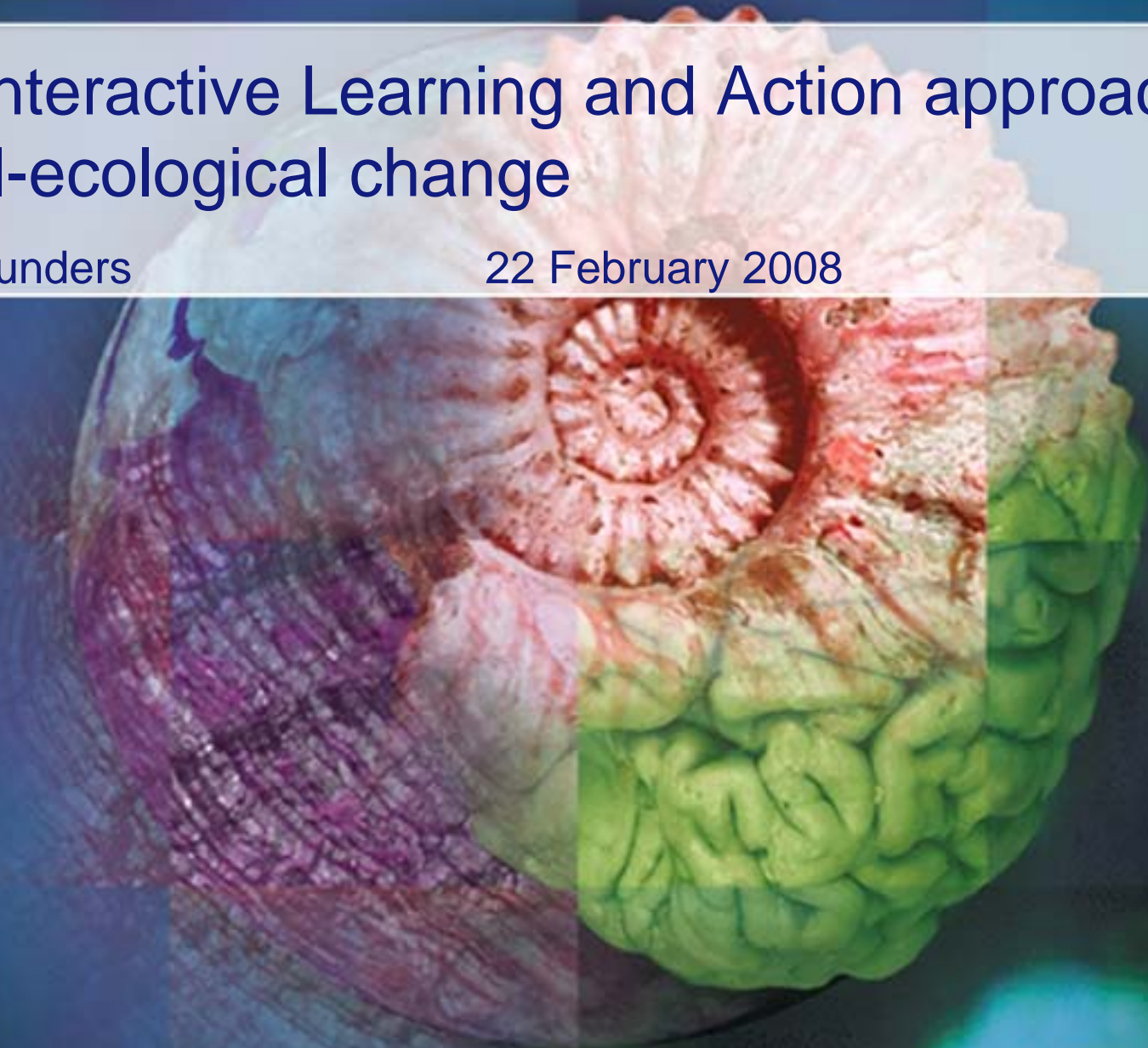


# The Interactive Learning and Action approach to social-ecological change

Joske Bunders

22 February 2008

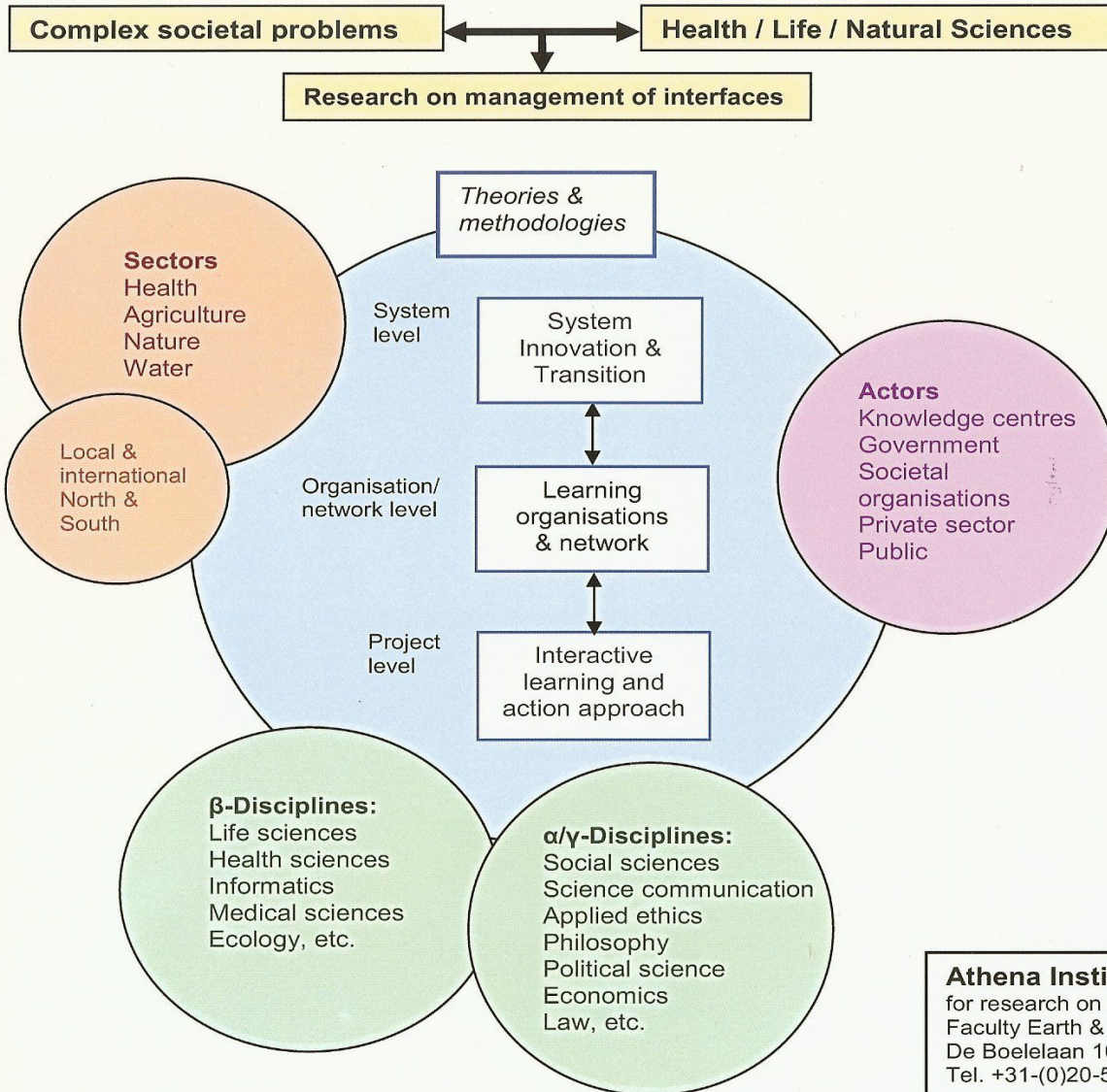


1. The Interactive Learning & Action Approach
2. Issues in Transdisciplinary Research
3. Learning from TransForum – transition programme for sustainable development of agriculture
4. Conclusions



- Athena Institute is part of the Faculty of Life and Health Sciences at the Vrije Universiteit Amsterdam
- Mission Athena Institute: To develop a scientific knowledge base that can be used to organize an open dialogue between science and society in order to address complex societal issues (with a life/health science component) in a sustainable way.
  - 20 years of experience with Transdisciplinary Research
  - Projects in the fields of agriculture, health and environment both in The Netherlands and developing countries





