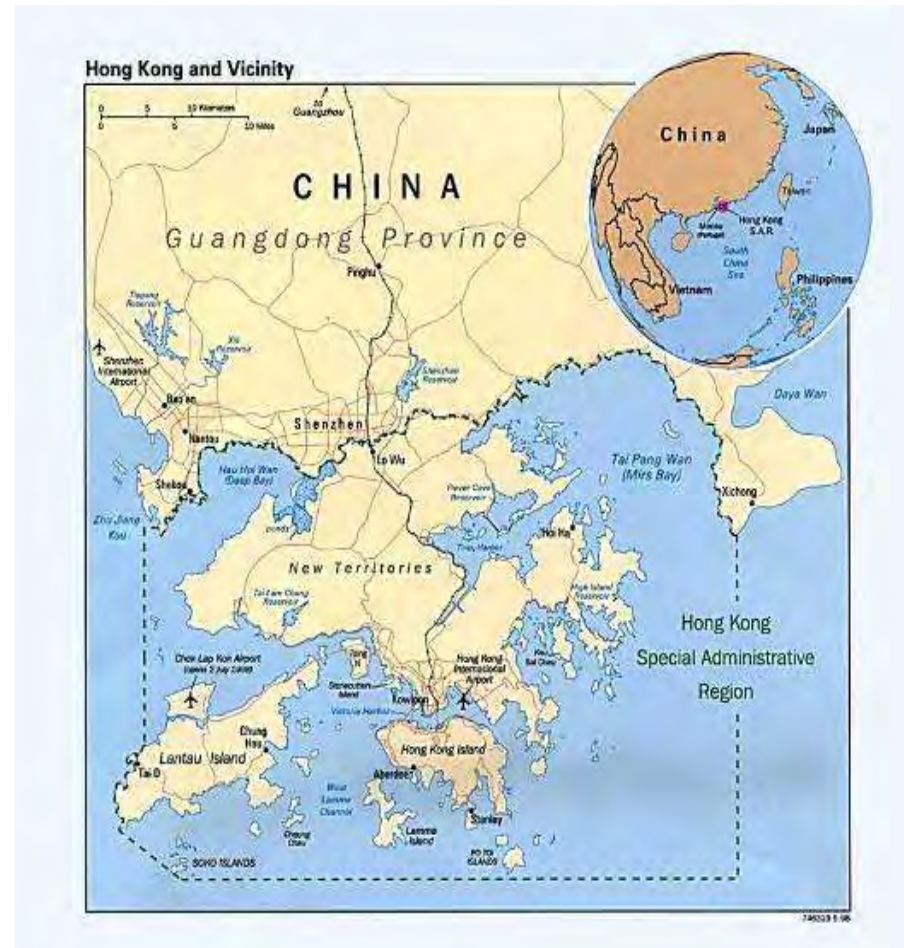
# HUMAN ECOLOGY: A Conceptual Framework



# Human Ecology: Interpretations (1970s)

Stephen Boyden *et al.*  
***The Ecology of a City  
and its People: the case  
of Hong Kong.***  
(Australian National  
University Press, 1981).

An analysis of changing land-use in Hong Kong from British colonisation in 1841 until 1970, and its impact on the economy, agricultural production, land settlement, life style and health of the population.



# NATURE BASED DESIGNS FOR HEALTH

## Co-Benefits of Public Green Spaces

### 1. BIOLOGICAL

Biodiversity supports adaptability & resilience.

### 2. ECONOMIC

Increased market values for private properties.

### 3. ENVIRONMENTAL

Trees absorb carbonic gases, filter fine particulates and influence ambient temperatures.

### 4. HEALTH

Contact time of more than 4 hours per week is beneficial for children and pregnant women.

