Systems practice in a climate-change world

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My talk as an invitation

- **to begin a process of inquiry into:**
  - –farming
  - –systems
  - –research
  - –farming systems
  - –farming systems research………in a climate change world

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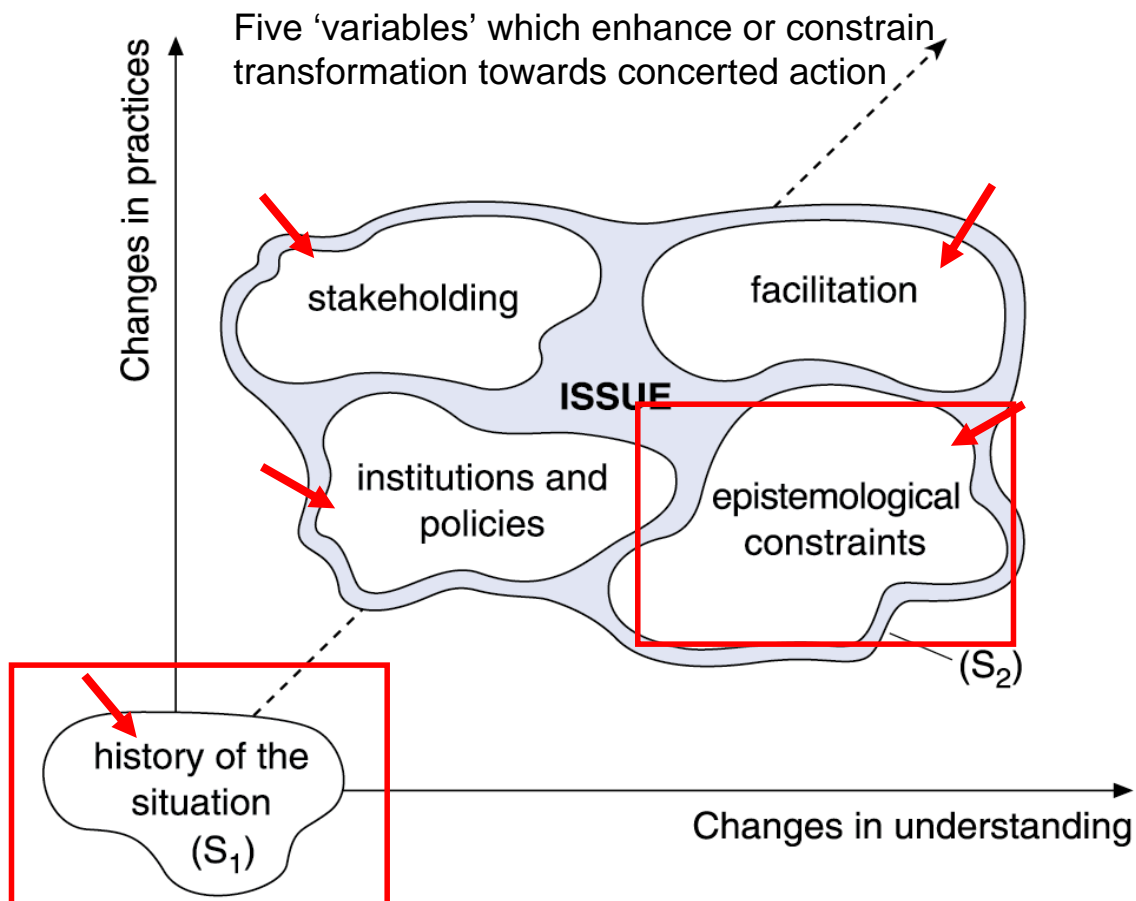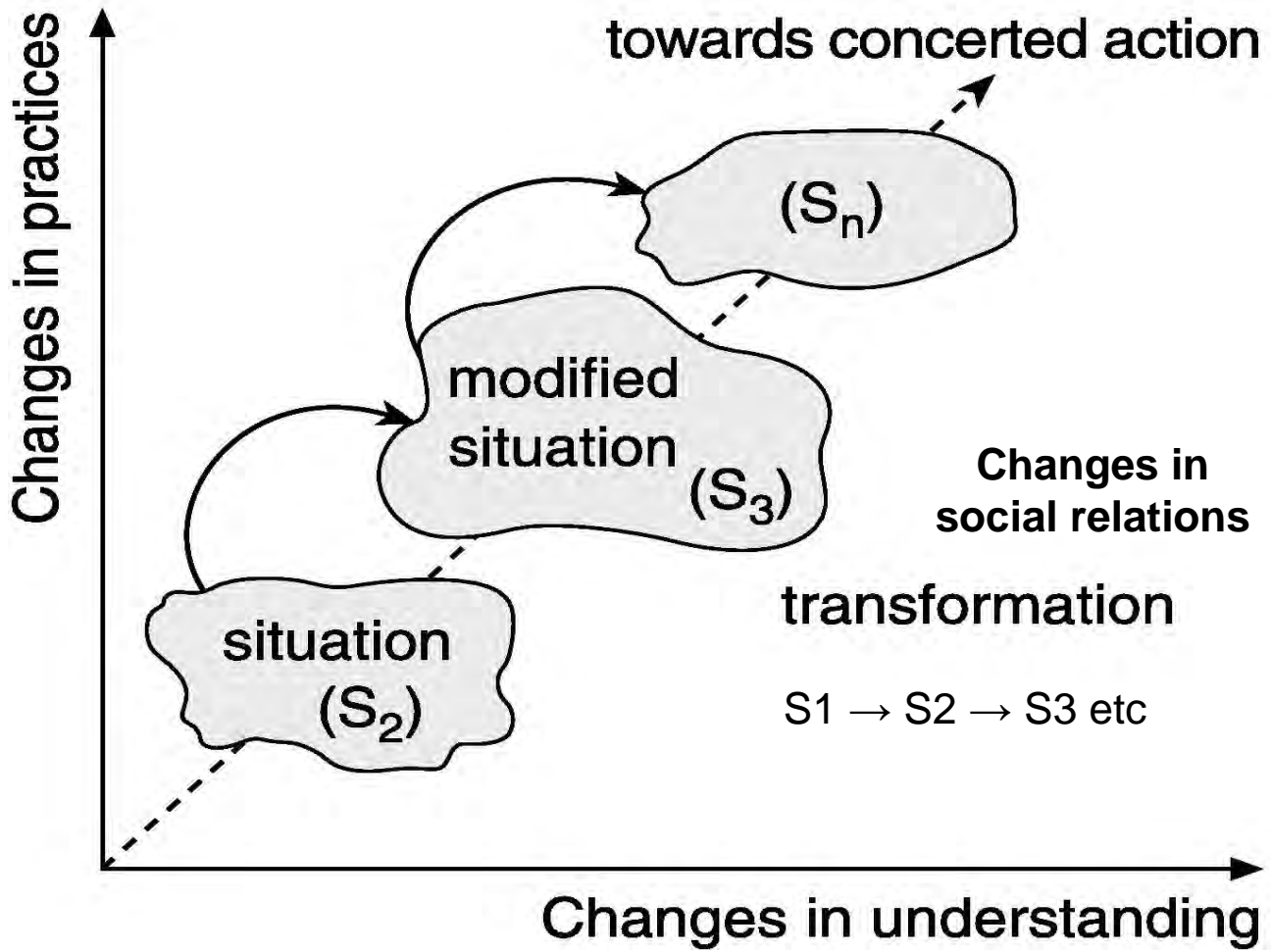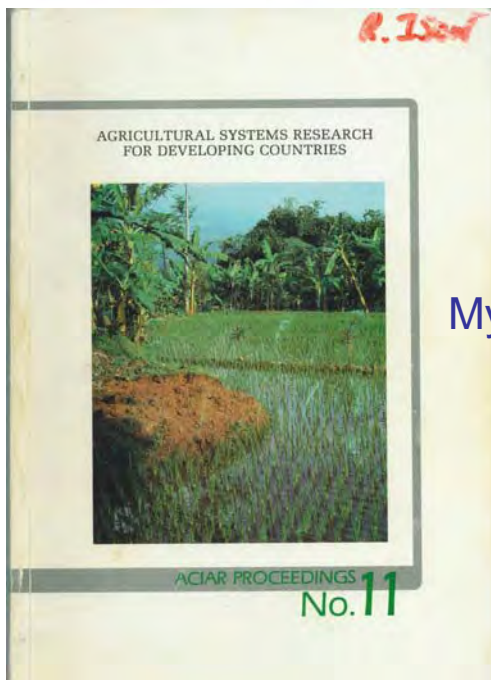
My talk as an invitation

- **in the time that I have I offer *a framing* for an inquiry …which as it is an invitation, you may accept…. or not**

- **my framing originates from my**
    - > experiences from a 26 year engagement with the IFSR community
    - > *'Systems'* research and scholarship
        - – a heuristic arising from empirical research

Changes in practices

towards concerted action

(S_n)

modified situation (S_3)

situation (S_2)

Changes in social relations

transformation

$S1 \rightarrow S2 \rightarrow S3$ etc

Changes in understanding

Changes in practices

Five 'variables' which enhance or constrain transformation towards concerted action

stakeholding

facilitation

ISSUE

institutions and policies

epistemological constraints

(S_2)

history of the situation (S_1)