## Examples research themes and topics

### Genomics & Society

- Ecological genomics: interactive research agenda setting, science communication and mode-2 transition
- Food genomics: interactive research agenda setting
- Genomics and tomato: interactive chain management
- Genomics in water management: mode-2 transition
- Role of value frameworks in societal debate

### Health

- Patient participation in biomedical research: mode-2 transition
- Interactive research agenda setting on asthma, diabetes, burns, mental disability
- Transitions in health care: issues of sustainable development
- Transitions in health research: towards a problem-oriented health research system
- New business models: codes of conduct

### Agriculture

- Interactive agenda setting on agro-biotech
- Tailor made biotechnology
- Farming for health: evidence-based health practices at farms
- Monitoring and evaluation of transitions in agriculture

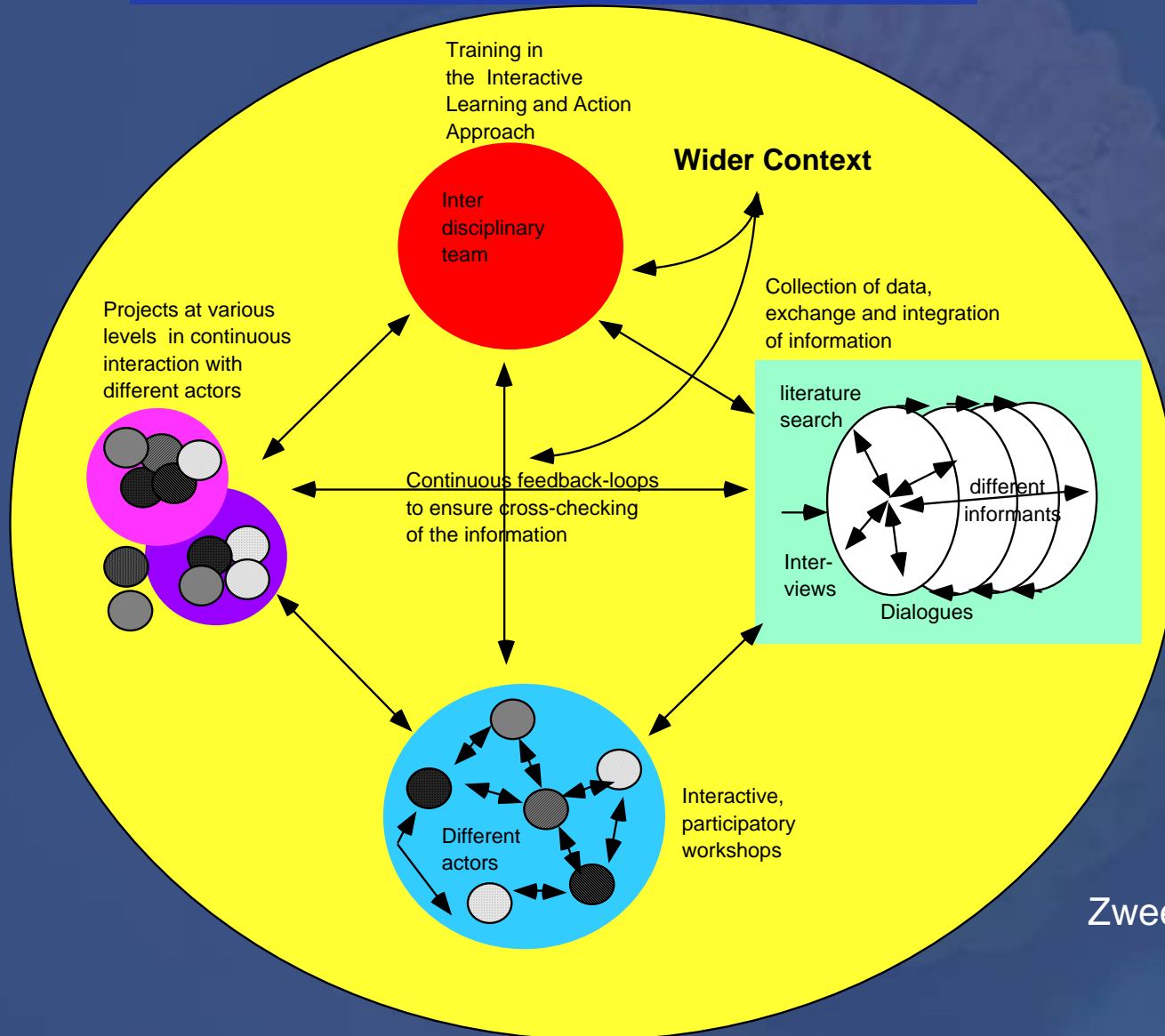
## Athena Institute

for research on innovation and communication in health and life sciences  
Faculty Earth & Life Sciences, Vrije Universiteit Amsterdam  
De Boelelaan 1081, 1081 HV Amsterdam, The Netherlands  
Tel. +31-(0)20-598 7031, website: [www.athena-institute.nl](http://www.athena-institute.nl)

# The Interactive Learning and Approach approach - principles

- End-users have a prominent role in decision making
- A shared vision is central to the process
- Trust is developed
- Mutual learning is stimulated
- Network building is part of process
- Knowledge (different sciences, practice) is integrated

# The Interactive Learning and Action approach - activities



Zweekhorst et al. 2002

# Interactive Learning and Action approach - conditions



(Broerse 2000,  
Zweekhorst 2004)



