“Innovation System Thinking”: Policies and Institutionalisation

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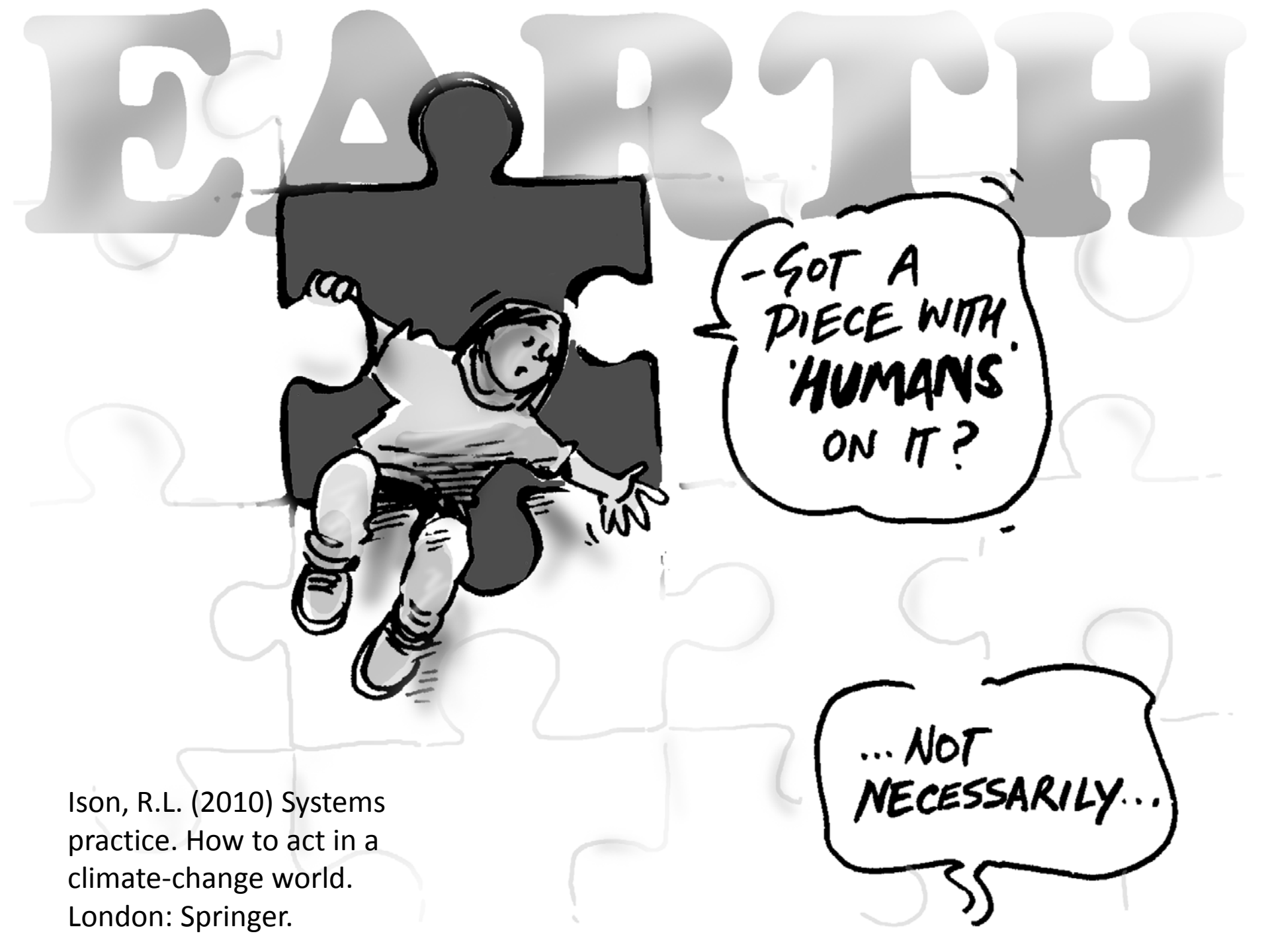
Expert consultation meeting CTA/CoS/SIS, 4-6 February 2013, Wageningen University, the Netherlands

An invitation to reflect on what we do when we do what we do

Stylosanthes



Ison, R.L. (2010) Systems practice. How to act in a climate-change world. London: Springer.

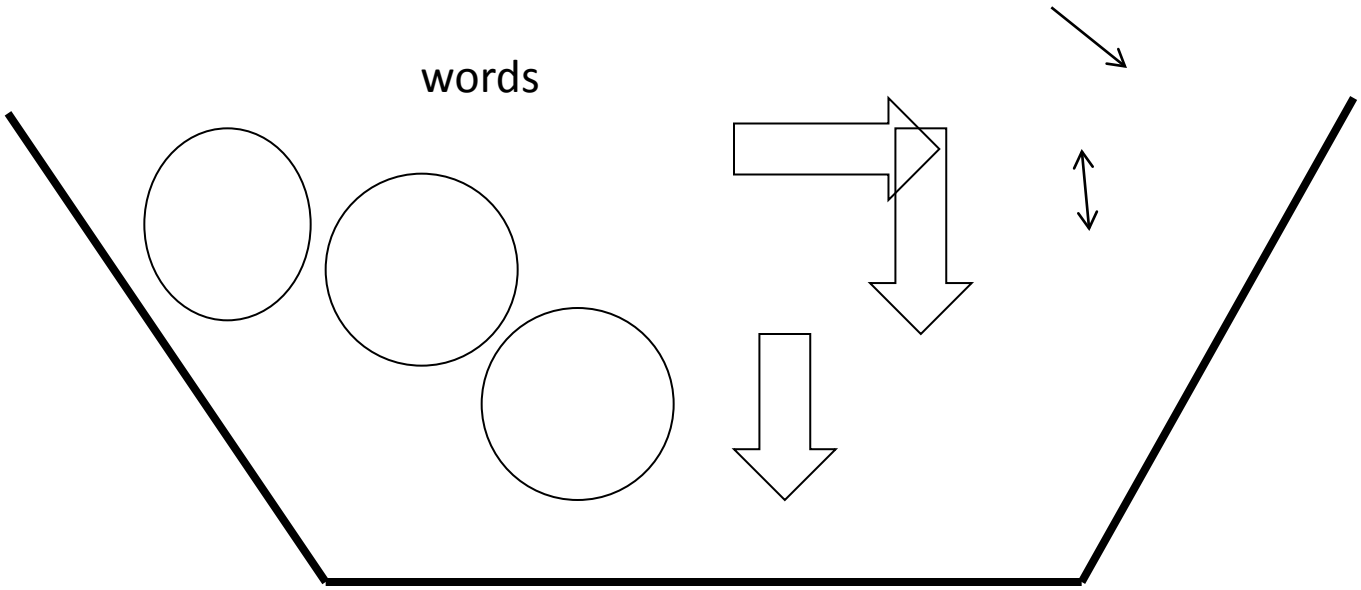
What is the (challenge) setting for future practice .....?

- Governance
- Thinking
- Practice
- Institutions
- Investment

Planet Under Pressure Policy Briefs:

Interview transcript (voices from the South):

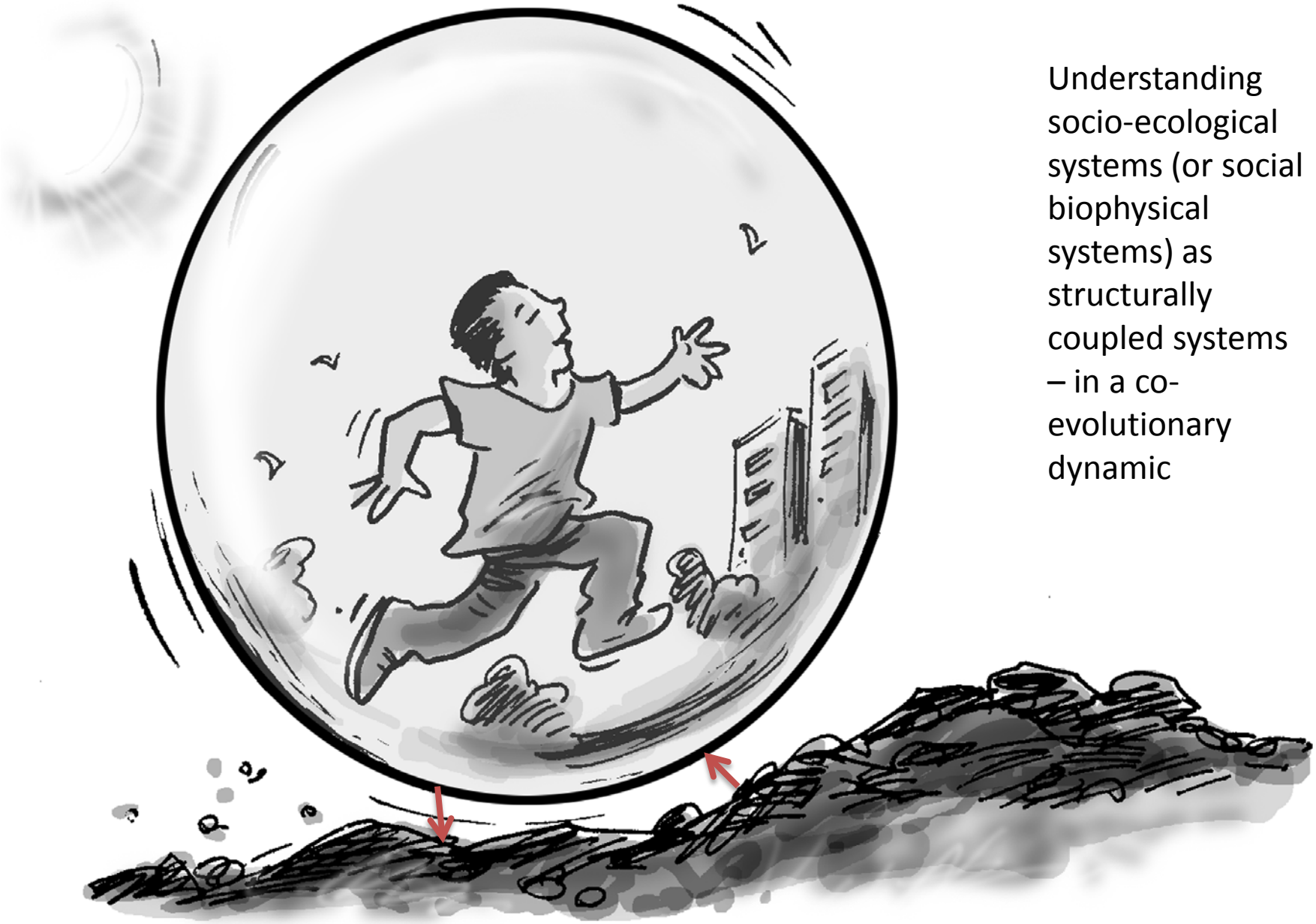
Your basket of ‘tools’ to depict your conception of a ‘social-ecological system’



How do you understand a social-ecological system?