Changes in understanding

Slide 1

AGRICULTURAL SYSTEMS RESEARCH
FOR DEVELOPING COUNTRIES

R. Ison

ACIAR PROCEEDINGS No. 11

Systems-Oriented Research in Agriculture and Rural Development

International Symposium
Montpellier, France – 21-25 November 1994

Lectures and debates

My own history of inquiry

1985

1994   www.monash.edu

Slide 2

Second Edition

Agronomy of Grassland Systems

C.J. Pearson   R.L. Ison

COW UP A TREE
Knowing and Learning for Change in Agriculture
Case Studies from Industrialised Countries

Editors

LEARN Group
(Learning in Agriculture Research Network):
M. CERF, D. GIBBON, B. HUBERT, R. ISON, J. JIGGINS,
M. PAINE, J. PROOST, N. RÖLING

SCIENCE UPDATE

INRA EDITIONS
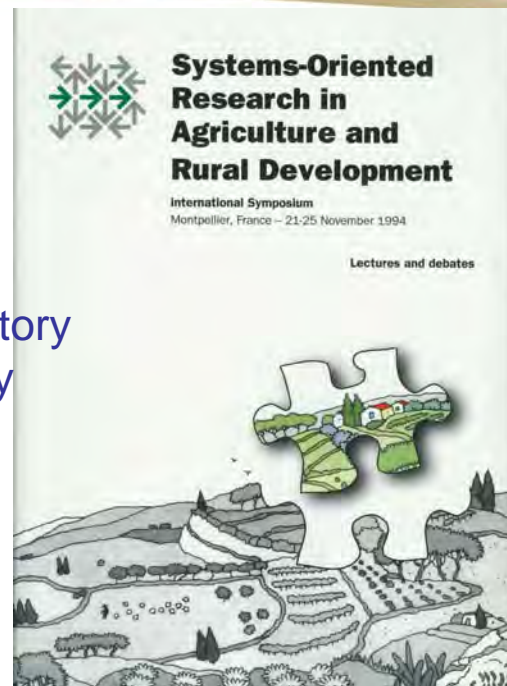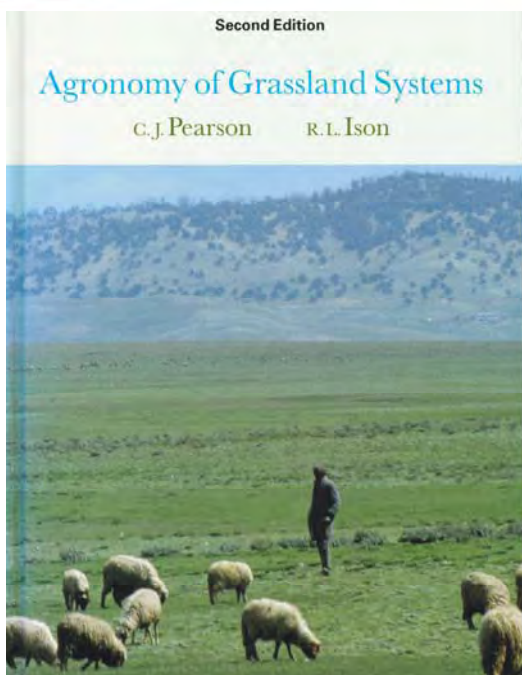
2000

1989 + 1997   www.monash.edu

Ray Ison

2010

Ison

Systems Practice:
How to Act in a Climate-Change World

Systems Practice:
How to Act in a
Climate-Change World

Systems Practice: How to Act in a Climate-Change World

Ison

ISBN 978-1-84996-124-0

Springer
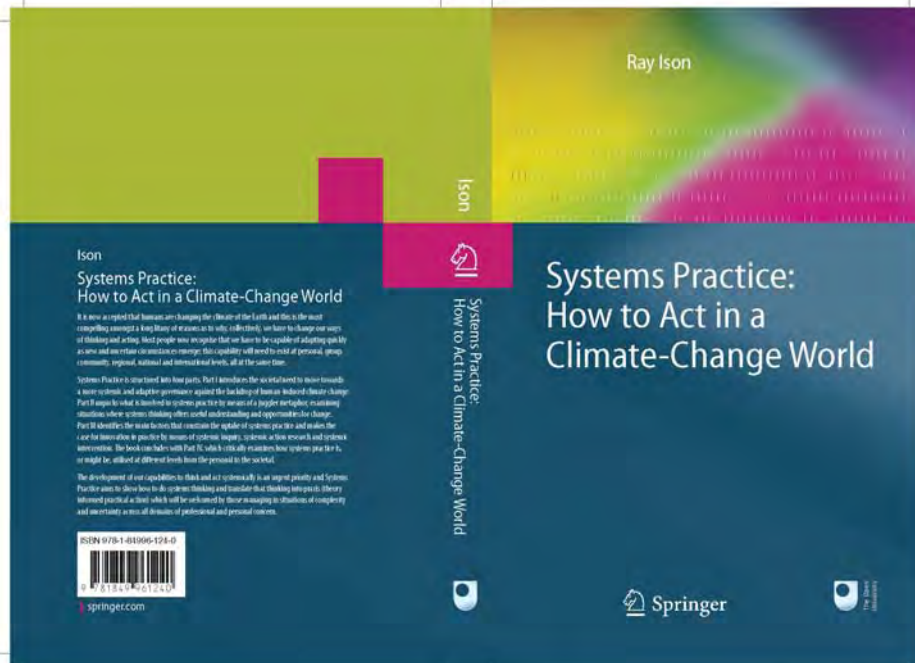
What do we do when we do what we do?

- **relational thinking**
- **understand adaptation**
- **research practice**
- **do Systems**

Relational thinking: How does walking arise as a practice?

Metaphors for 'adaptation'

- **There are two understandings profoundly different:**
    - adaptation as 'fitting into' as when doing a jigsaw
        - adaptation to…
    - adaptation as comfortable shoes
   - adaptation with …
        - i.e. adaptation as co-evolution

Some 'basics' about 'research' as a form of practice

- **practice as a relational dynamic**
- **traditions of understanding of the researcher(s)**
- **choices that can be made**
  - – theoretical frameworks (F)
  - – about situations (S)
  - – researcher/practitioner (P) modes
  - – about method/methodology (M)
- **research as an effective (emergent) performance**

Understanding research practice …?
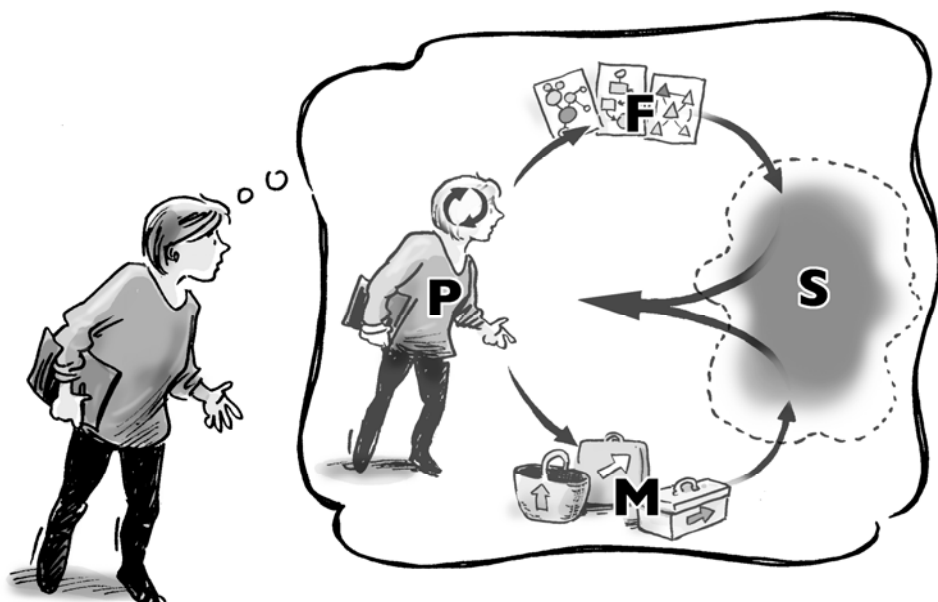
P = practitioner

F = framework of ideas/theory

S = situation

M = method or methodology

What 30 years of cognitive research suggests?

P

Table 1 Some contrasting features between the traditional Western conception of the disembodied person with that of an embodied person

Traditional Western conception of the disembodied person	The conception of an embodied person
The world has a unique category structure independent of the minds, bodies or brains of human beings (i.e. an objective world).	Our conceptual system is grounded in, neurally makes use of, and is crucially shaped by our perceptual and motor systems.
There is a universal reason that characterizes the rational structure of the world. Both concepts and reason are independent of the minds, bodies and brains of human beings.	We can only form concepts through the body. Therefore every understanding that we can have of the world, ourselves, and others can only be framed in terms of concepts shaped by our bodies.