- Besides conducting Transdisciplinary Research ourselves, we also monitor and evaluate other projects and provide training and coaching
  - Help projects with Transdisciplinary Research using our framework
- AND
- Enrich our framework through closely observing and monitoring practice
  - ILA monitoring aims to contribute to learning within, between and from Transdisciplinary Research Projects
  - Enhance learning by developing new monitoring tools: Dynamic Learning Agenda, AV learning histories, eye-opener workshops





What can we learn from a large transition program stimulating Transdisciplinary Research for sustainable development of agriculture in the Netherlands?

# TransForum (2005-2010)

Aims to stimulate:

- Sustainable development of agriculture
- Transition from Agriculture 'Knowledge Infrastructure' (KIS) to 'Agro Innovation System' (AIS)

By supporting:

- 30 innovative projects (IP's)
- 30 scientific projects (SP's)
- Learning from and between projects (LP's)

Overall budget: 60 mln Euro

(30 mln funding (BSIK) + 30 mln matching)

## TransForum is based on five hypotheses:

- *Sustainable development is a dynamic system property*
- *Sustainable development needs system innovation*
- *System innovation is a non-linear learning process*
- *System innovation requires KOMBI approach*
- *KOMBI approach implies trans-disciplinarity*

# Interdisciplinary Monitoring team

Interdisciplinary monitoring team from Athena Institute has:

- Developed monitoring methodology
  - Closely studied 8 Innovative Projects
  - Supported the learning programme of TransForum itself
- 
- Joske Bunders (project leader)
  - Barbara Regeer (co-ordinator)
  - Anne-Charlotte Hoes (PhD student)
  - Mariette van Amstel (researcher)



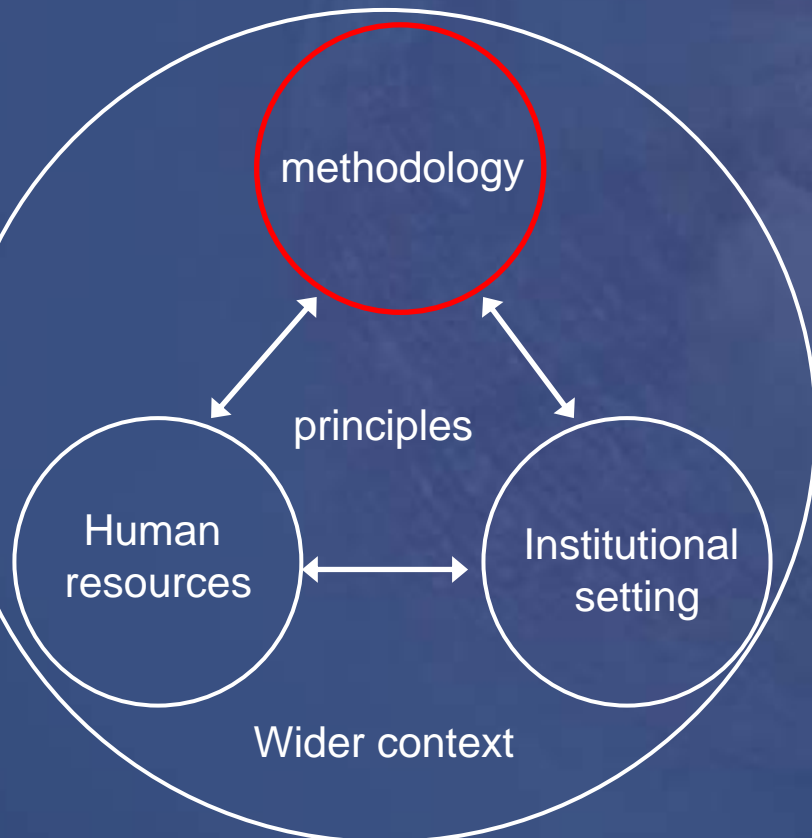
# Learn about issues in Transdisciplinary Research