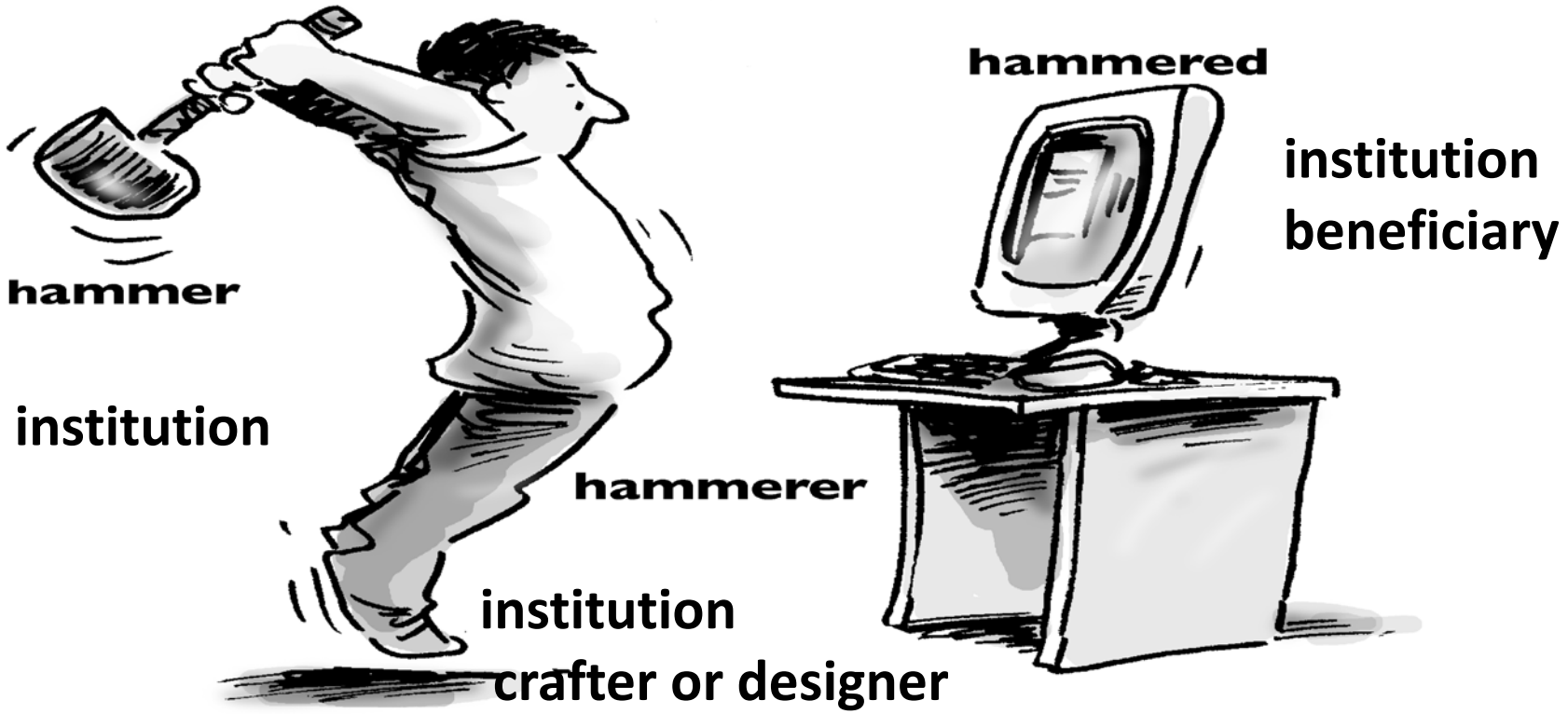
How does walking arise as a practice?

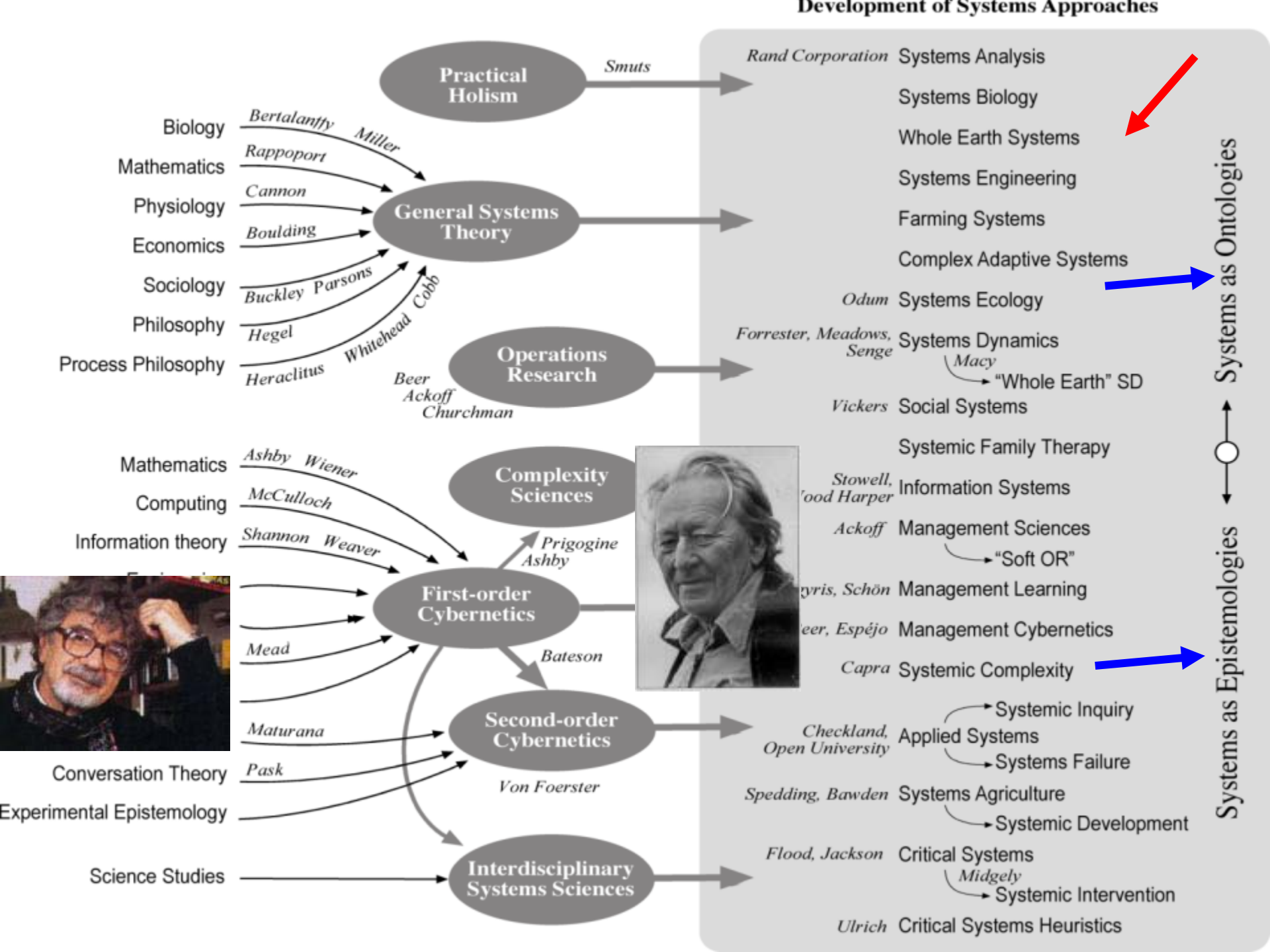
Institutionalising – crafting? designing?



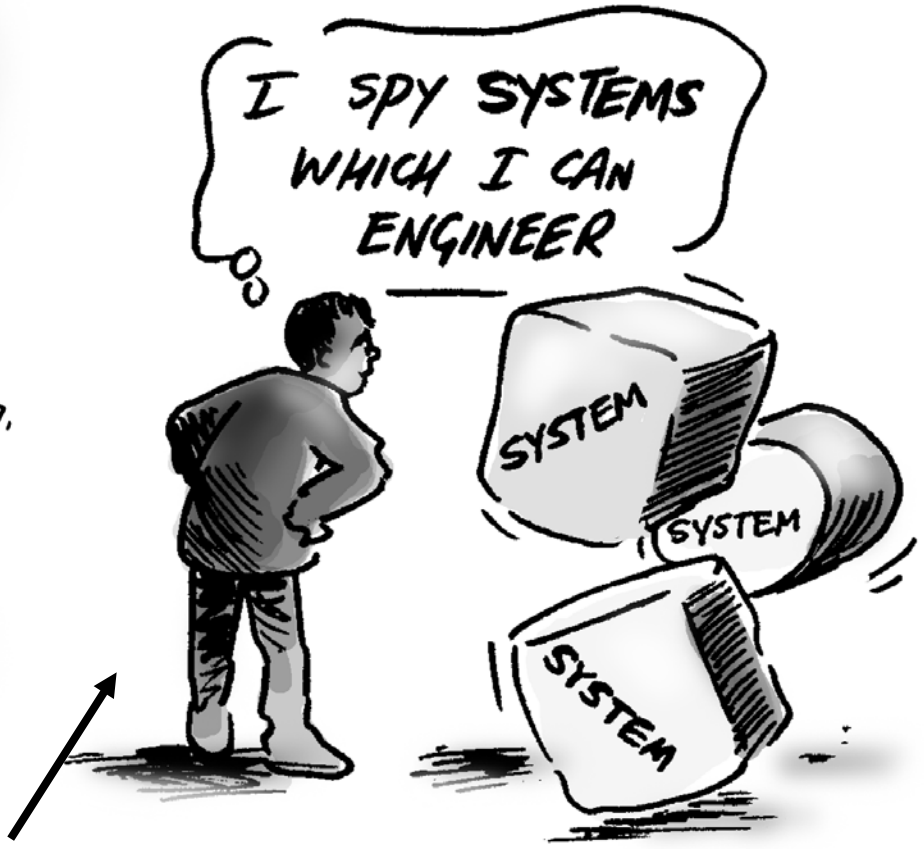
Understanding socio-ecological systems (or social biophysical systems) as structurally coupled systems – in a co-evolutionary dynamic

Technology is rarely understood in relation to practice & institutions could also be considered as social technologies




Development of Systems Approaches
Practical Holism
Smuts
Rand Corporation
Systems Analysis
Systems Biology
Whole Earth Systems
Systems Engineering
Farming Systems
Complex Adaptive Systems
Biology
Mathematics
Physiology
Economics
Sociology
Philosophy
Process Philosophy
Bertalanffy
Miller
Rappoport
Cannon
Boulding
Buckley
Parsons
Hegel
Whitehead
Cobb
Heraclitus
General Systems Theory
Odum
Systems Ecology
Forrester, Meadows, Senge
Systems Dynamics
Macy
"Whole Earth" SD
Operations Research
Beer
Ackoff
Churchman
Vickers
Social Systems
Systemic Family Therapy
Mathematics
Computing
Information theory
Ashby
Wiener
McCulloch
Shannon
Weaver
Complexity Sciences
Stowell, Wood Harper
Information Systems
Ackoff
Management Sciences
"Soft OR"
Prigogine
Ashby
yris, Schön
Management Learning
eer, Espéjo
Management Cybernetics
Capra
Systemic Complexity
First-order Cybernetics
Mead
Bateson
Systemic Inquiry
Checkland, Open University
Applied Systems
Systems Failure
Maturana
Pask
Second-order Cybernetics
Von Foerster
Conversation Theory
Experimental Epistemology
Spedding, Bawden
Systems Agriculture
Systemic Development
Science Studies
Interdisciplinary Systems Sciences
Flood, Jackson
Critical Systems
Midgely
Systemic Intervention
Ulrich
Critical Systems Heuristics
Systems as Ontologies
Systems as Epistemologies