### 5. SOCIAL

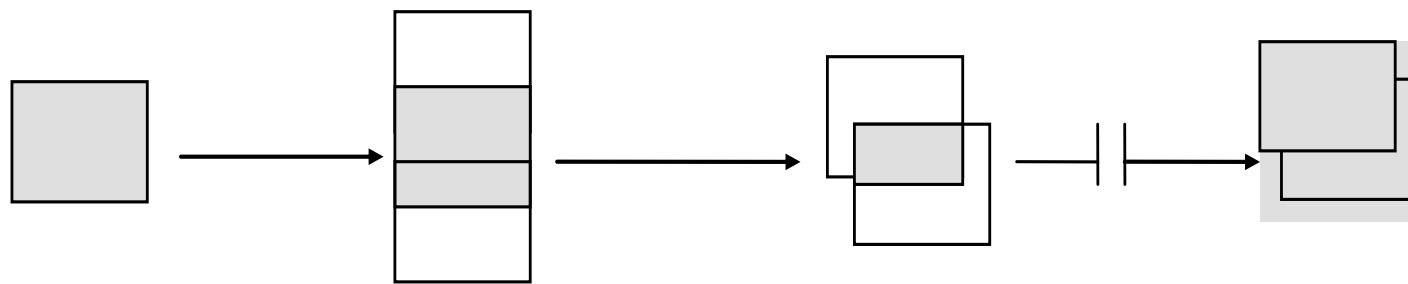
Low cost of recreation in public green spaces.

# BEYOND DISCIPLINARY CONFINEMENT

## FROM DISCIPLINE TO TRANSDISCIPLINARITY

(BY COURTESY OF THIERRY RAMADIER)

DISCIPLINE      MULTIDISCIPLINARITY      INTERDISCIPLINARITY      TRANSDISCIPLINARITY



DISCIPLINARY THINKING





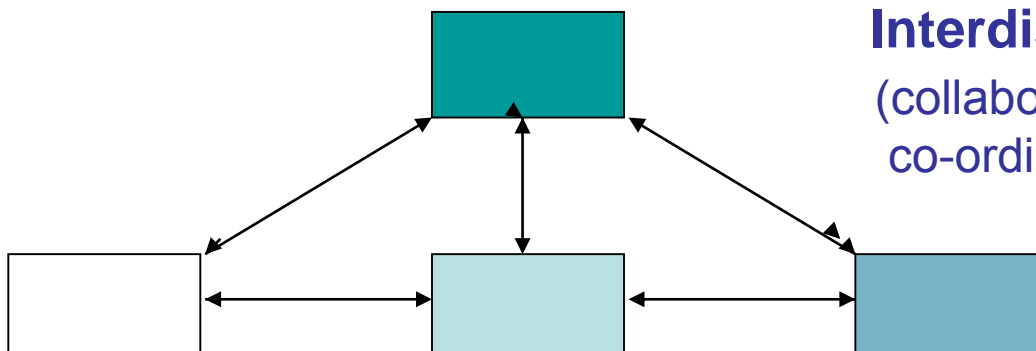


# Piaget's Contribution

Epistemology of interdisciplinary relations, (1973)