We see two types of challenges for transdisciplinary research:

- Challenges in internal dynamics
- Challenges in boundary dynamics

# Challenges to Transdisciplinary Research – internal dynamics

- How to create mutual trust?
- How to stimulate knowledge co-creation?
- How to maintain a reflexive working process?
- How to enhance learning?



## Challenges in internal dynamics

(Regeer and Bunders 2007)

# Challenges to Transdisciplinary Research – internal dynamics

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## Challenges in internal dynamics

(Regeer and Bunders 2007)

# How to stimulate knowledge co-creation?

- Assumption TR:
  - Bring people together
  - Develop shared vision
  - Cocreate knowledge
- We studied scientists-entrepreneurs interaction in three cases
- How was the interaction *between* the two groups shaped and knowledge (co)created?

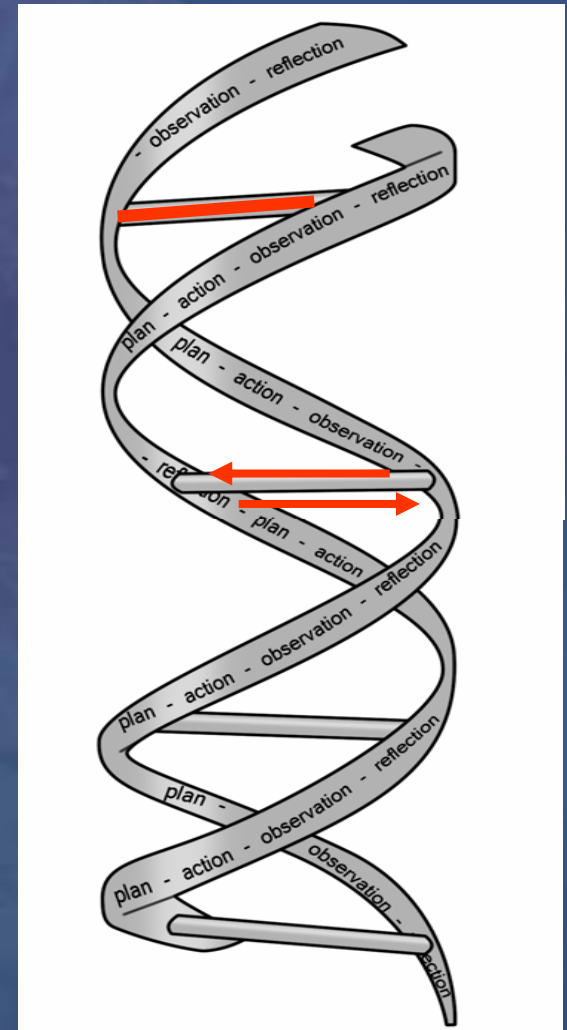


# Science-Entrepreneurs collaboration

Homogeneous learning spiral (interaction *within* group) is sometimes needed for heterogeneous collaborations to be effective,