Start with a Situation? or System?
A choice to be made

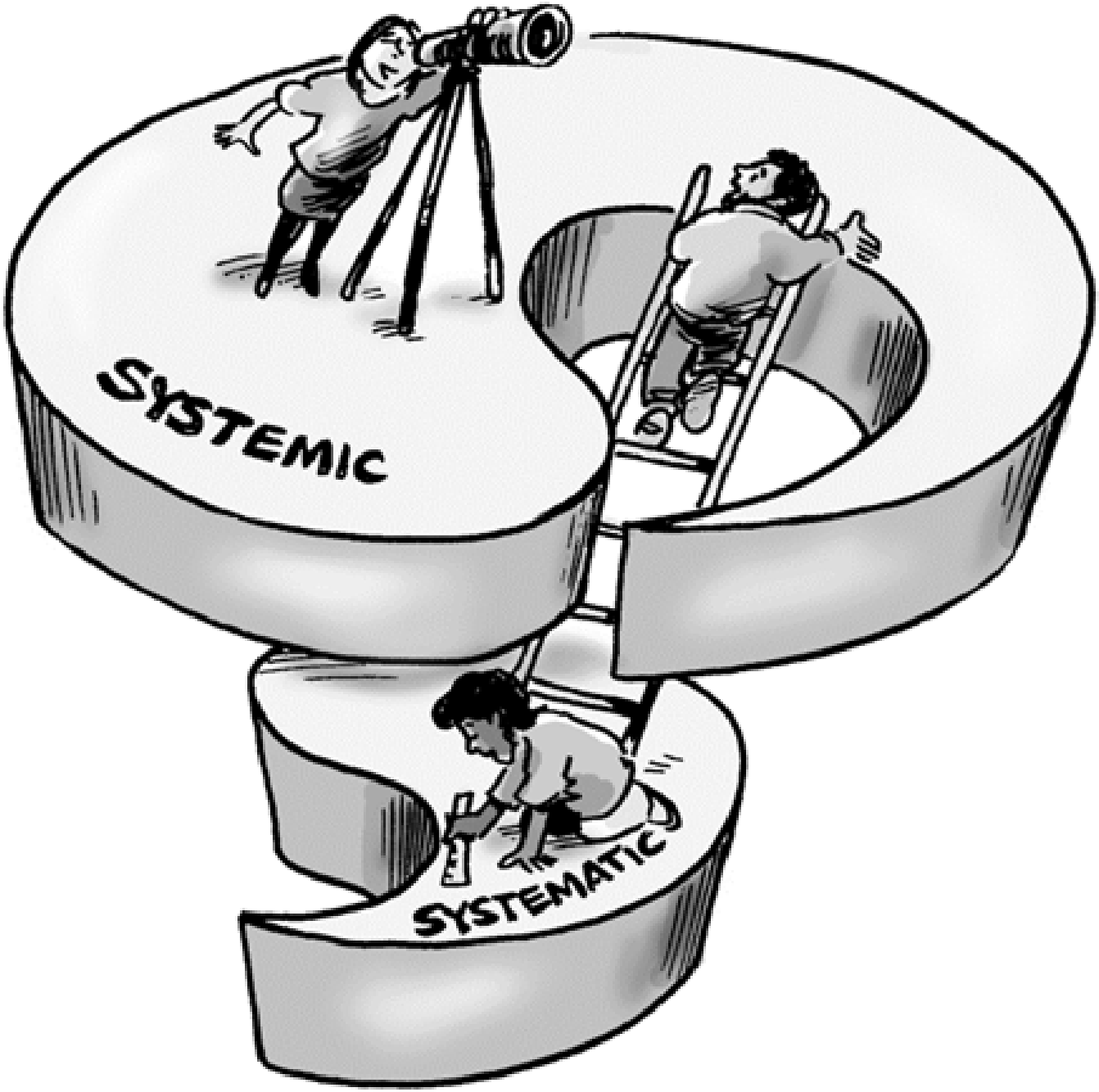


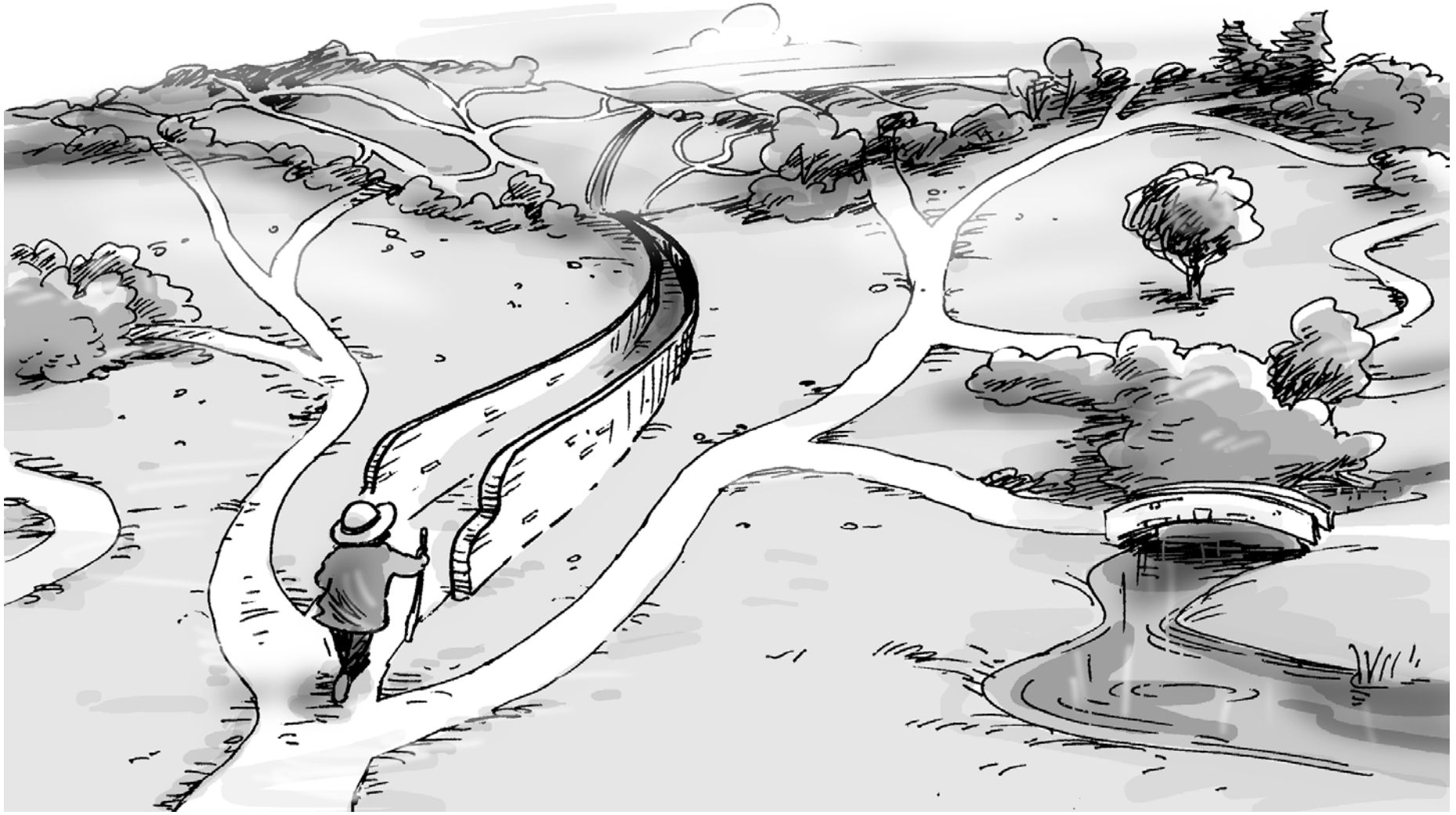
Systemic

(epistemologies)

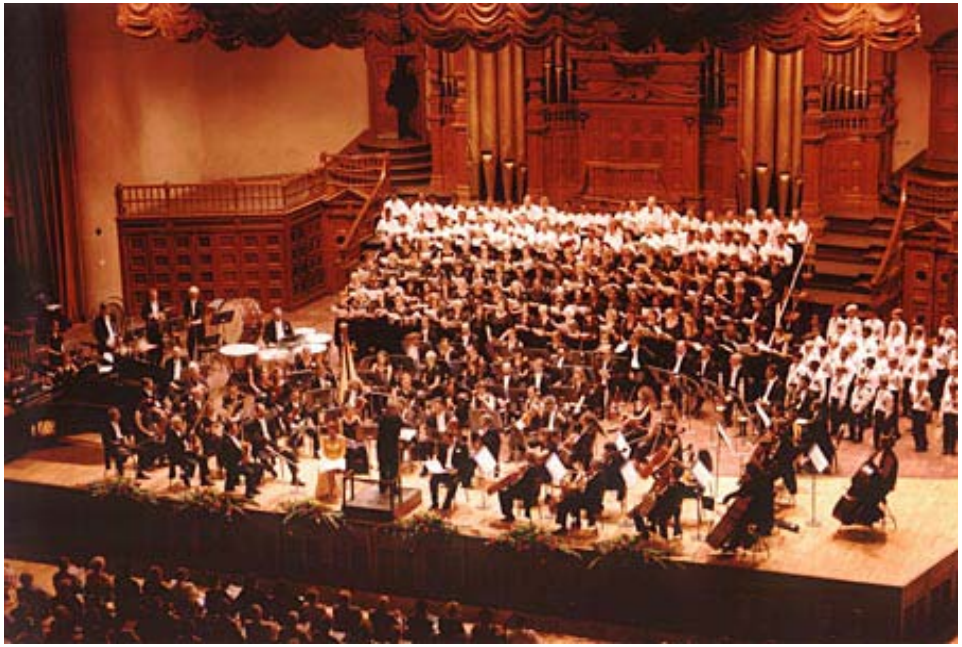
Systematic

(ontologies)

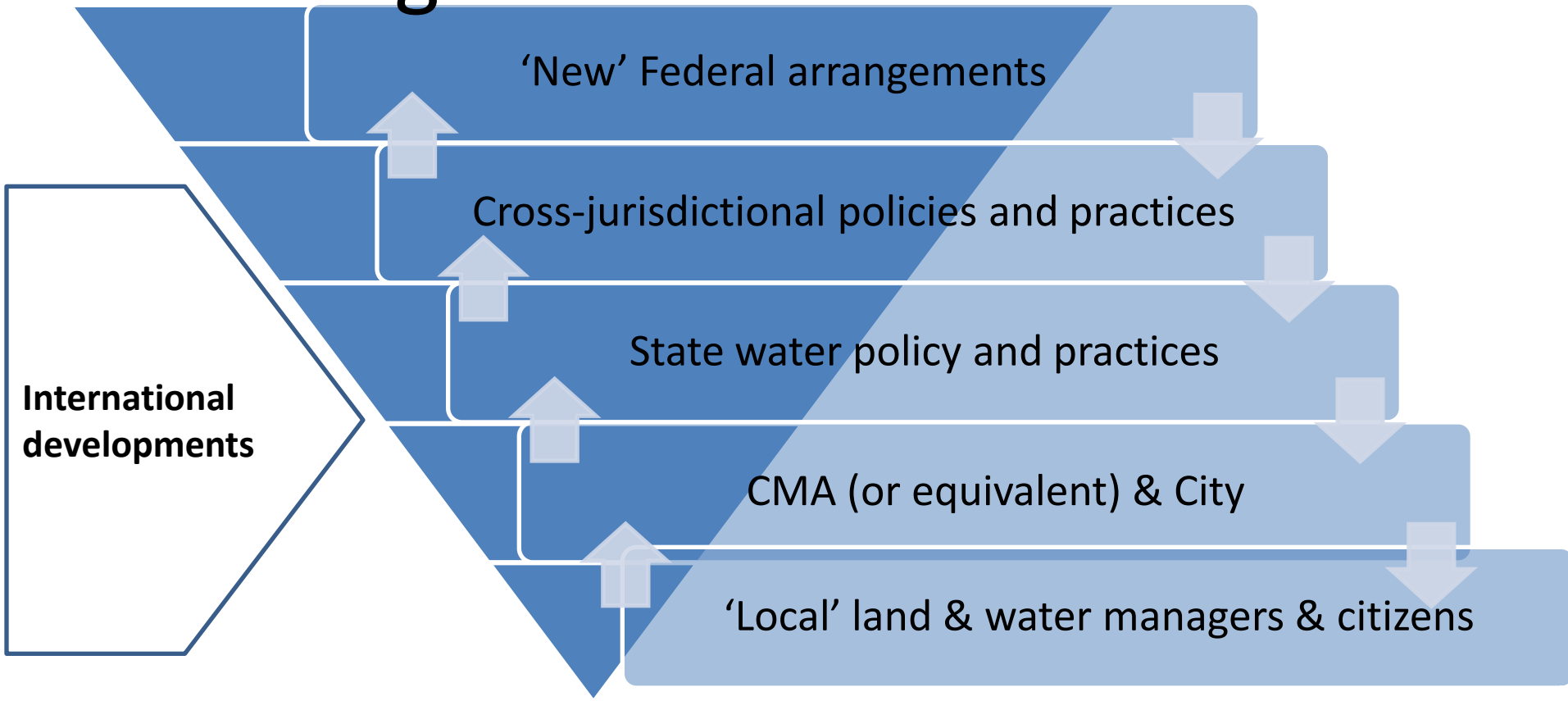

SYSTEMIC
SYSTEMATIC



In a climate-change world we need greater capability for improvising and sustaining effective performances