P

cultural and biological history

tradition of understanding
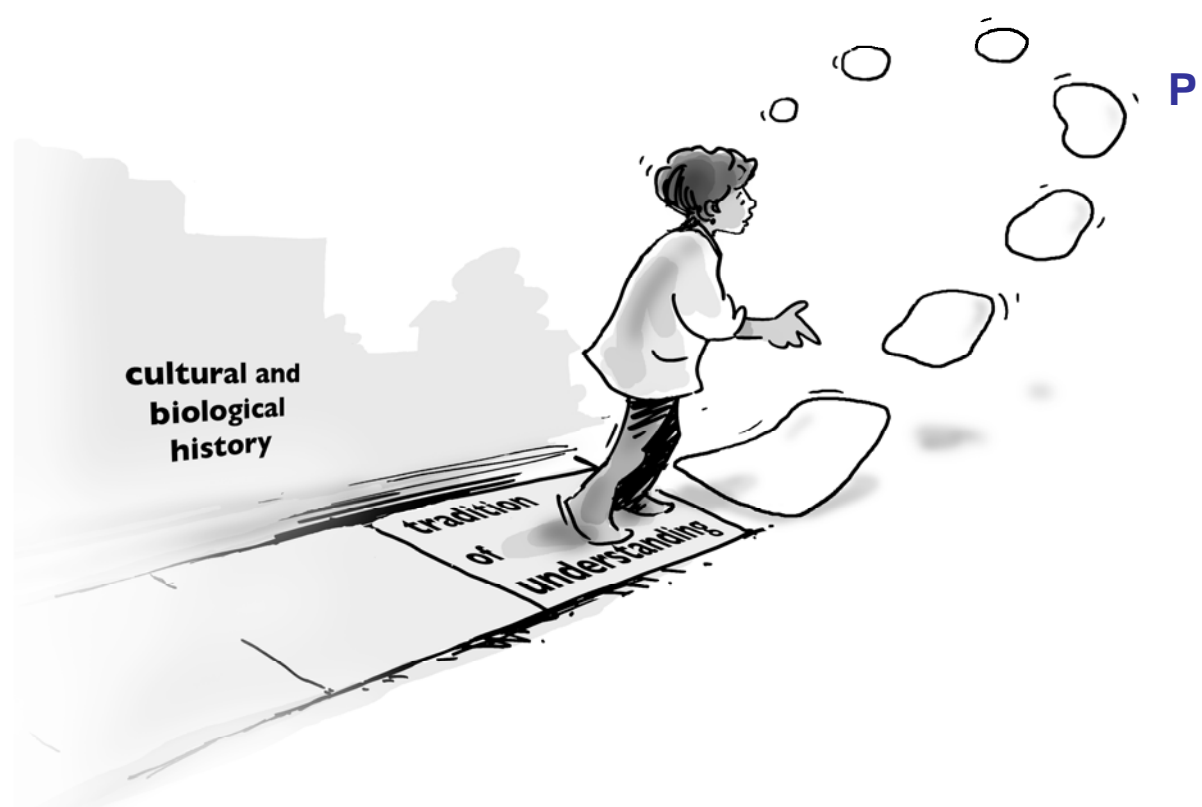
Framing of sustainability research

- a premise we have used is that it is very useful to view sustainability as an emergent property of stakeholder interaction, and not a technical property of the ecosystem.

Monash Sustainability Institute

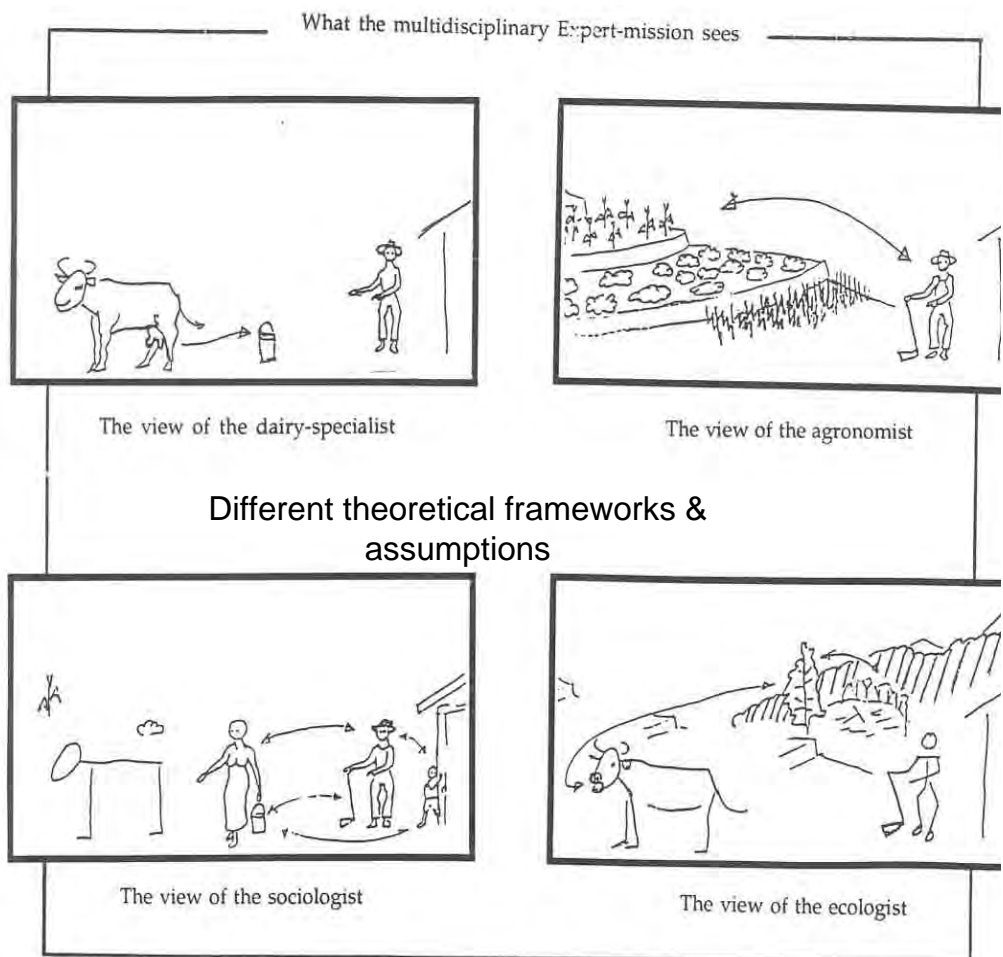# Choices about 'framings' for situations

S

Is a concert made up from a collection of different 'disciplines' collected in the same room?

Is it additive, as in a final report?

Bringing multiple perspectives to a joint task?

What the multidisciplinary Expert-mission sees

The view of the dairy-specialist

The view of the agronomist

Different theoretical frameworks & assumptions

The view of the sociologist

The view of the ecologist

Too often the focus is on the M

M

FRAMEWORKS

F

LEARNING

SITUATION

METHODOLOGY

M

S

:du
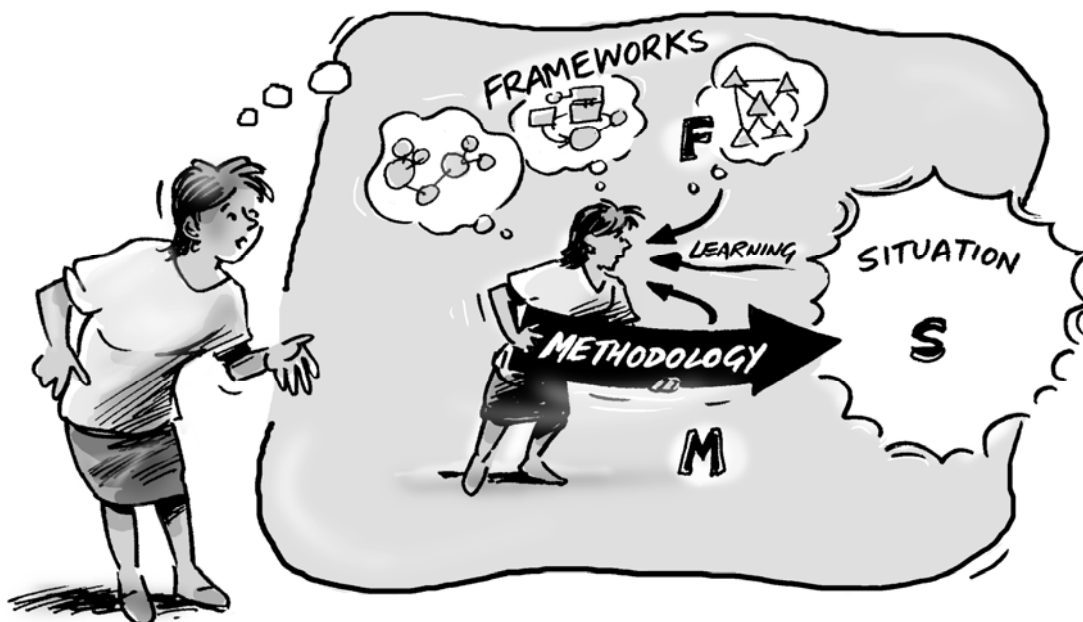
Technology is rarely understood in relation to practice

An emergent performance

….what makes systems practice?