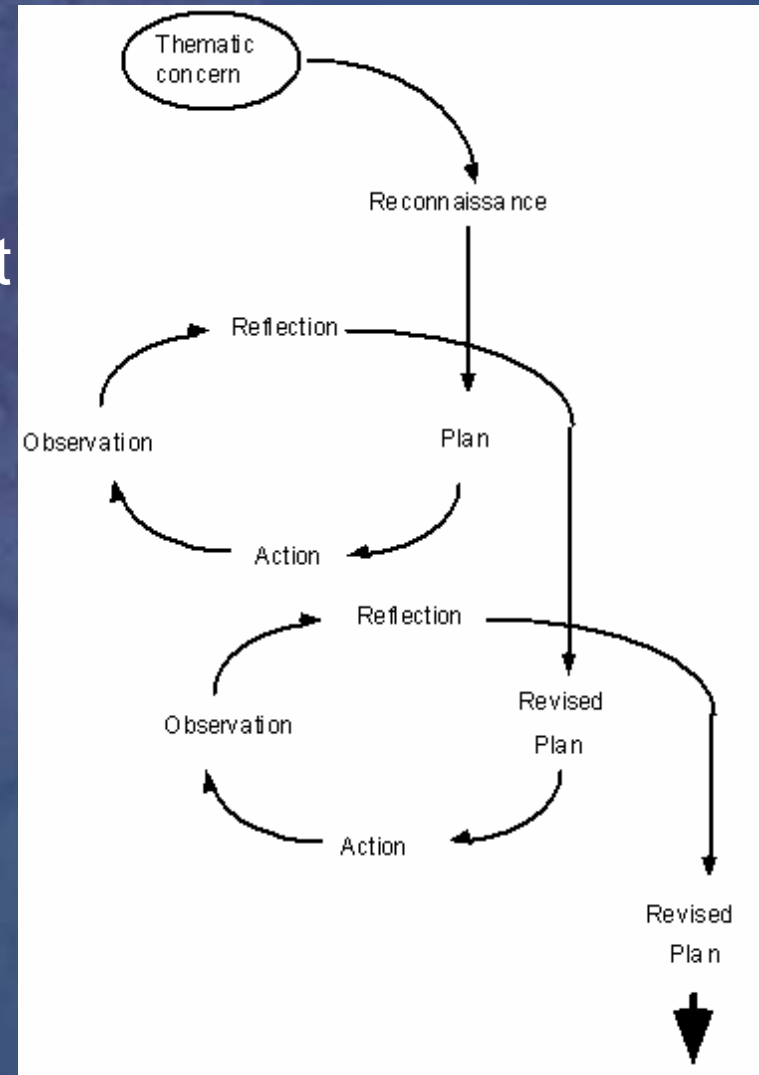
- if there is no collective commitment
- if questions, views, perspectives are not articulated

Moreover, knowledge creation is contextualised (mode-2)



# How to maintain a reflexive working process?

- Not always possible from start
- Often great urge is felt to start 'doing'
- Slowly build in reflection sessions



# How to enhance learning?

## Dynamic knowledge/learning agenda

- Tool evolved in process
- Based on participant observation (and learning histories)
- Feed back into project team and update regularly
- Articulates important questions / pitfalls
- Broadens scope
- Puts them on the 'agenda'
- Functions as point of reference in meetings
- Similarities emerge

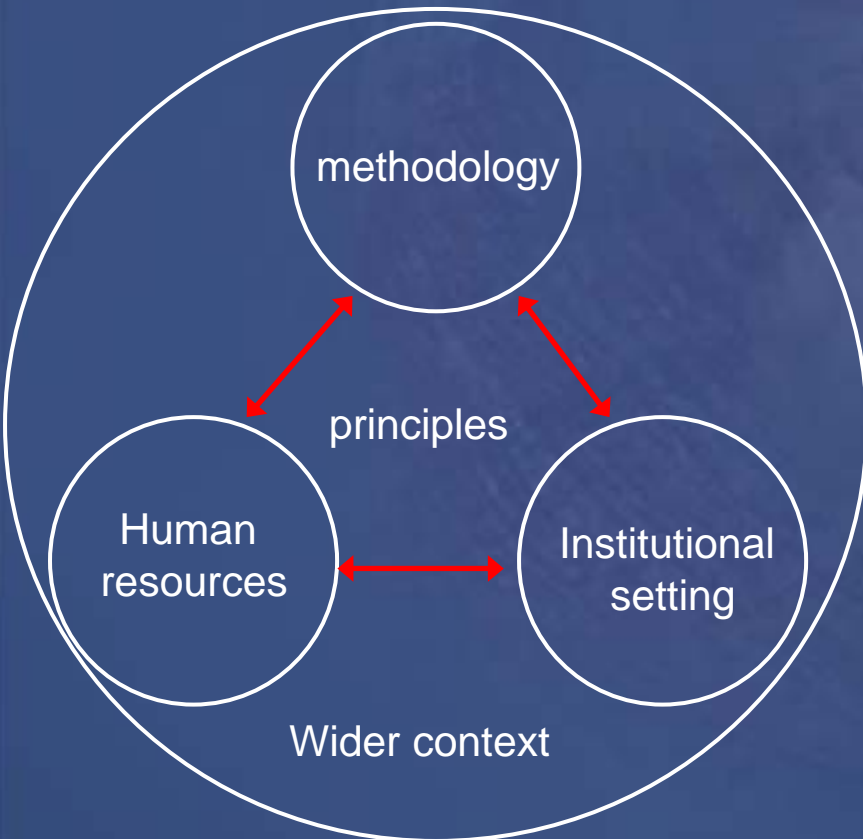
# Examples of Persistent Questions on Learning Agenda's