Systemic Governance Research Program: river catchments

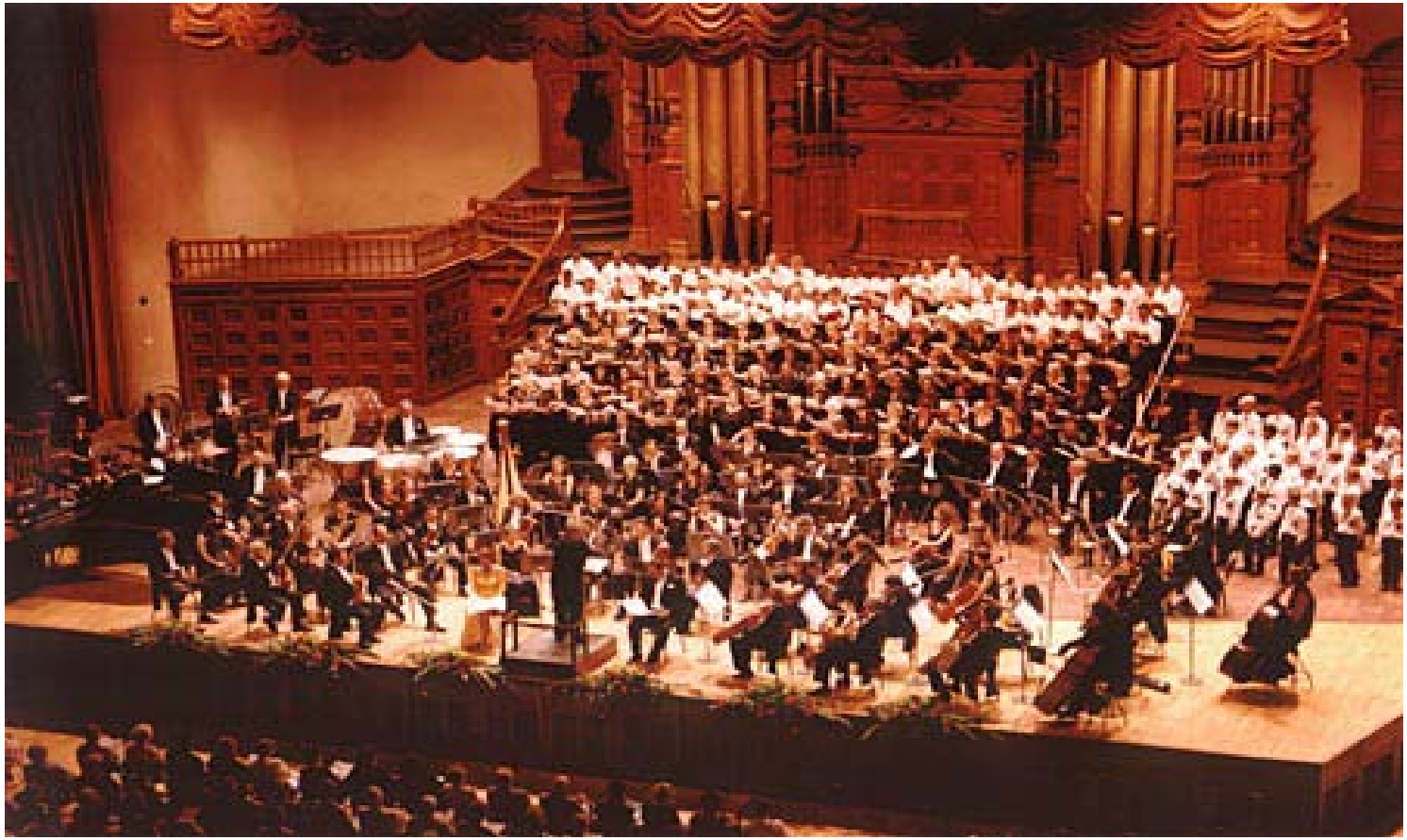


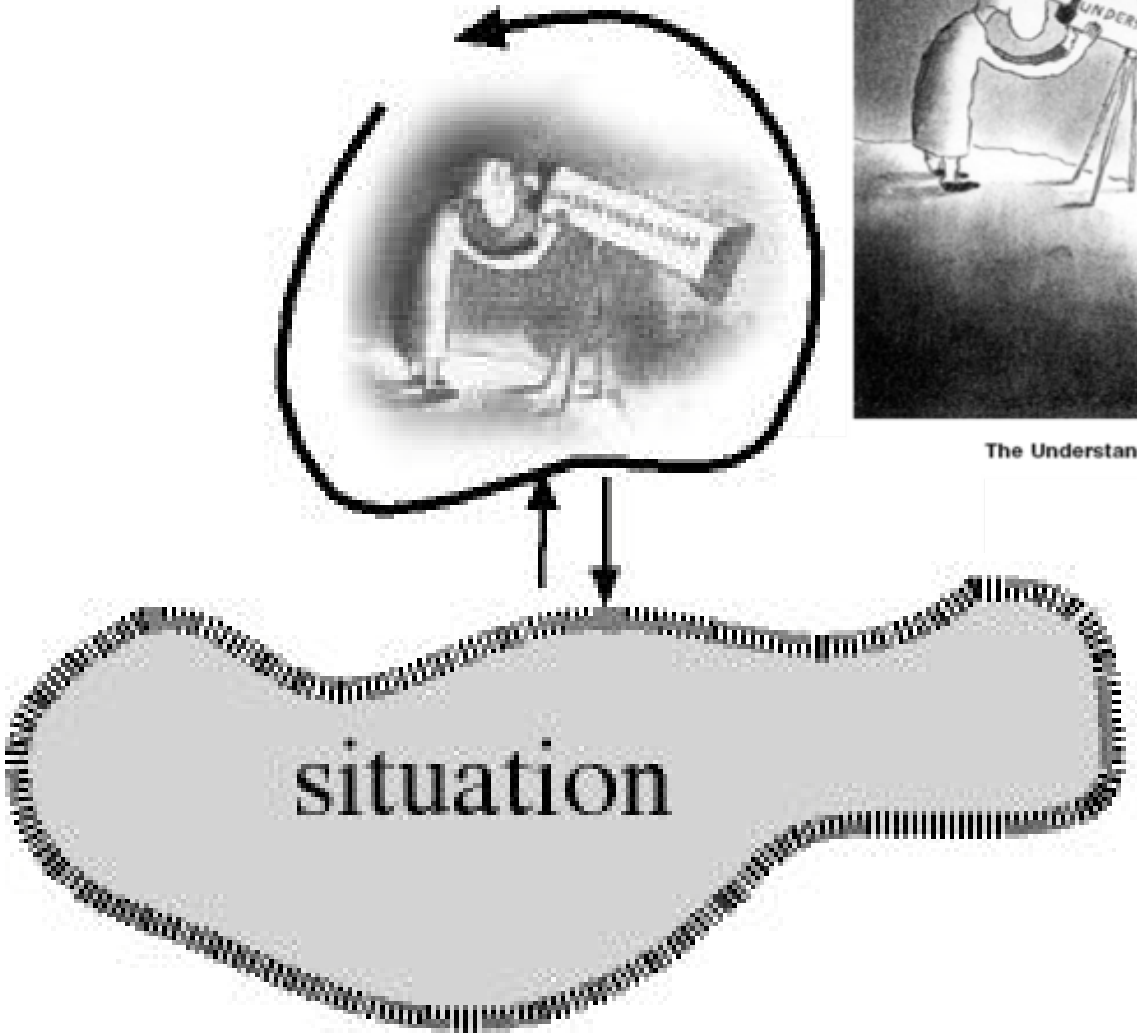
in a climate-changing world

Governance

- Responding to feedback
- A cyber-systemic concept
- Cybernetics, from kybernetes meaning helmswoman or steersman
- Governing – responding to feedback; charting a course (purpose)

How can governance become more systemic? – the role for social learning



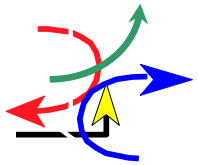


The Understandascope *by Michael Leunig*

Framing and reframing situations

The nature of situations we have to ‘manage’: messy, swampy, wicked issues ?

Interdependencies



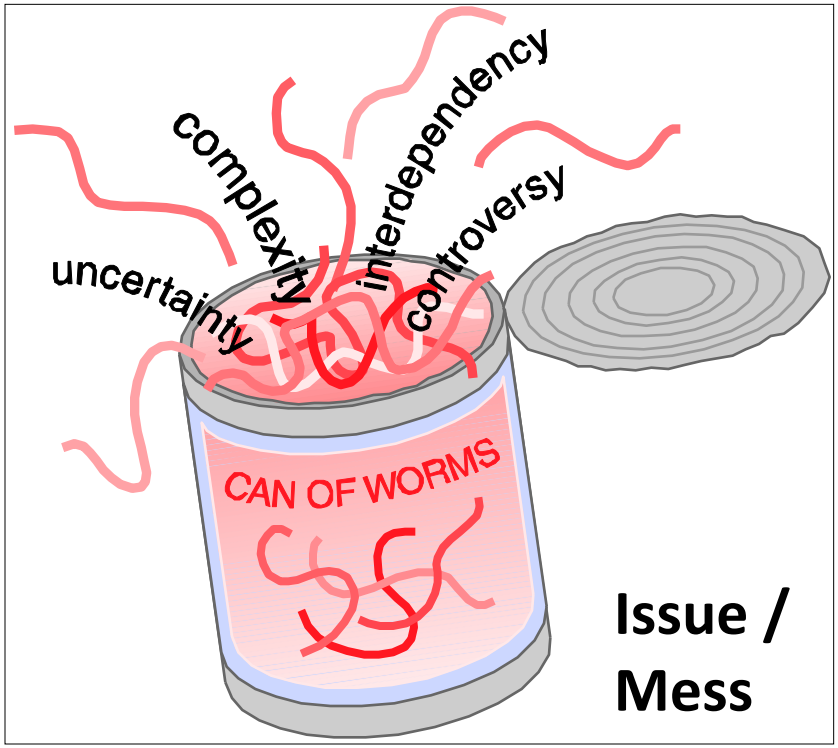
Complexity

?

Uncertainty

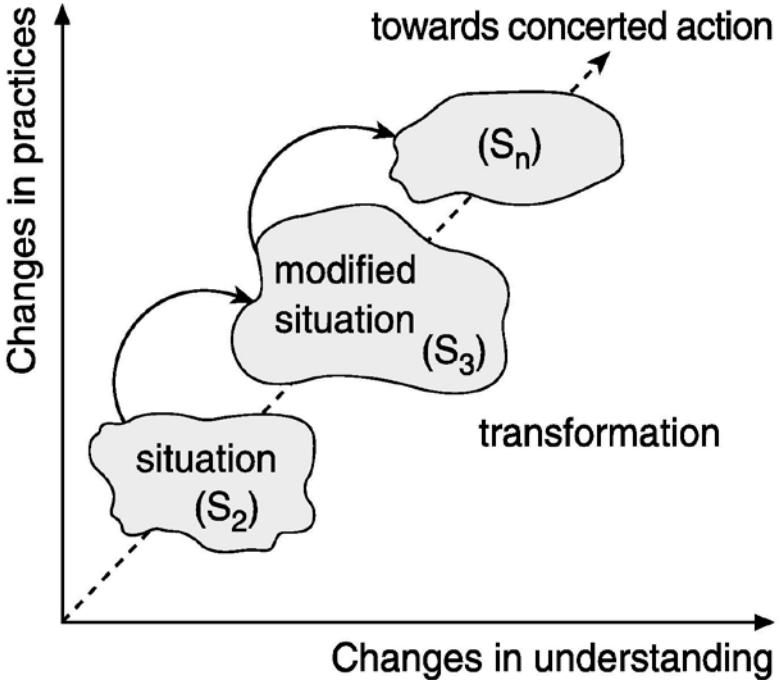
Controversy

Multiple stakeholding / perspectives

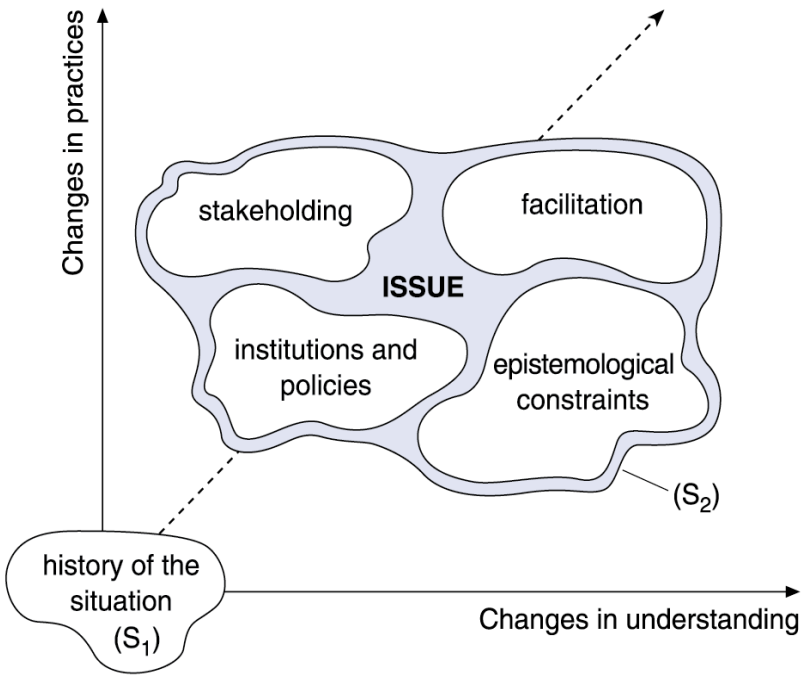


After: Ackoff, (1974) – messes and difficulties; Shön (1995) - the ‘real-life swamp’; Rittel and Webber, (1973) - ‘wicked’ and 'tame' problems.