Some 'basics' about 'Systems'

- **the two adjectives from 'system'**
- **exploring 'Systems' intellectual lineages**
- **choosing 'system' or 'situation'**
  - a 'system of interest'
  - results from relational thinking
- **key concepts common to different lineages**

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- **The systemic, systematic duality**

Development of Systems Approaches
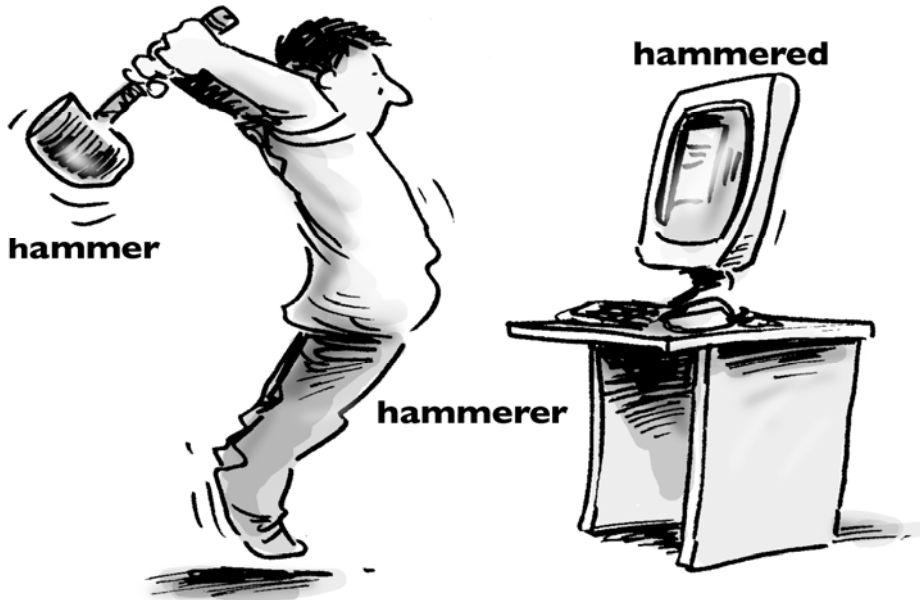
An emergent performance
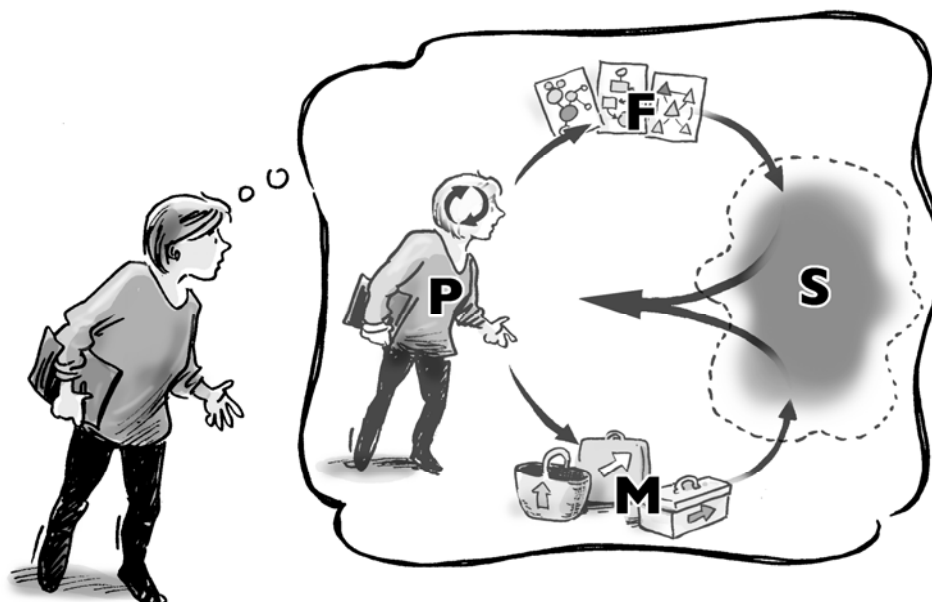
….what makes systems practice?

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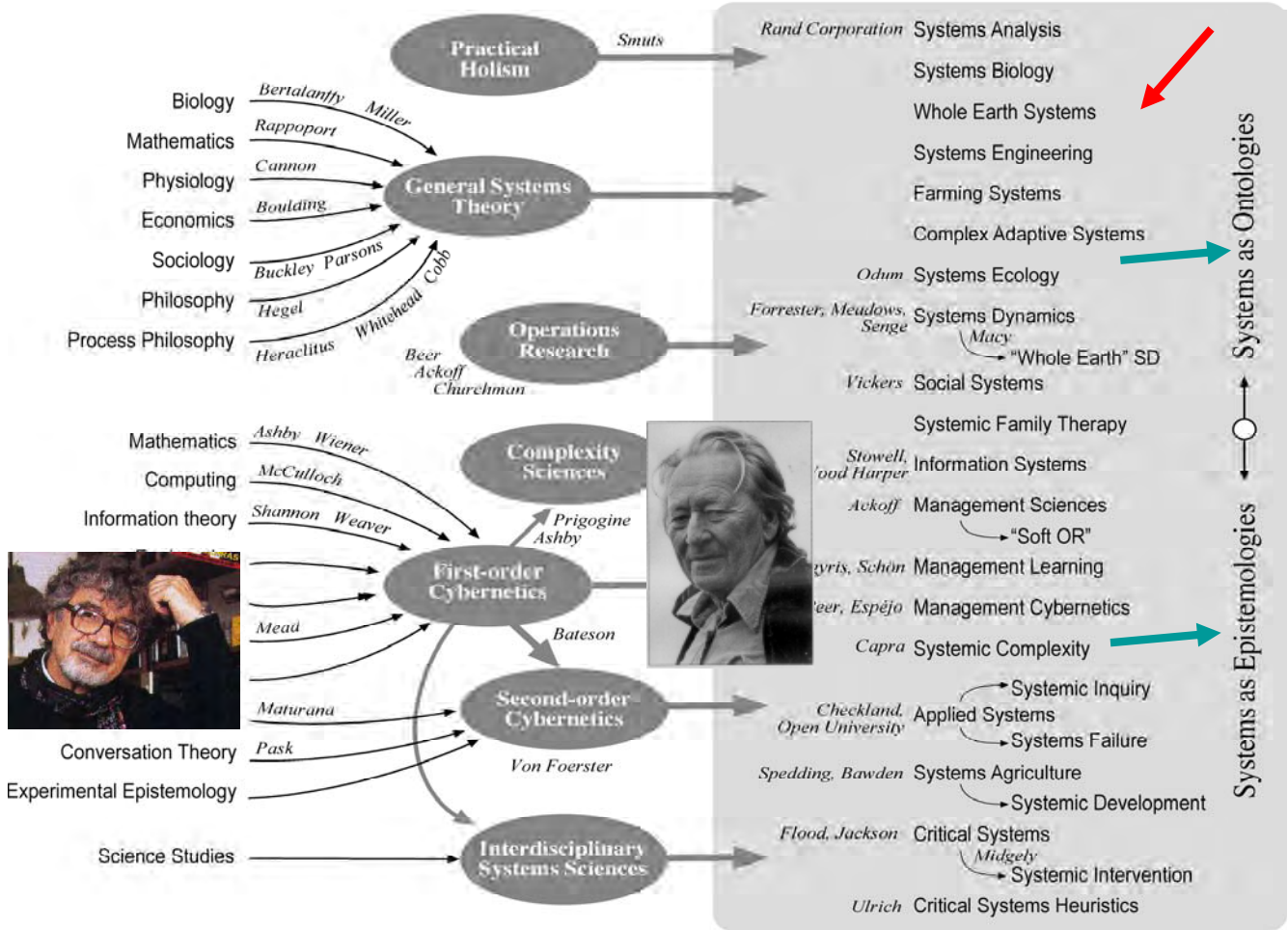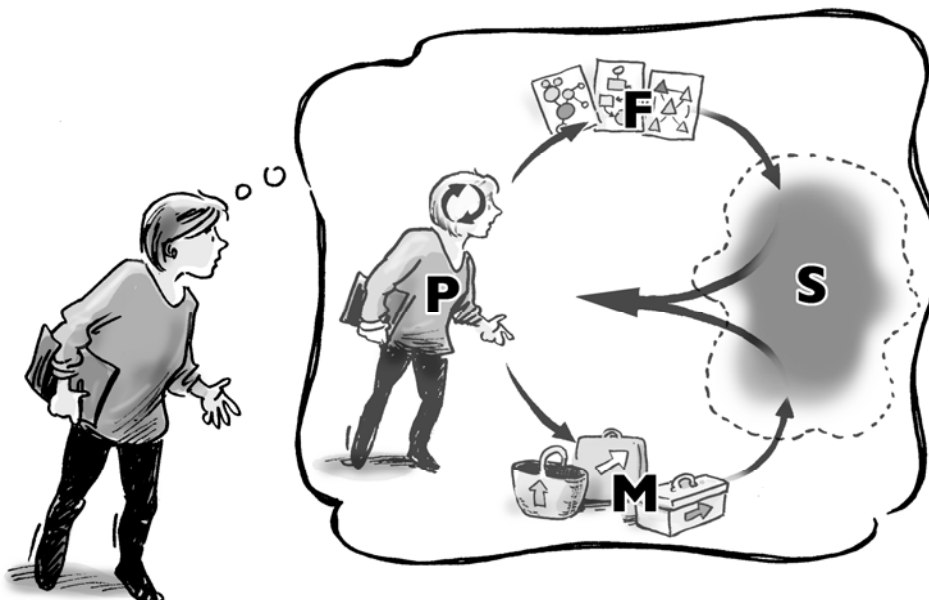
Levels of organisation
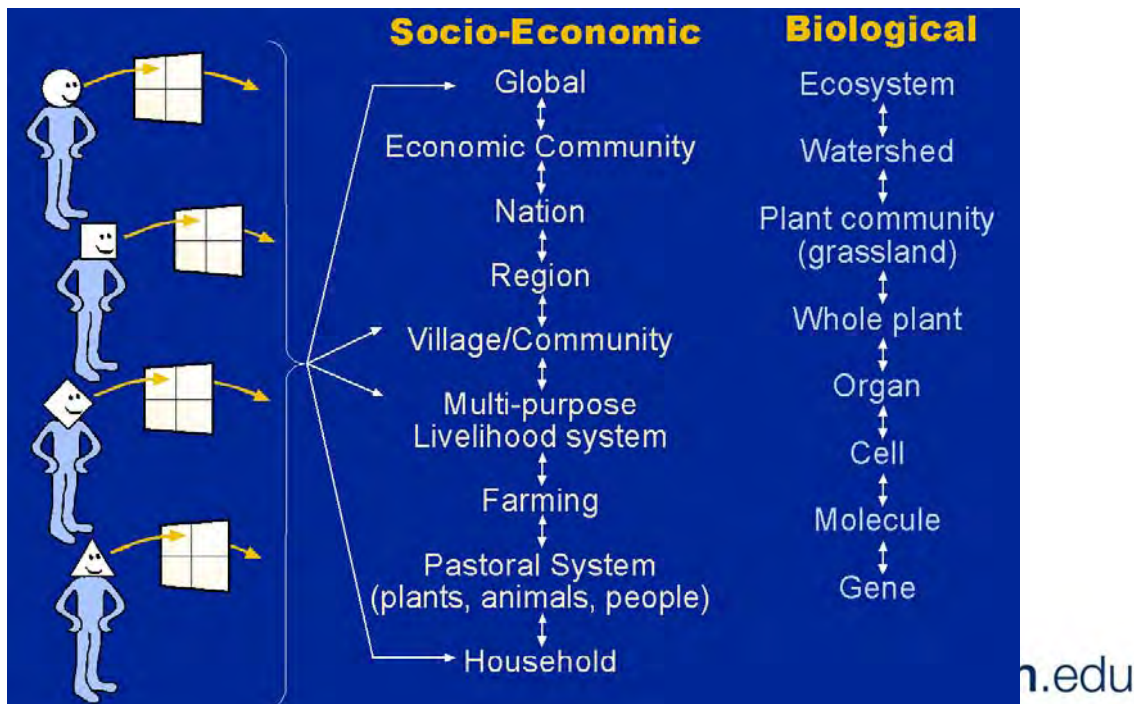
Levels of organisation: hierarchy, layered structure