**Multidisciplinarity**  
(juxtaposition without co-ordination)

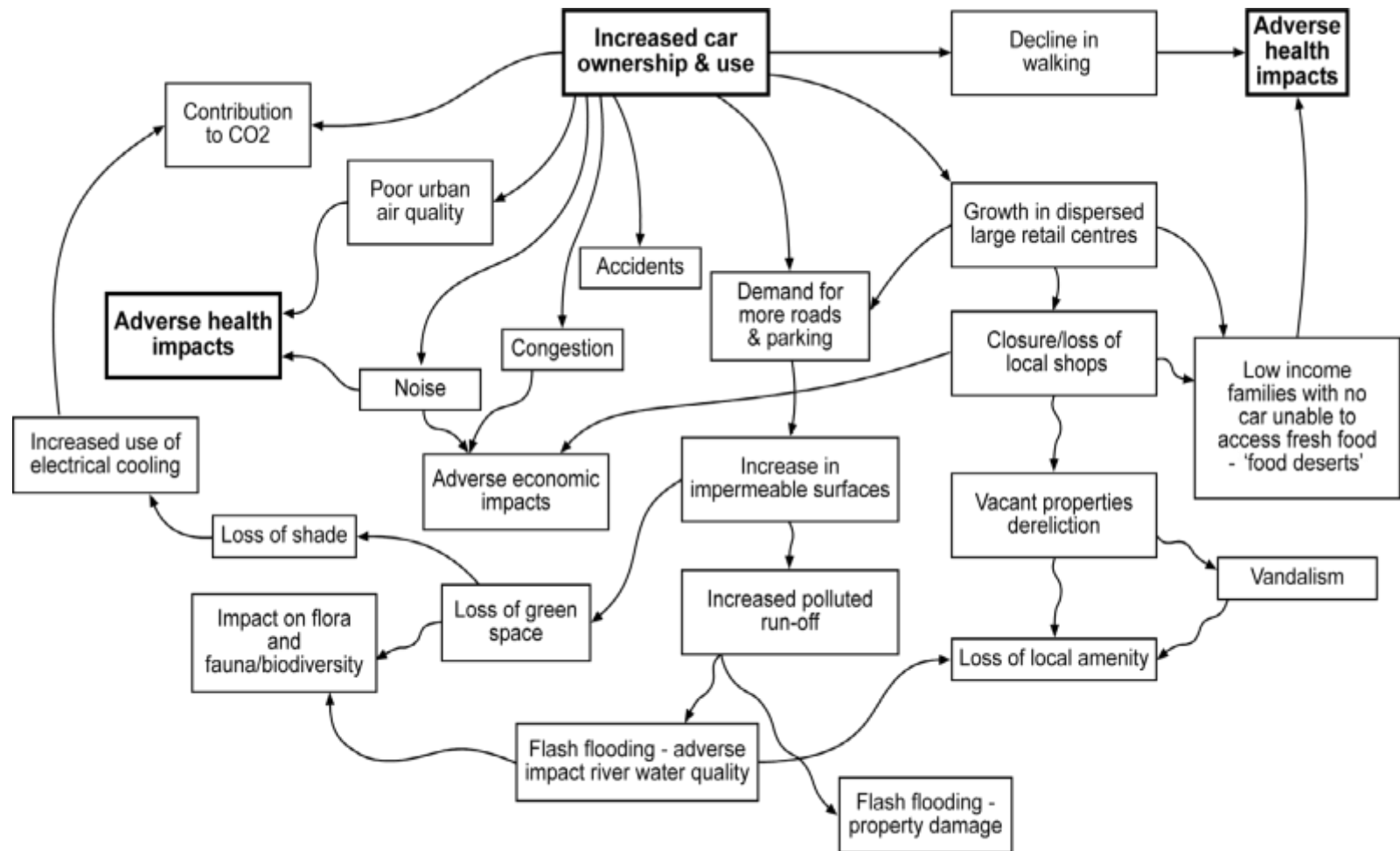


**Interdisciplinarity**  
(collaboration, interactions,  
co-ordination **at a superior level**)

(Source: J. Piaget)