How do we design for transformative research (or practice) using systems approaches?

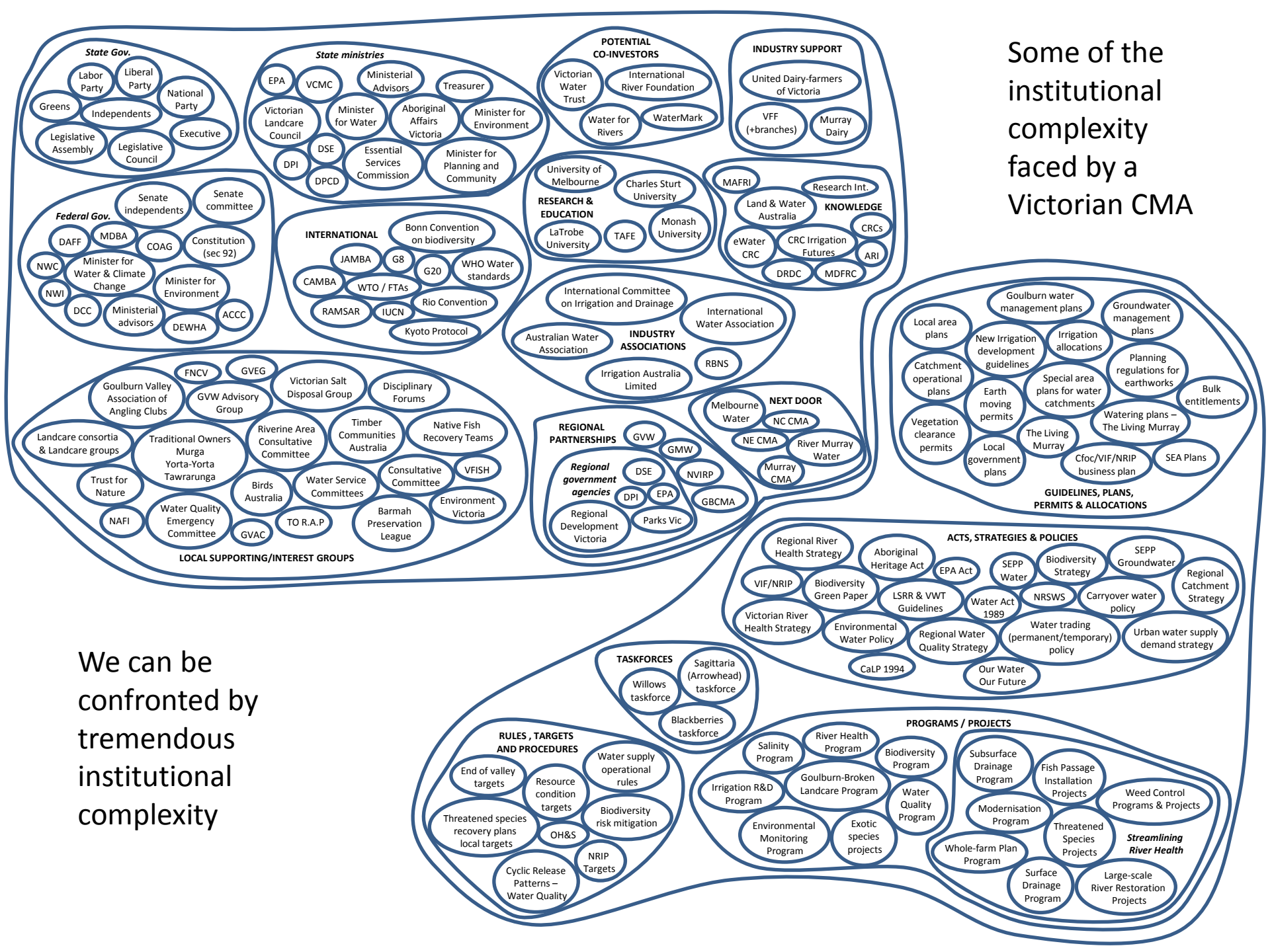


(after SLIM, 2004)

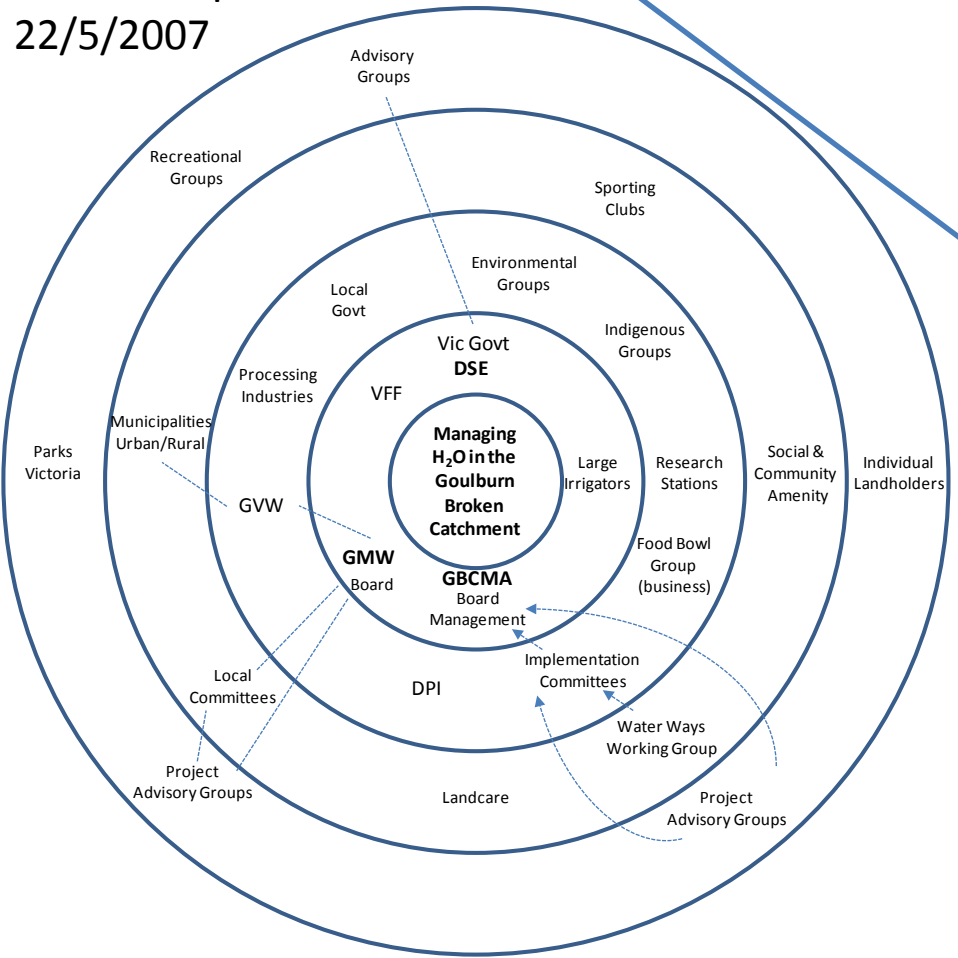


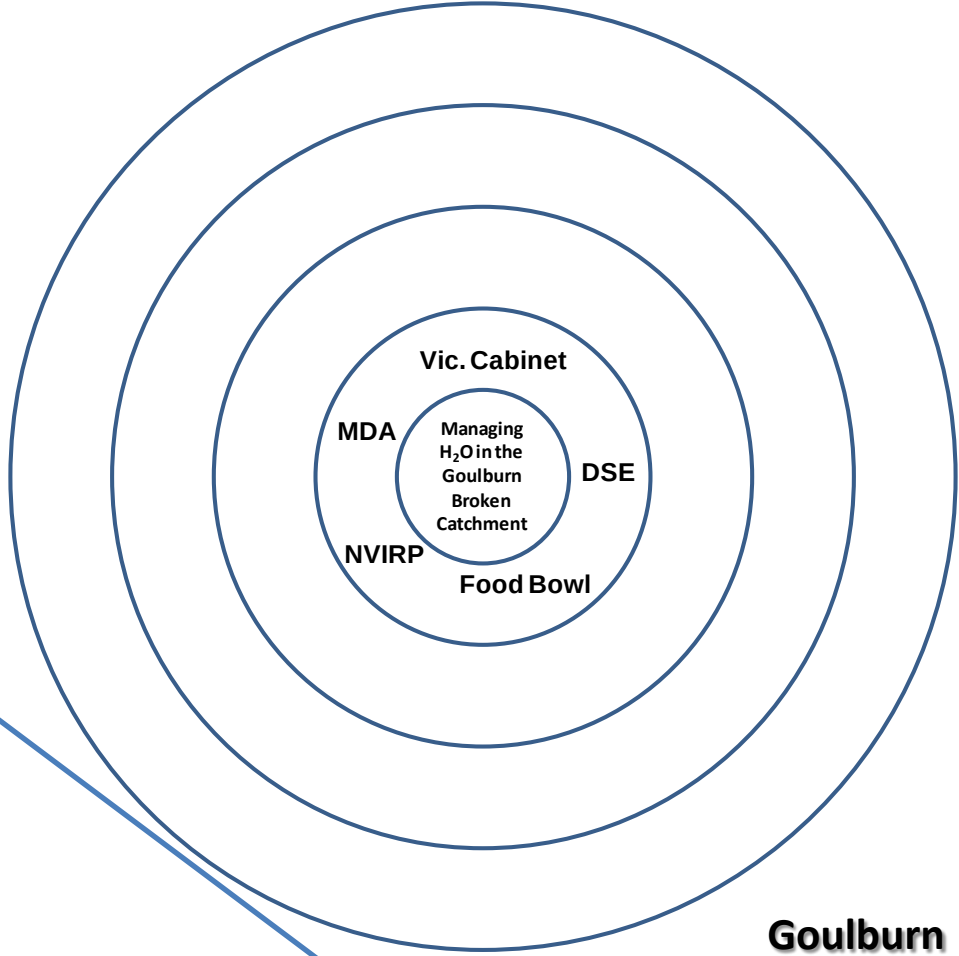
Social learning: process of socially constructing an issue by actors in which their understandings and practices change, leading to transformation of the situation through collective / concerted action (and the building of relational capital).