- **E.g. the debate on GMOs**
  - within the category GMOs I distinguish two different systems - '*a system of within-species gene manipulation'* e.g. traditional plant breeding
  - '*a system to introduce novel, alien genes into an organism'* - transgenics

Causal Loop Mapping Example: Holstein cows for dairy productivity—"seeking the wrong goal"?

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Note the consequence in relative magnitude of delays between proportion of Holstein cows in herd and, on the one hand, average milk production per head, and on the other, average cow size across herd!

S = same
O = opposite

Causal Loop Mapping Example: Holstein cows for dairy productivity—"seeking the wrong goal"?

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Causal Loop Mapping Example: Holstein cows for dairy productivity—"seeking the wrong goal"?

Situation? or System?

A choice to be made

Systemic
(epistemologies)

Systematic
(ontologies)
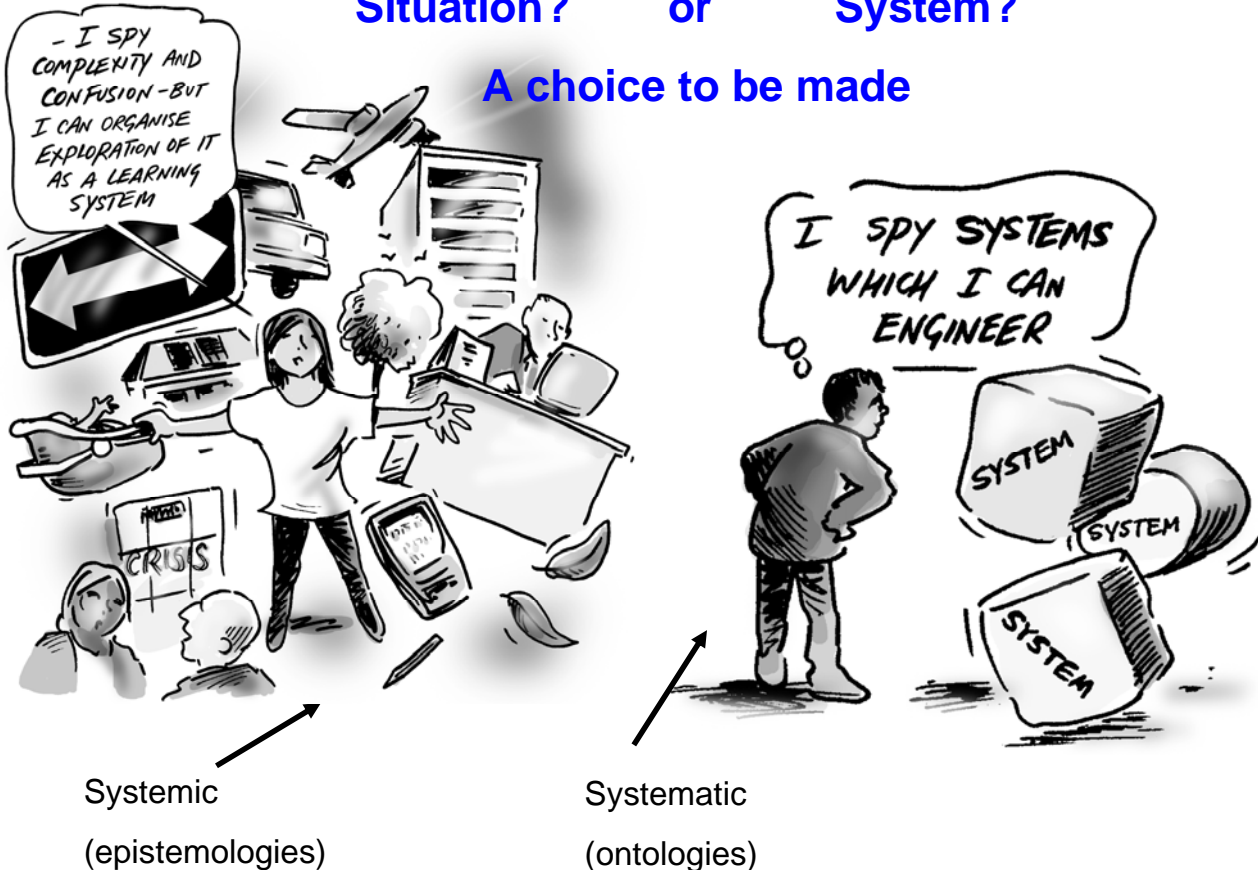
? of purpose

For an aware systems practitioner a system of interest is an epistemological device – a way of knowing about a situation

environment

boundary

system

subsystems

Ray Ison

Systems Practice: How to Act in a Climate-Change World
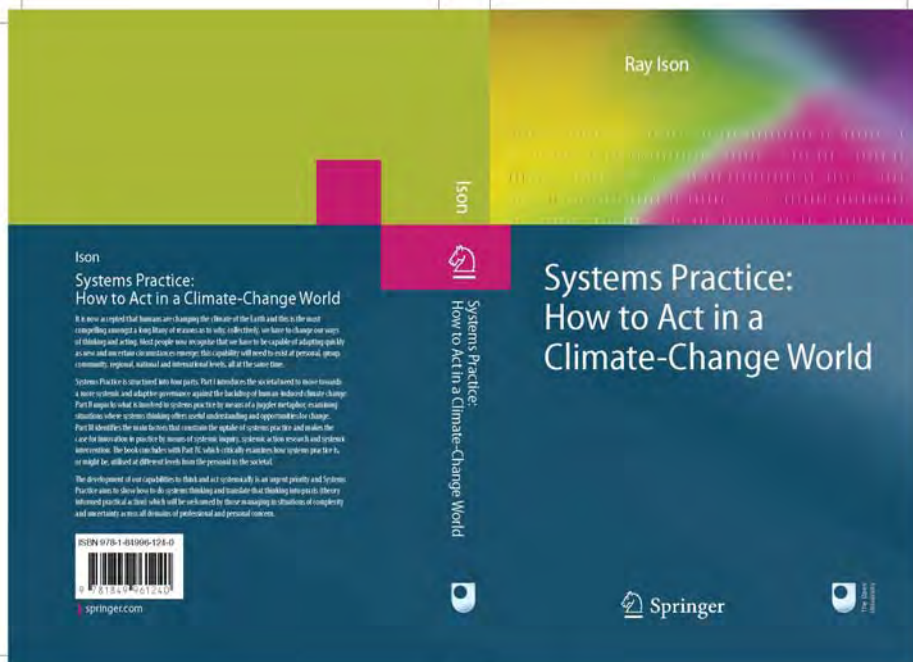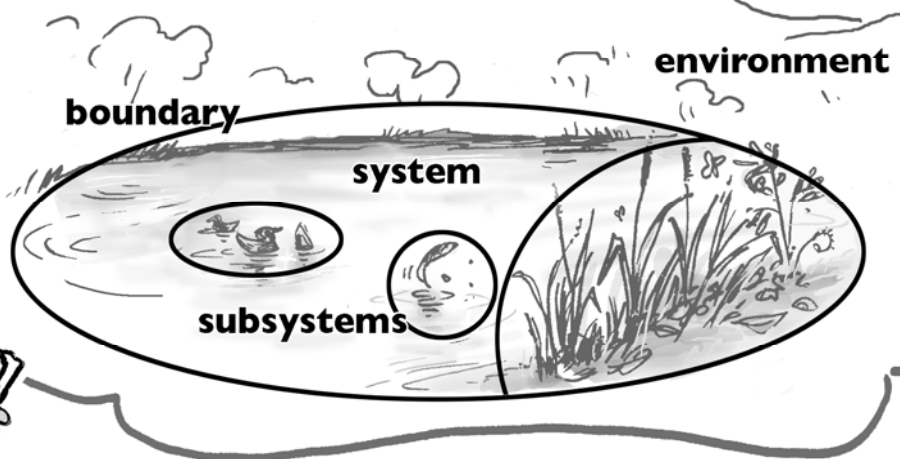
Four themes from my book which I wish to propose as relevant to this situation

What narrative can be constructed?