- How do niche projects make connections with 'mainstream' actors without risking being swallowed by them?
- How do professionals involved refrain from defaulting into 'mode-1'?
- i.e. Questions deal with boundaries between system innovation projects and standing regimes on structure, project and competences level



# Challenges to Transdisciplinary Research – boundary dynamics

- How to deal with tension between institutional requirements and participation in project?
- How to contribute to science?
- What new competences are needed and how are they acquired?

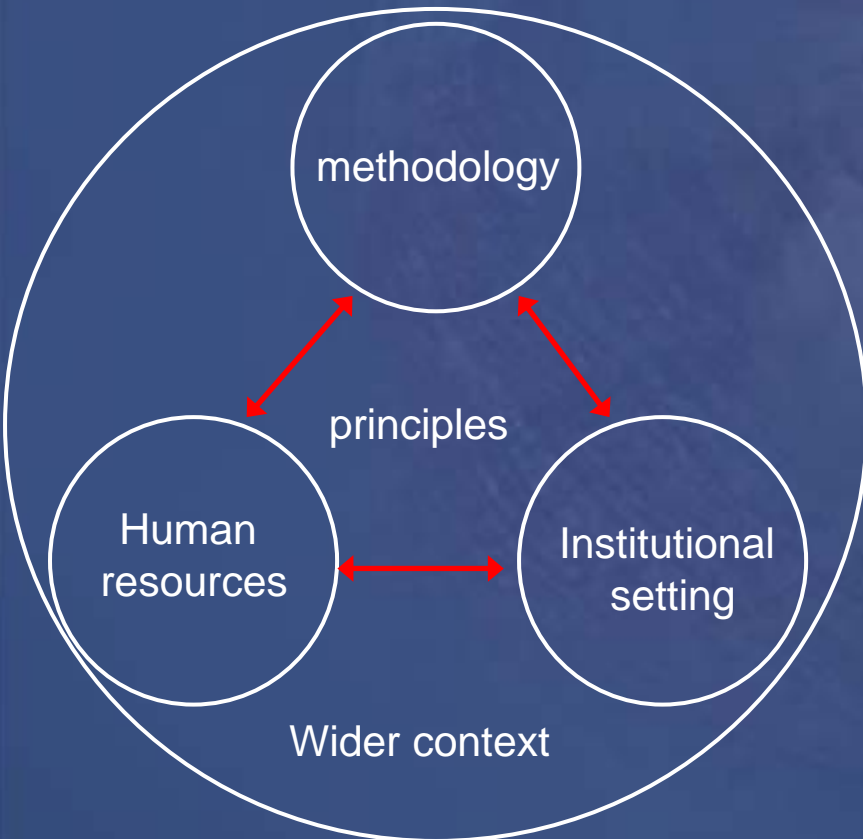


## Challenges in boundary dynamics

(Regeer and Bunders 2007)

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## Challenges in boundary dynamics

(Regeer and Bunders 2007)

# Tension between wider context and project

- dynamic and multiple understanding of sustainable development in project
- versus
- request for predefined set of goals and definitions of sustainable developments by surrounding of project