Source: Dr Tony McLeod


Some of the institutional complexity faced by a Victorian CMA
We can be confronted by tremendous institutional complexity
State Gov.
Labor Party
Liberal Party
National Party
Greens
Independents
Executive
Legislative Assembly
Legislative Council
State ministries
EPA
VCMC
Ministerial Advisors
Treasurer
Victorian Landcare Council
Minister for Water
Aboriginal Affairs Victoria
Minister for Environment
DSE
DPI
DPCD
Essential Services Commission
Minister for Planning and Community
POTENTIAL CO-INVESTORS
Victorian Water Trust
International River Foundation
Water for Rivers
WaterMark
INDUSTRY SUPPORT
United Dairy-farmers of Victoria
VFF (+branches)
Murray Dairy
Federal Gov.
Senate independents
Senate committee
DAFF
MDBA
COAG
Constitution (sec 92)
NWC
Minister for Water & Climate Change
Minister for Environment
NWI
DCC
Ministerial advisors
DEWHA
ACCC
INTERNATIONAL
Bonn Convention on biodiversity
JAMBA
G8
G20
WHO Water standards
CAMBA
WTO / FTAs
RAMSAR
IUCN
Rio Convention
Kyoto Protocol
RESEARCH & EDUCATION
University of Melbourne
Charles Sturt University
LaTrobe University
TAFE
Monash University
KNOWLEDGE
MAFRI
Research Int.
Land & Water Australia
CRCs
eWater CRC
CRC Irrigation Futures
ARI
DRDC
MDFRC
International Committee on Irrigation and Drainage
International Water Association
Australian Water Association
INDUSTRY ASSOCIATIONS
RBNS
Irrigation Australia Limited
Goulburn water management plans
Groundwater management plans
Local area plans
New Irrigation development guidelines
Irrigation allocations
Catchment operational plans
Planning regulations for earthworks
Special area plans for water catchments
Bulk entitlements
Earth moving permits
Watering plans – The Living Murray
Vegetation clearance permits
The Living Murray
Local government plans
Cfoc/VIF/NRIP business plan
SEA Plans
GUIDELINES, PLANS, PERMITS & ALLOCATIONS
FNCV
GVEG
Goulburn Valley Association of Angling Clubs
GVW Advisory Group
Victorian Salt Disposal Group
Disciplinary Forums
Landcare consortia & Landcare groups
Traditional Owners Murga Yorta-Yorta Tawrarunga
Riverine Area Consultative Committee
Timber Communities Australia
Native Fish Recovery Teams
Trust for Nature
Birds Australia
Water Service Committees
Consultative Committee
VFISH
Environment Victoria
NAFI
Water Quality Emergency Committee
GVAC
TO R.A.P
Barmah Preservation League
LOCAL SUPPORTING/INTEREST GROUPS
REGIONAL PARTNERSHIPS
GVW
GMW
Regional government agencies
DSE
NVIRP
DPI
EPA
GBCMA
Regional Development Victoria
Parks Vic
NEXT DOOR
Melbourne Water
NC CMA
NE CMA
River Murray Water
Murray CMA
ACTS, STRATEGIES & POLICIES
Regional River Health Strategy
Aboriginal Heritage Act
EPA Act
SEPP Water
Biodiversity Strategy
SEPP Groundwater
VIF/NRIP
Biodiversity Green Paper
LSRR & VWT Guidelines
Water Act 1989
NRSWS
Carryover water policy
Regional Catchment Strategy
Victorian River Health Strategy
Environmental Water Policy
Regional Water Quality Strategy
Water trading (permanent/temporary) policy
Urban water supply demand strategy
CaLP 1994
Our Water Our Future
TASKFORCES
Willows taskforce
Sagittaria (Arrowhead) taskforce
Blackberries taskforce
RULES , TARGETS AND PROCEDURES
End of valley targets
Resource condition targets
Water supply operational rules
Threatened species recovery plans local targets
Biodiversity risk mitigation
OH&S
NRIP Targets
Cyclic Release Patterns – Water Quality
PROGRAMS / PROJECTS
Salinity Program
River Health Program
Biodiversity Program
Irrigation R&D Program
Goulburn-Broken Landcare Program
Water Quality Program
Environmental Monitoring Program
Exotic species projects
Subsurface Drainage Program
Fish Passage Installation Projects
Weed Control Programs & Projects
Modernisation Program
Threatened Species Projects
Streamlining River Health
Whole-farm Plan Program
Surface Drainage Program
Large-scale River Restoration Projects

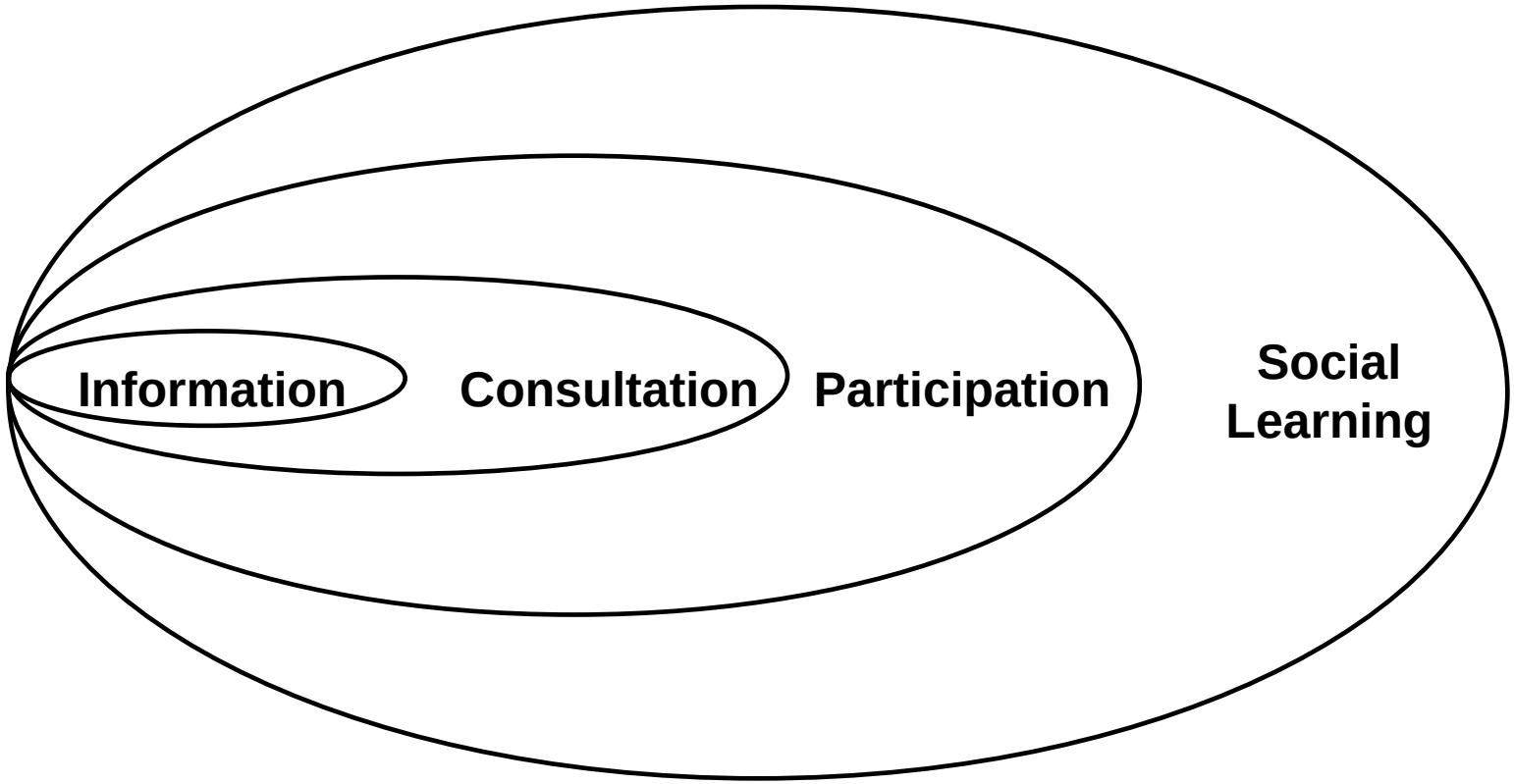
Goulburn Broken
Power Map
22/5/2007





Goulburn Broken
Power Map
15/9/2008

Social Learning, a new but complementary paradigm understood as a duality – something to invest in (a governance mechanism) + a process of transformation of situations of concern



Institutional innovation: ‘systemic inquiry’

- situations we are having to engage with
- the rhetoric about being more joined-up, holistic, ‘integrated’ …but theory-informed practice is often weak
- an antidote to living in a ‘projectified world’: ‘projects’ deal poorly with complex, long-term phenomena e.g. PRINCE2
- an inquiry-based approach enables managing/researching for emergence
- ethics arise in context-related action
- the phenomena of concern remain in focus over time and in the face of staff turnover

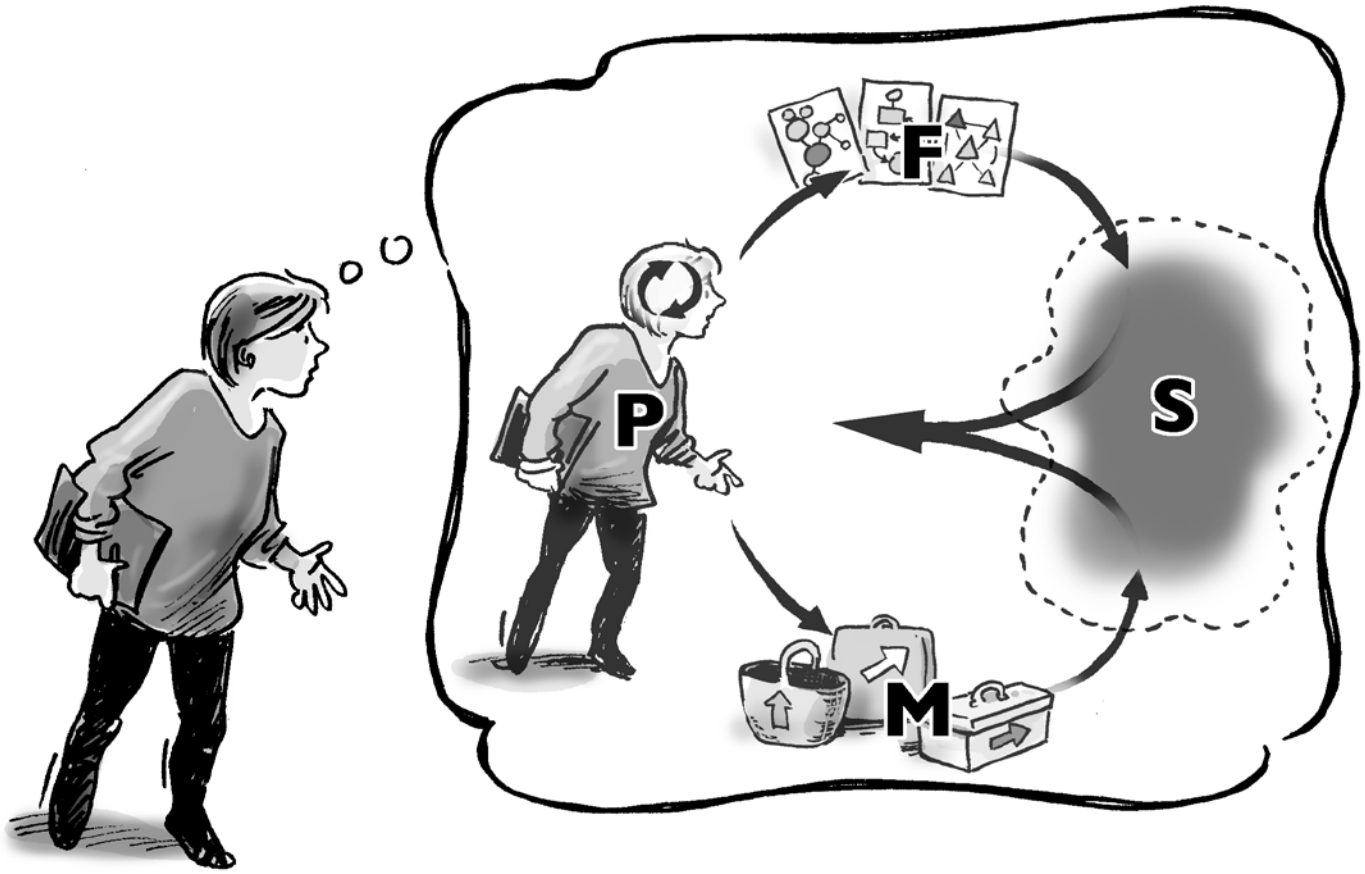
Why a systemic inquiry?