- appreciating the nature and scope of the contribution that Systems understandings and practices have already made

- Building sustainable rural future: The added value of systems approaches in times of change and uncertainty

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Conceptual models/typologies

Agro-ecosystems analysis
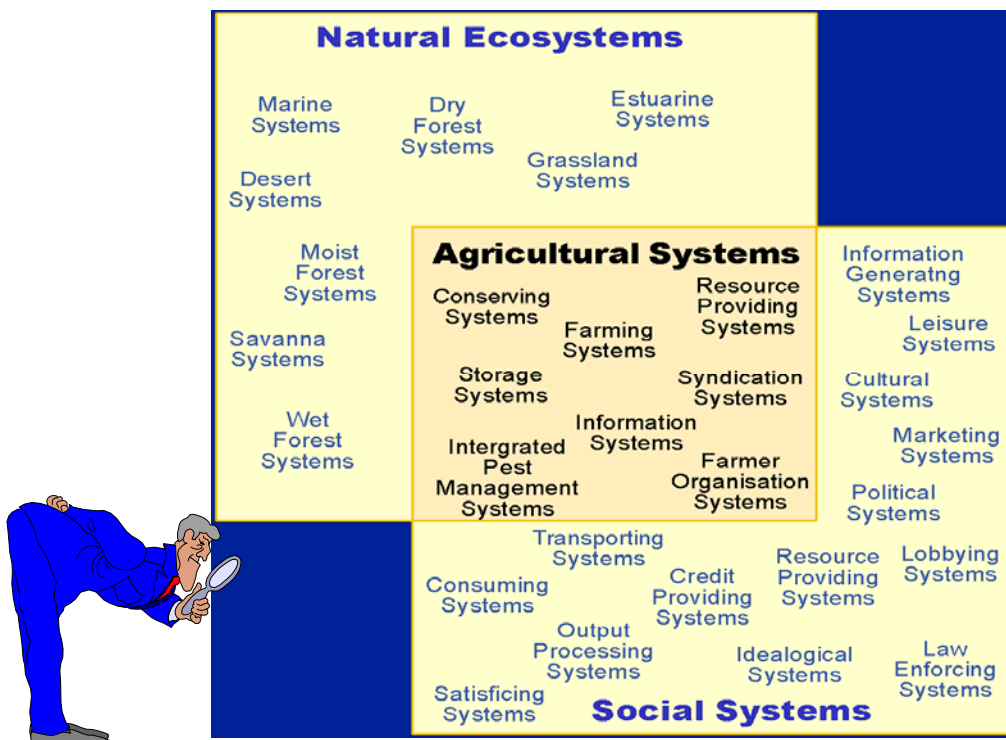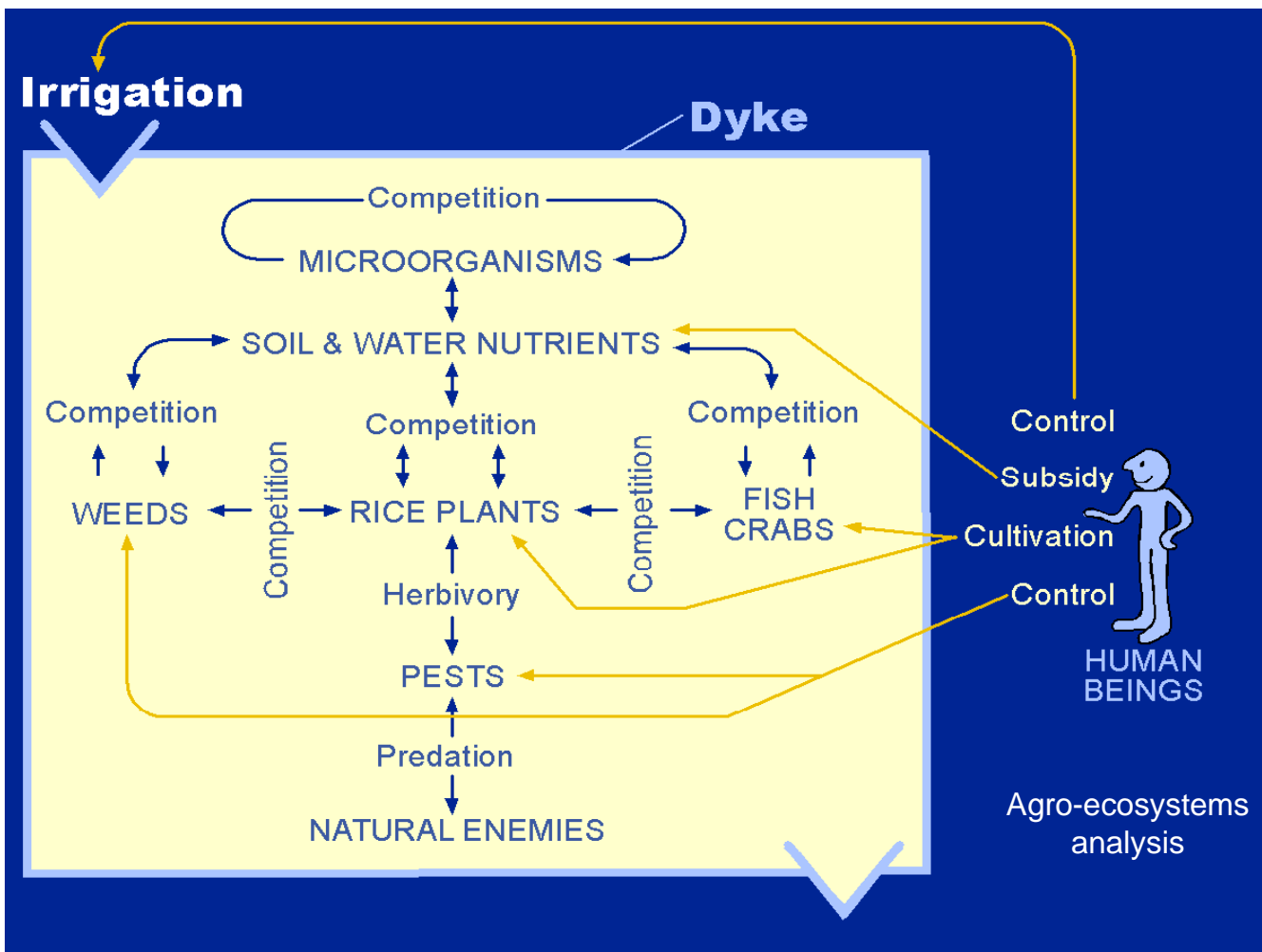
Agroecosystems as human activity systems: Hawkesbury
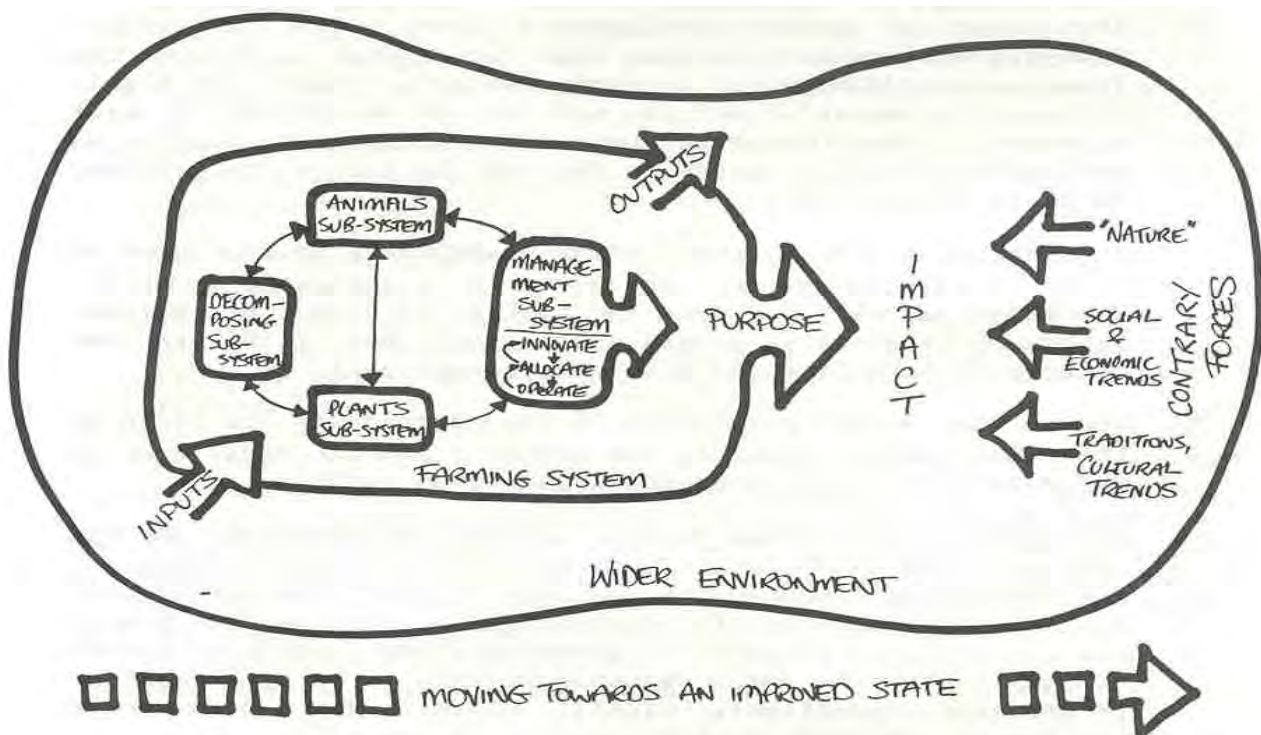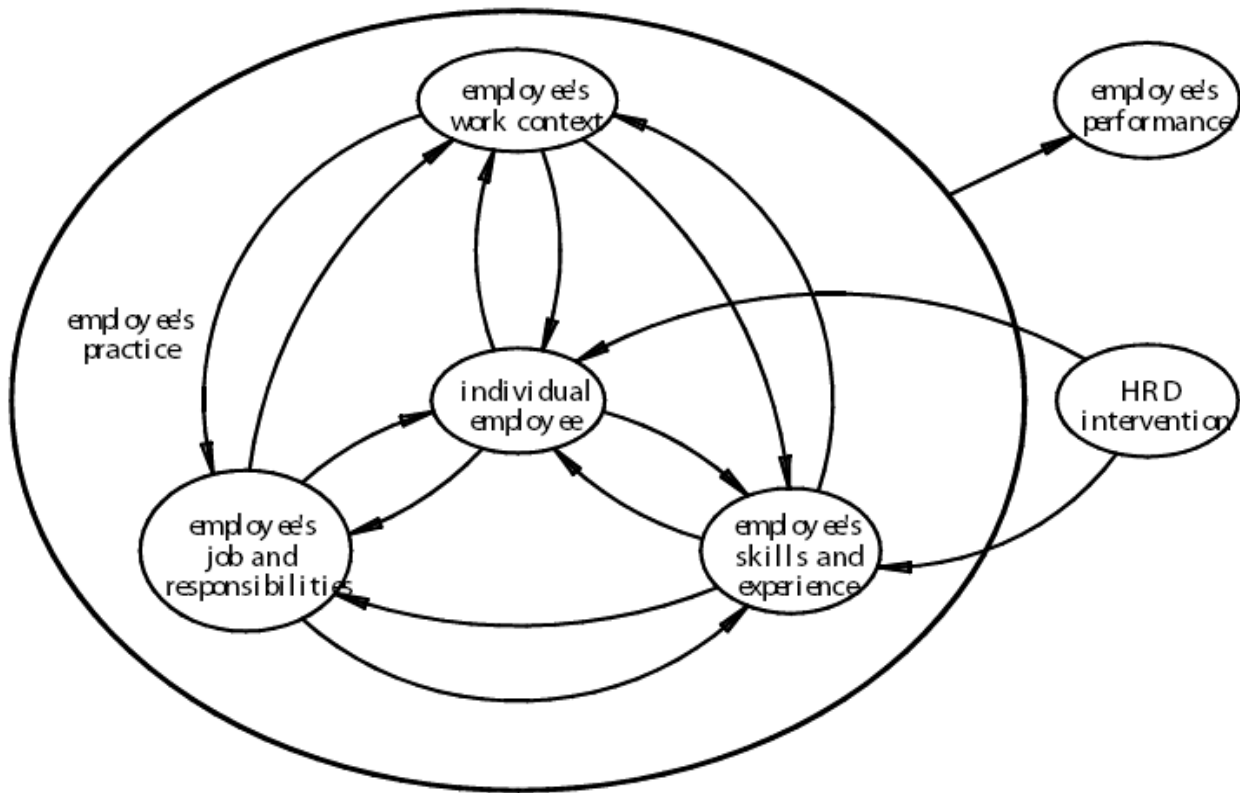
Influence diagram of the impact of an HRD intervention on the employee's system of practice