# Q: How to integrate ?

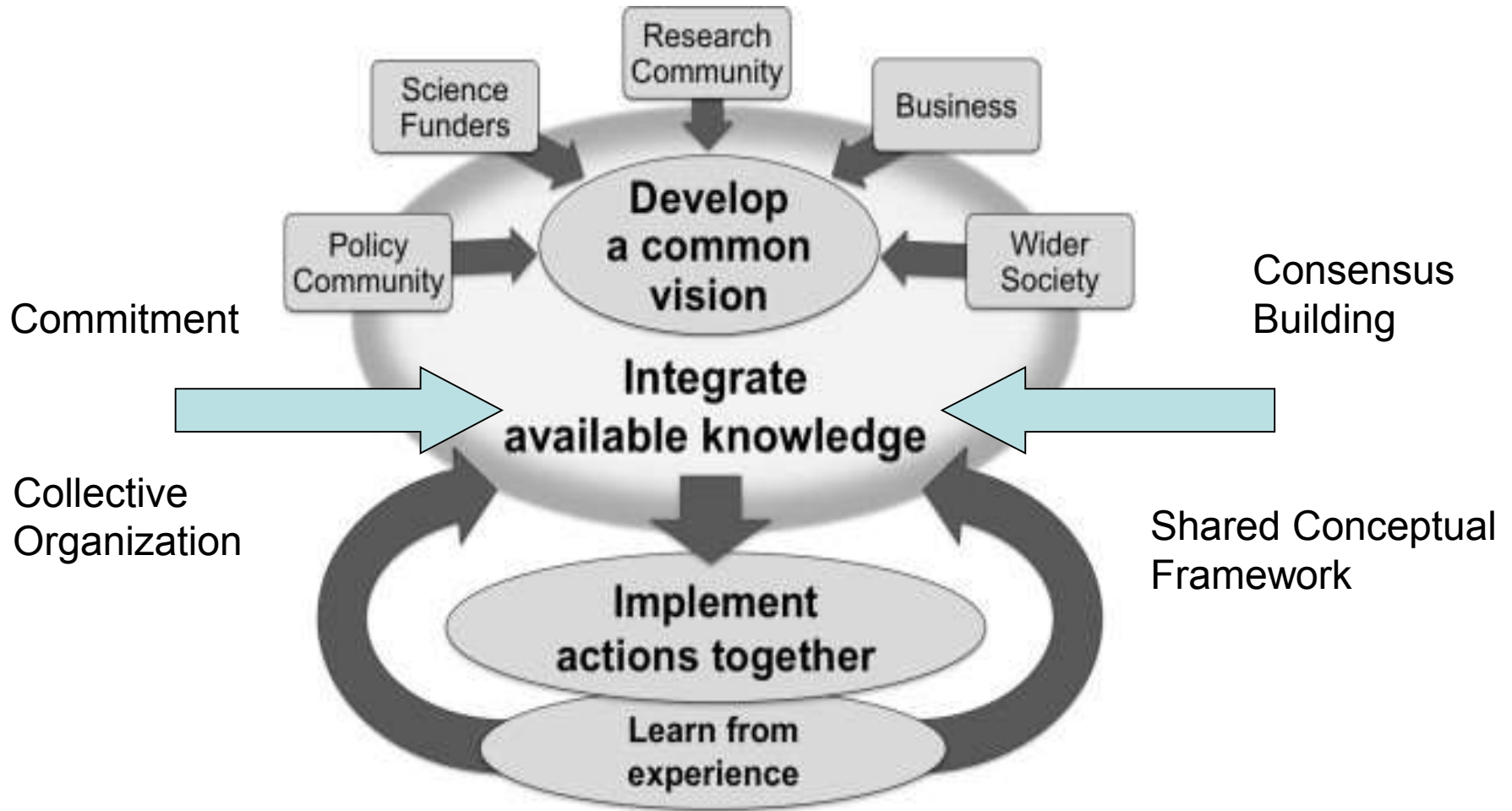
Example: Cognitive mapping



**'THE WEB OF CONNECTIONS'**

(Source: United Kingdom, Royal Commission on Environmental Pollution, 2006)

# TRANSDISCIPLINARY CONTRIBUTIONS



(Source: S. Cornell et al. (2013). Opening up knowledge systems for better responses to global environmental change. *Environmental Science & Policy*, vol.28: pp.60-70).

**MOBILITY: Knowledge linking health, energy, transport and urban planning**

**PEP: European Charter, 1999**

**Impacts of road transport :**

Land use, nonrenewable resources,  
health & quality of life

- Air pollution
- Noise nuisance
- Traffic accidents
- Sedentary lifestyles.



# URBAN PLANNING

## Two Main Applications



Remedial and corrective measures

Idealism and utopian visions

# CO-PRODUCING THE FUTURE WE WANT

We can't solve  
problems by using the  
same kind of thinking  
we used when we  
created them.



**Albert Einstein**  
*German Theoretical-Physicist*  
(1879-1955)

© 2010 The Einstein Foundation

# CO-PRODUCING THE FUTURE WE WANT

## **Swiss Academies of Arts & Sciences**

Td-net (<http://www.transdisciplinarity.ch>)

The network was launched in 2000 by the *Swiss Academic Society for Environmental Research and Ecology* ([SAGUF](#)) and taken over by the *Swiss Academy of Sciences* ([SCNAT](#)) in 2003. Since 2008 the *td-net for transdisciplinary research* has been a project of the [Swiss Academies of Arts and Sciences](#).

# KEY REFERENCES

R.J. Lawrence & C. Despres (eds.) (2004),  
Futures of transdisciplinarity. *Futures*, vol.36, no.4: pp. 397-526.

R.J.Lawrence (ed.) (2015), Advances in transdisciplinarity, 2004-2014.  
*Futures*, vol.65, no.1: pp.1-216.

J. Thompson Klein, et al. (eds.) (2001), *Transdisciplinarity: Joint problem solving among science, technology and society*. Birkhauser Verlag, Basel, Boston, Berlin.

Somerville M. & Rapport, D. (eds.) (2000),  
*Transdisciplinarity: Recreating integrated knowldege*. EOLSS Publishers, Oxford.