- Inquiry is ….
  - *'reflective learning in the literal sense…. it is the thinking about thinking, doubting about doubting, learning about learning, and (hopefully) knowing about knowing'* (Churchman 1971 p. 17).

AFSI Learning Project Research question

- **<u>Can a learning system be designed in the AFSI situation such that reflexive and responsible research for development (R4D) practice is an emergent outcome?</u>**
- Schön (1983) challenged the technical rationality of Herbert Simon. He sought to establish '*an epistemology of practice implicit in the artistic, intuitive processes which [design and other] practitioners bring to situations of uncertainty, instability, uniqueness and value conflict*'.
- Within this tradition 'learning systems' cannot be designed deterministically (i.e. as a blueprint), rather theory-informed contextual design is pursued to create favourable conditions for emergence.
- A 'learning system' can only be said to exist after its enactment, i.e. upon reflection
- 'Design' of learning systems is also a form of systemic action research

Systemic governance of research practice (projects, programs, partnerships) requires understanding research practice …?



P = practitioner

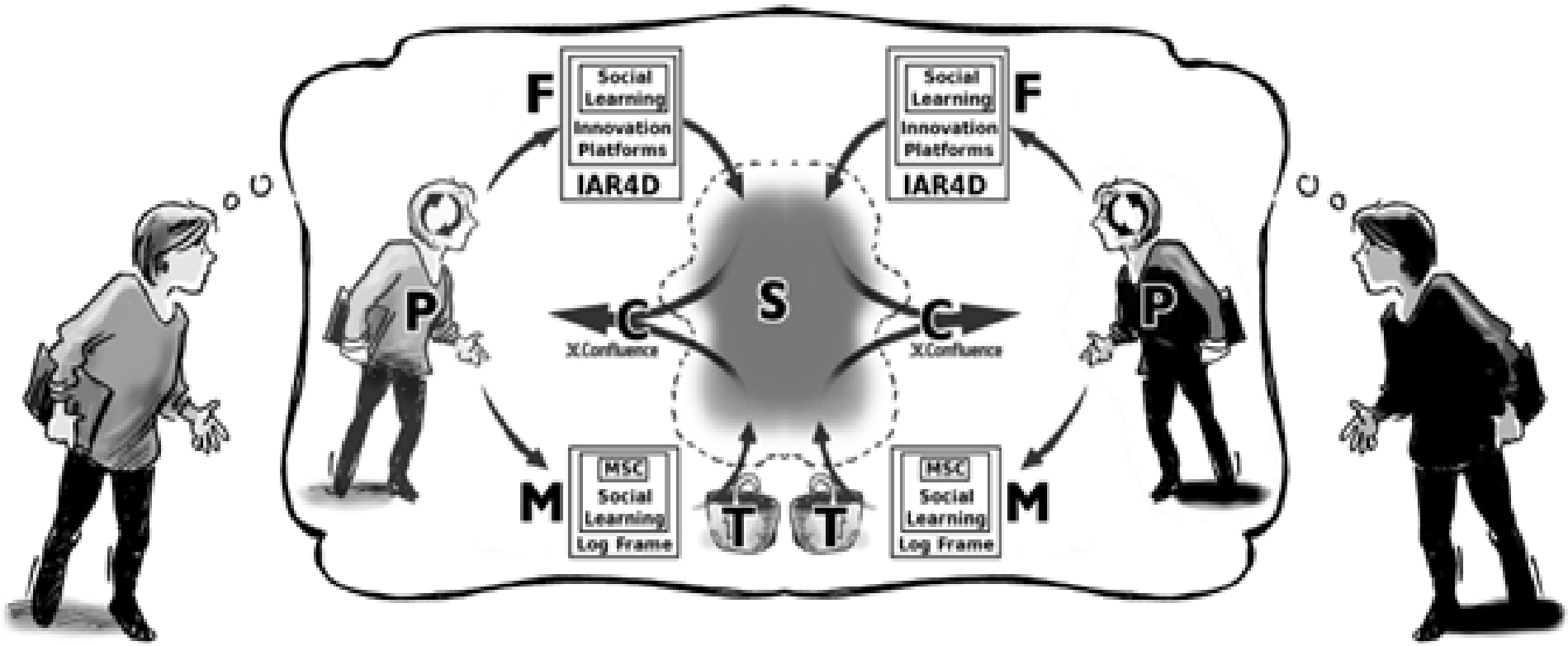
F = framework of ideas/theory

S = situation

M = method or methodology

A model for collaborative inquiry

MSC = most significant change



Main achievements after 16 months

Outputs

Theoretical framework and methodological approach developed

A ‘Field Guide’, paper and ethics procedures completed

Confluence on-line platform established

An approach to transitioning to a co-research mode with CSIRO partners designed and tested;

Paper on overall learning to date drafted;

Contextualisation field trips made by Monash researchers to East and West Africa

Research interviews undertaken on the integration of social and biophysical research

Outcomes

Deeper engagement by (most) CSIRO researchers with R4D and IP theory and practice

Five collaborative action research inquiries “established” within CSIRO team: three of the five are active and likely to produce published papers

‘Findings’ to date are being used as inputs to the design of AFSI Phase 3’

Lessons from LP are feeding into the CSIRO-AusAID-ACIAR FSIFS inquiries 2 and 4.

A co-researching ‘inquiry platform’ established with ASF/Amaranth researchers??

Emergent action-research inquiries which cross disciplines and projects

Table 1. Learning inquiries emerging from the Learning Project

	Inquiry	Topic
1	Learning system design	The 'learning project': design and testing of a learning system for reflexive, action-oriented research for development
2	Science and food security	Relationship between good science and enhanced food security
3	IAR4D, Innovation Platforms	IAR4D and Innovation Platforms in the context of farming systems research: the AFSI experience
4	Integration of sciences	Integration of social, economic and biophysical sciences in AFSI research
5	Power relations	Power relations in AFSI research, within project teams and more broadly

Conclusions and reflections

- Our praxis-based approach built around systems and social learning theory has the potential to complement recent research highlighting the importance of institutional innovation to accompany technological innovation (see Hounkonnou et al. 2012).
- Making epistemologies (theories of change and knowledge) and conceptions of research practice that underpin action and make explanation transparent is significant for on-going systemic innovation through R4D.
- Our approach may reframe what constitutes ‘good science’ for IAR4D or be rejected in favour of the prevailing paradigm?
- ‘Innovation system’, ‘learning system’, ‘systemic change’, ‘systems practice’; ‘systemic innovation’:
    - - what entailments do terms carry?
    - - what do they reveal and conceal in particular contexts?

Some emerging lessons

There are a range of findings emerging from the LP that support the conclusions of Woolley & Douthwaite (2011); these include:

a. The significance of framing situations – e.g. when these authors '*explores the potential benefits of working to improve the resilience of complex adaptive systems in agriculture and aquaculture through engaging in diverse partnerships among different types of research and development institutions, and the people in those institutions'* – they make framing choices such as 'complex adaptive systems' and recognise the systemic relationships between people and institutions.

Some emerging lessons

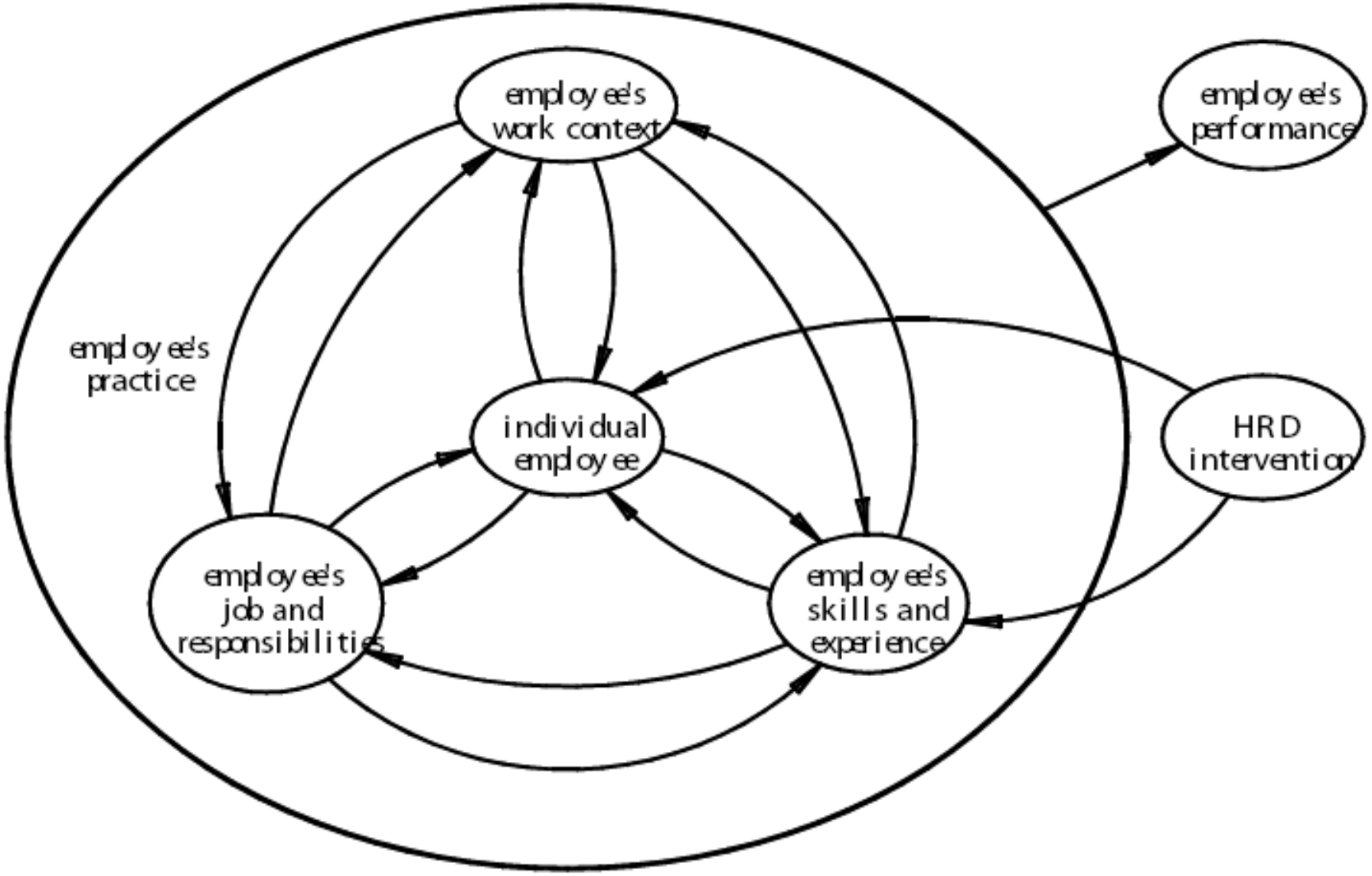
b. The need to consciously test their conclusions that *'that projects need to intervene at three or more system levels, with their corresponding actors, to bring maximum benefit to small rural households.'*

c. '*That diverse partnerships increase the chance of innovation and success when that diversity covers at least three institutional scales, for example, farm households, community-based organizations and regional policy-making.' They further note that: 'there is therefore likely to be a close link between resilient results and broad partnerships in research and development.'* This suggests a role for social learning as a governance mechanism for partnership working in complex situations.

Woolley, J. and B. Douthwaite. 2011. Improving the resilience of agricultural systems through research partnership: A review of evidence from CPWF projects. Colombo, Sri Lanka: CGIAR Challenge Program for Water and Food (CPWF). 42p. (CPWF Impact Assessment Series 10).