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

An ethics of practice – opening up more choices in a climate-change world

- **fostering the circumstances for epistemological awareness and researcher responsibility**
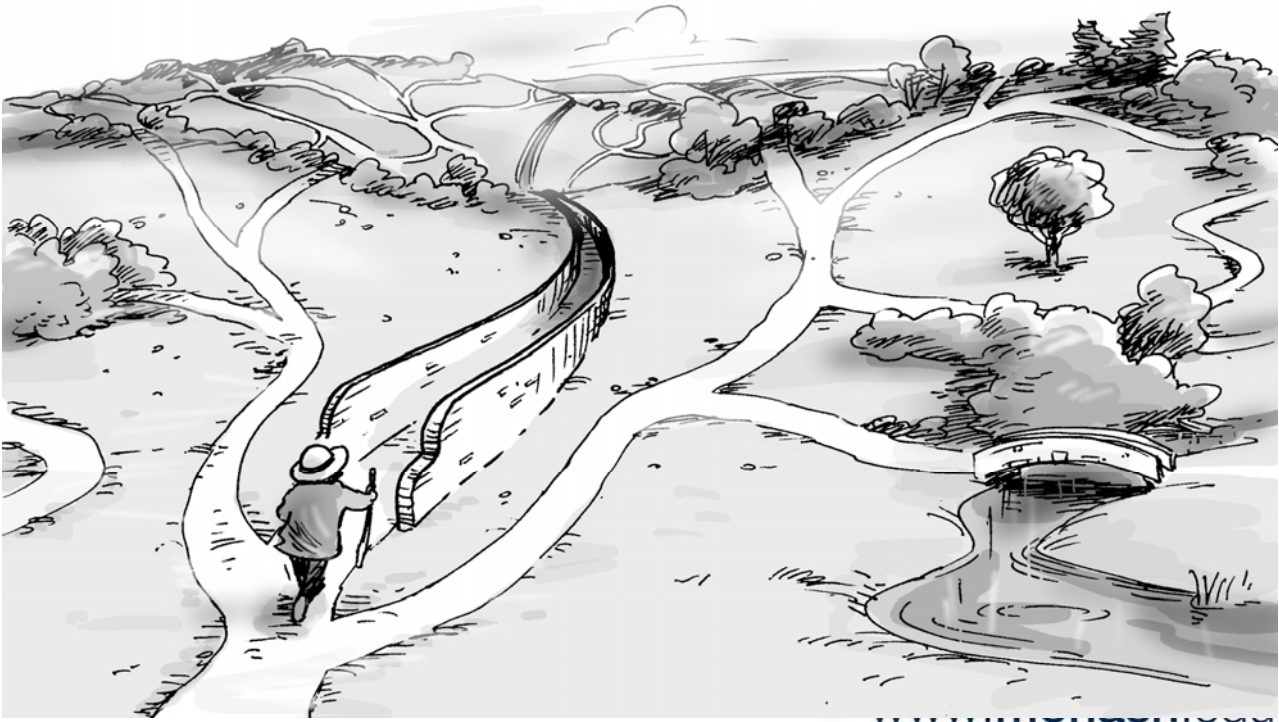
Developing reflexive systemic praxis skills

- **addressing the question 'what do we do when we do what we do?**
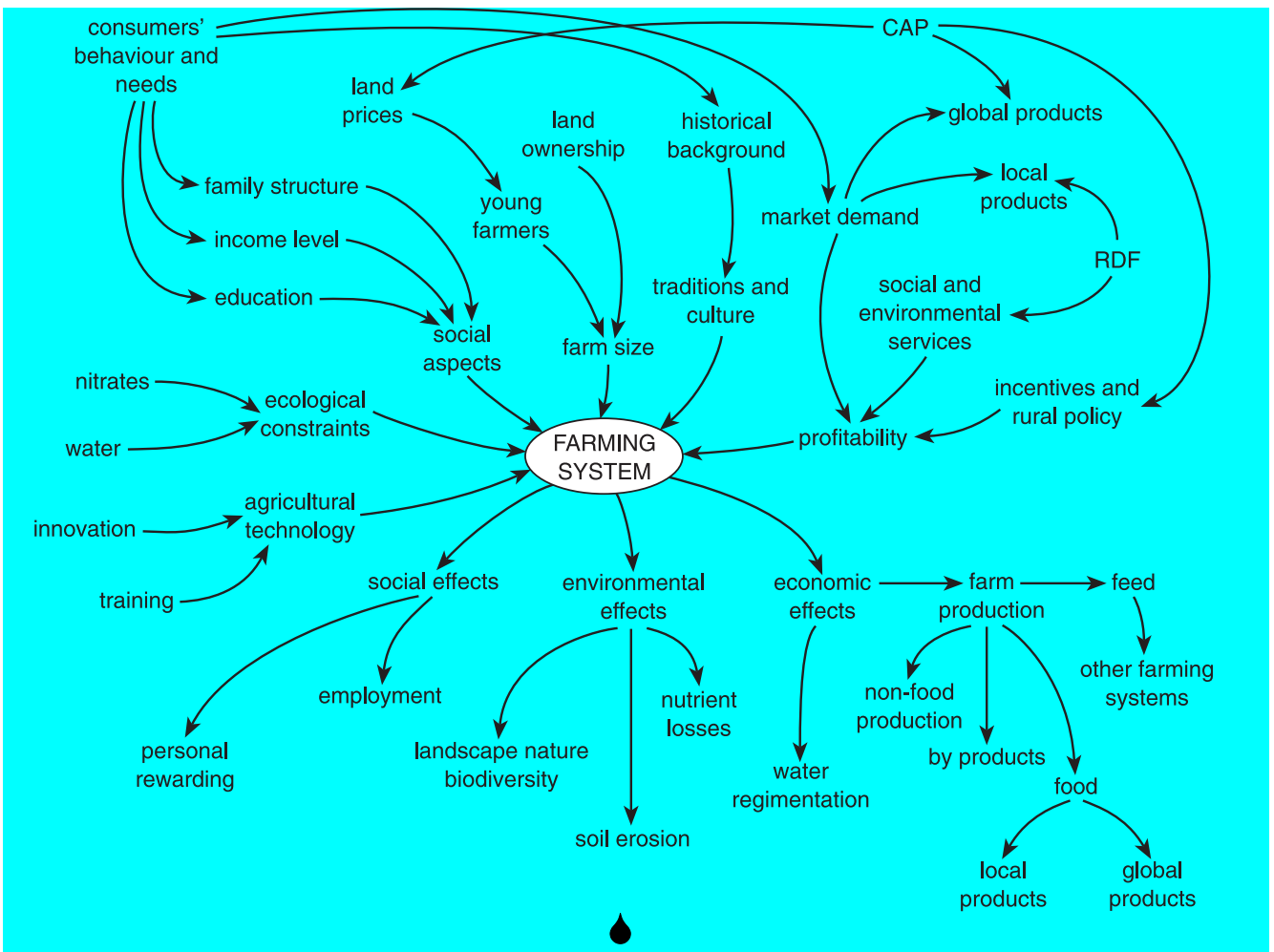
SLIM community theatre, Serra de Conti. Italy