Institutionalizing systems approaches

- recognizing and addressing factors that constrain the flourishing of Systems as a domain of inquiry and practice
- the focus shifts from practitioner to systems practitioner/context, understood as a coupled (co-evolutionary) system



Influence diagram of the impact of an HRD intervention on the employee's system of practice

Figure 1 *An influence diagram of the impact of an HRD intervention on the employee's system of practice*

Five ‘settings’ that constrain systems practice

(i) the pervasive target mentality that exists in many countries and contexts

(ii) living in a ‘projectified world’

Systemic inquiry as an antidote - starts by accepting uncertainty

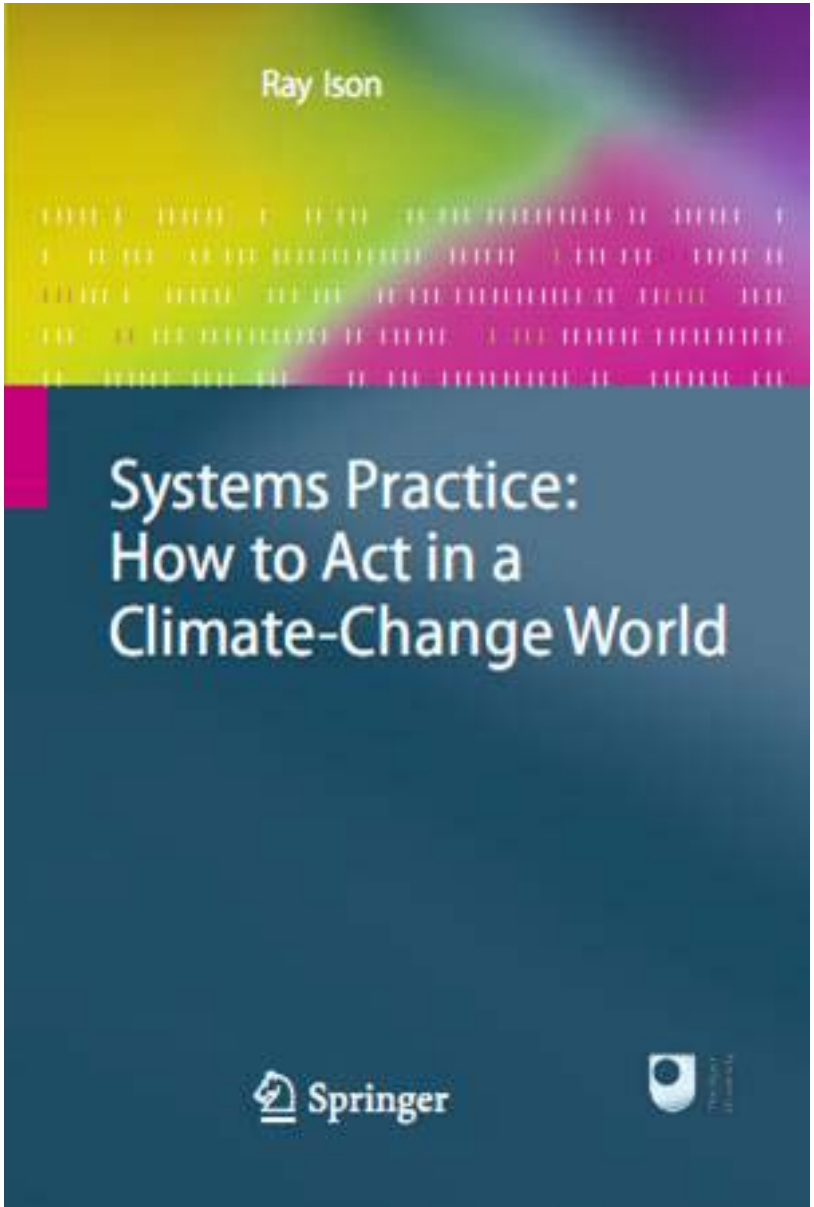
(iii) ‘situation framing’ failure

(iv) an apartheid of the emotions

(v) institutional complexity

Conducting systemic inquiries - developing reflexive systemic praxis skills?

- addressing the question ‘what do we do when we do what we do?
- what do we do when we ‘invent’ and use terms such as ‘Earth System‘ or 'Social-ecological System’?
- and how is the ‘system’ part understood and used?

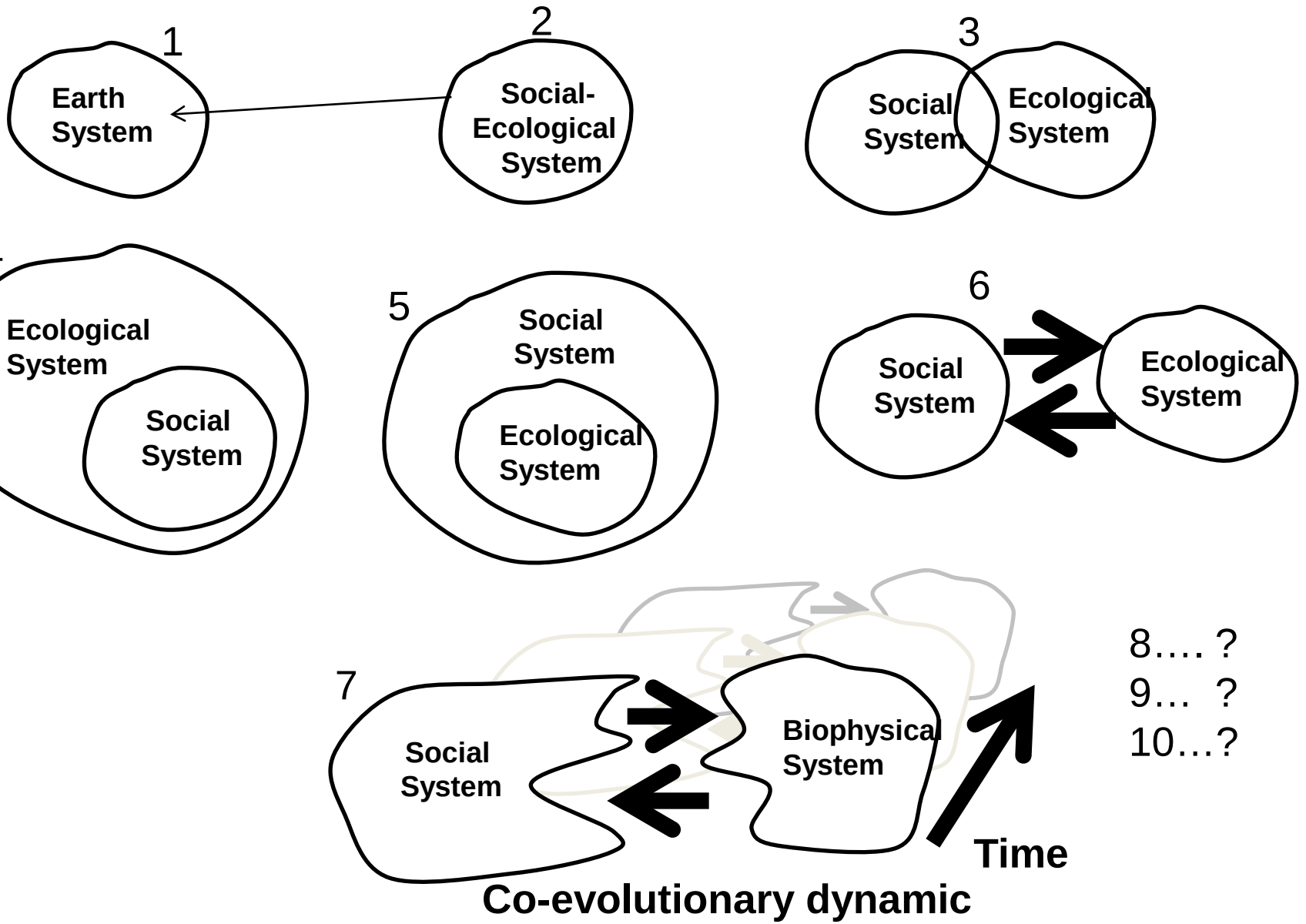


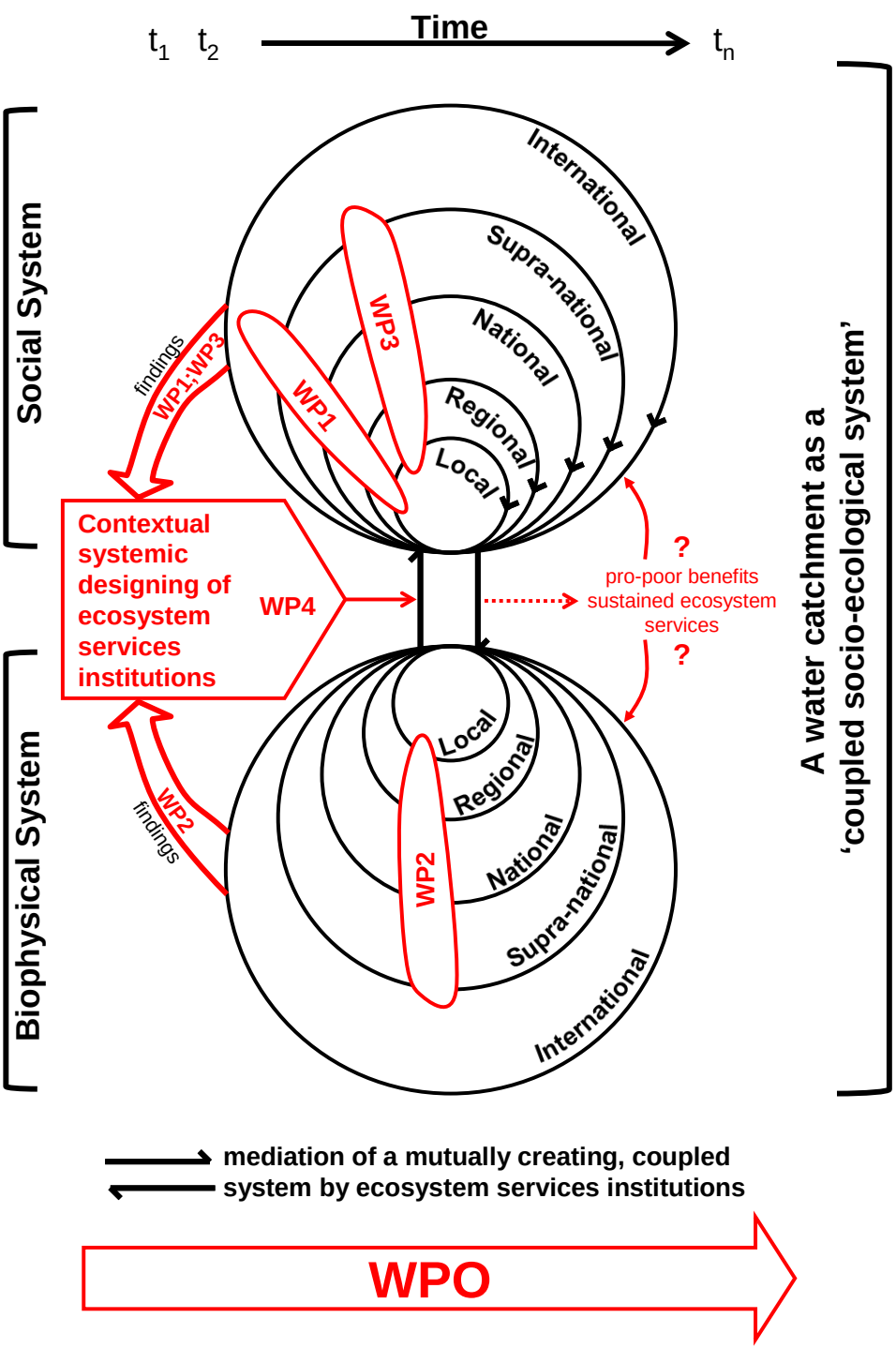
Enrol in Open University (UK) courses:

e.g. ‘Managing systemic change: inquiry, action and interaction’ (TU812)

Which is a core course in the Systems Thinking in Practice (STiP) MSc

A field guide to different understandings …





- **A conceptual model of a water catchment as a coupled social (top) and ecological or biophysical system (bottom),** showing nested spatial scales, dynamic relationship between the two mediated over time (t1, t2 etc) by ESS as designed 'institutions' capable of enhancing (mediating) the relationship between the two whilst providing pro-poor benefits and sustained ESS

ESS = ecosystems services

Other sources?

- IKM Working Paper No. 4. Learning networks for bridging knowledge divides in international development, August 2009
- Laxmi Prasad Pant