Institutionalizing systems approaches

- **recognizing and addressing factors that constrain the flourishing of Systems as a domain of inquiry and practice**

Five 'settings' that constrain systems practice

- **(i) the pervasive <u>target mentality</u> that exists in many countries and contexts**
- **(ii) living in a '<u>projectified world</u>'**
  - <u>Systemic inquiry</u> as an antidote
  - Starts by accepting <u>uncertainty</u>
- **(iii) '<u>situation framing</u>' failure**
- **(iv) an apartheid of the <u>emotions</u>**
- **(v) institutional complexity**

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Some of the institutional complexity faced by a Victorian water Catchment Management Authority

We can be confronted by tremendous institutional complexity

State Gov.
Labor Party, Liberal Party, National Party, Greens, Independents, Legislative Assembly, Legislative Council, Executive

State ministries
EPA, VCMC, Ministerial Advisors, Treasurer, Victorian Landcare Council, Minister for Water, Aboriginal Affairs Victoria, Minister for Environment, DSE, DPI, Essential Services Commission, DPCD, 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, Rio Convention, RAMSAR, IUCN, Kyoto Protocol

RESEARCH & EDUCATION
University of Melbourne, Charles Sturt University, LaTrobe University, TAFE, Monash University

KNOWLEDGE
MAFRI, Land & Water Australia, Research Int., eWater CRC, CRC Irrigation Futures, CRCs, ARI, DRDC, MDFRC

INDUSTRY ASSOCIATIONS
International Committee on Irrigation and Drainage, International Water Association, Australian Water Association, Irrigation Australia Limited, RBNS

LOCAL SUPPORTING/INTEREST GROUPS
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 Tawarrunga, Riverine Area Consultative Committee, Timber Communities Australia, Native Fish Recovery Teams, Trust for Nature, Birds Australia, Water Service Committees, Consultative Committee, VFISH, NAFI, Water Quality Emergency Committee, GVAC, TO R.A.P, Barmah Preservation League, Environment Victoria

NEXT DOOR
Melbourne Water, NC CMA, NE CMA, River Murray Water, Murray CMA

REGIONAL PARTNERSHIPS
Regional government agencies
GVW, GMW, DSE, DPI, EPA, NVIRP, GBCMA, Regional Development Victoria, Parks Vic

GUIDELINES, PLANS, PERMITS & ALLOCATIONS
Goulburn water management plans, Groundwater management plans, Local area plans, New Irrigation development guidelines, Irrigation allocations, Planning regulations for earthworks, Catchment operational plans, Earth moving permits, Special area plans for water catchments, Bulk entitlements, Vegetation clearance permits, Local government plans, The Living Murray, Watering plans – The Living Murray, Cfoc/VIF/NRIP business plan, SEA Plans
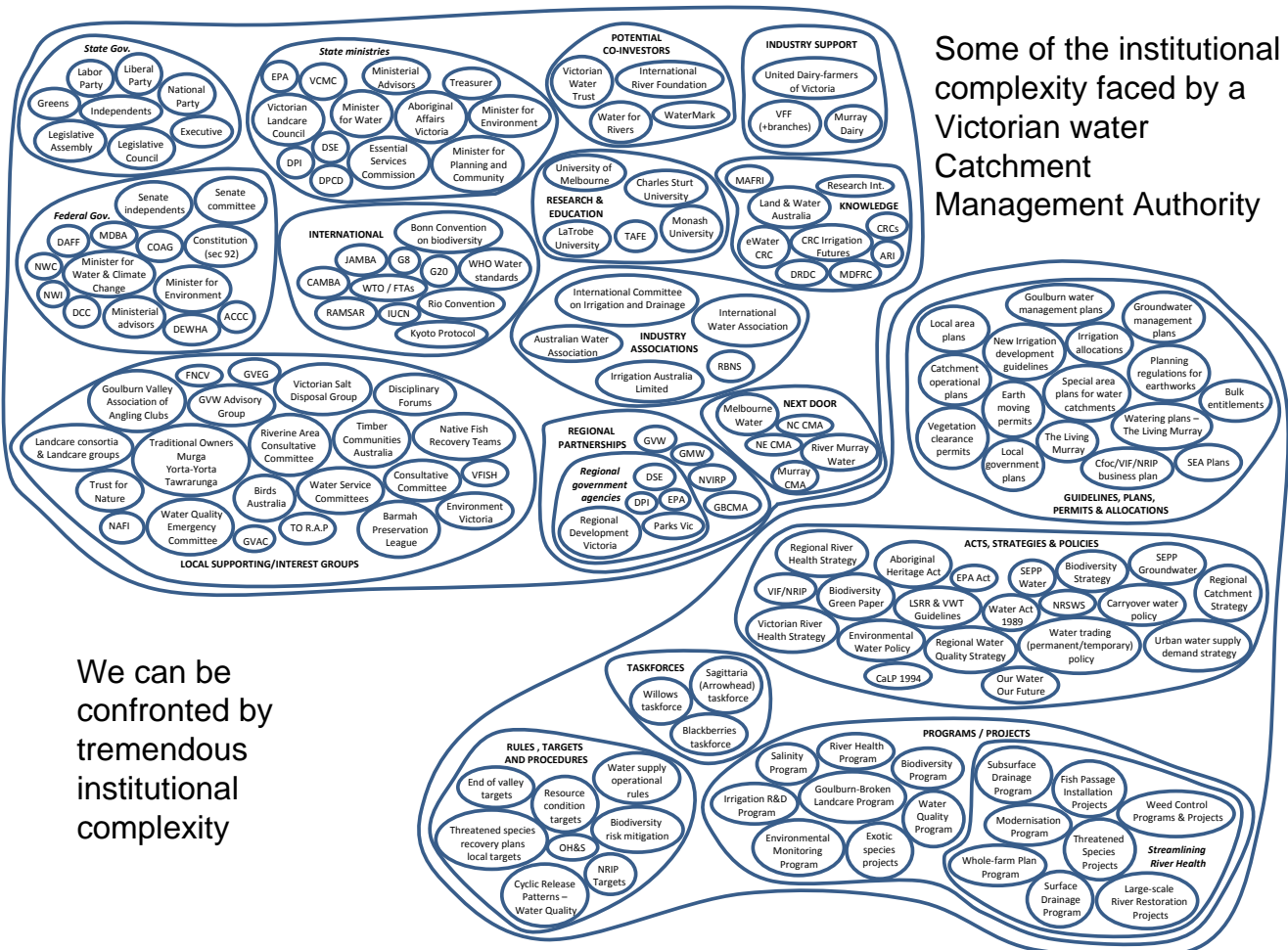
ACTS, STRATEGIES & POLICIES
Regional River Health Strategy, Aboriginal Heritage Act, EPA Act, SEPP Water, Biodiversity Strategy, SEPP Groundwater, Regional Catchment Strategy, VIF/NRIP, Biodiversity Green Paper, LSRR & VWT Guidelines, Water Act 1989, NRSWS, Carryover water policy, Victorian River Health 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, Water supply operational rules, Resource condition targets, Threatened species recovery plans local targets, Biodiversity risk mitigation, OH&S, Cyclic Release Patterns – Water Quality, NRIP Targets

PROGRAMS / PROJECTS
Salinity Program, River Health Program, Biodiversity Program, Subsurface Drainage Program, Fish Passage Installation Projects, Irrigation R&D Program, Goulburn-Broken Landcare Program, Water Quality Program, Modernisation Program, Weed Control Programs & Projects, Environmental Monitoring Program, Exotic species projects, Whole-farm Plan Program, Threatened Species Projects, Surface Drainage Program, Large-scale River Restoration Projects, *Streamlining River Health*

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

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Systems thinking and practice which attends to perspectives, multiple partial views, assumptions, framings, traps….and much more… still has much to contribute

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