# Sustainable Development as process

- In TR (and the ILA) problem articulation, is not predefined, but rather part of project itself
- Earlier monitoring projects of TR for SD: going into the field with priority defined set of goals and definitions did not generate aspired movement towards sustainable development
- Make articulation of sustainable development part of learning process between variety of actors



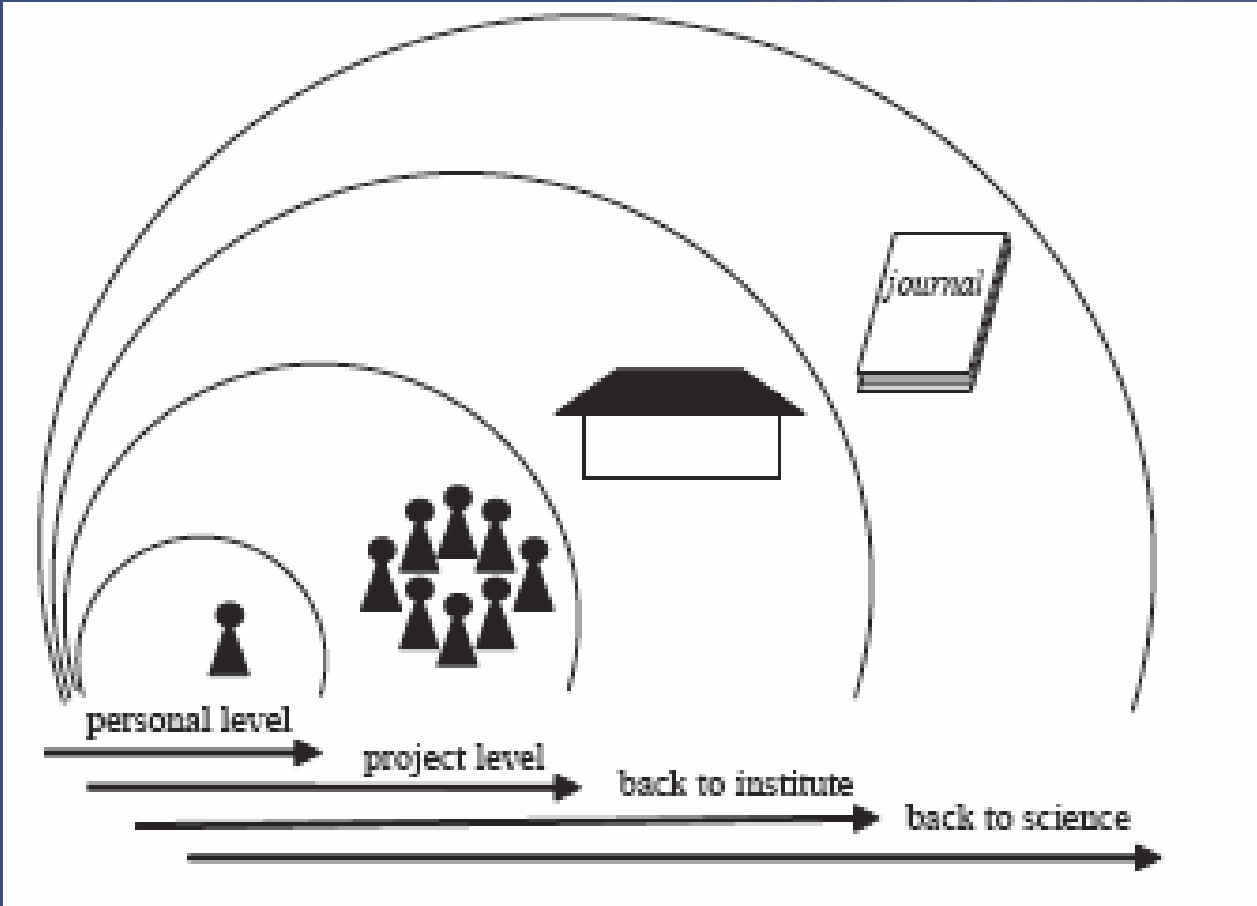
# Options

- Challenge in boundary dynamics: some funding agencies, NGO's and governmental bodies expect clear definitions and quantifiable objectives of sustainability

## Options:

- Make these actors part of learning process too (e.g. organise excursions to projects)
- Create boundary objects: for instance innovative indicators that comply to both worlds

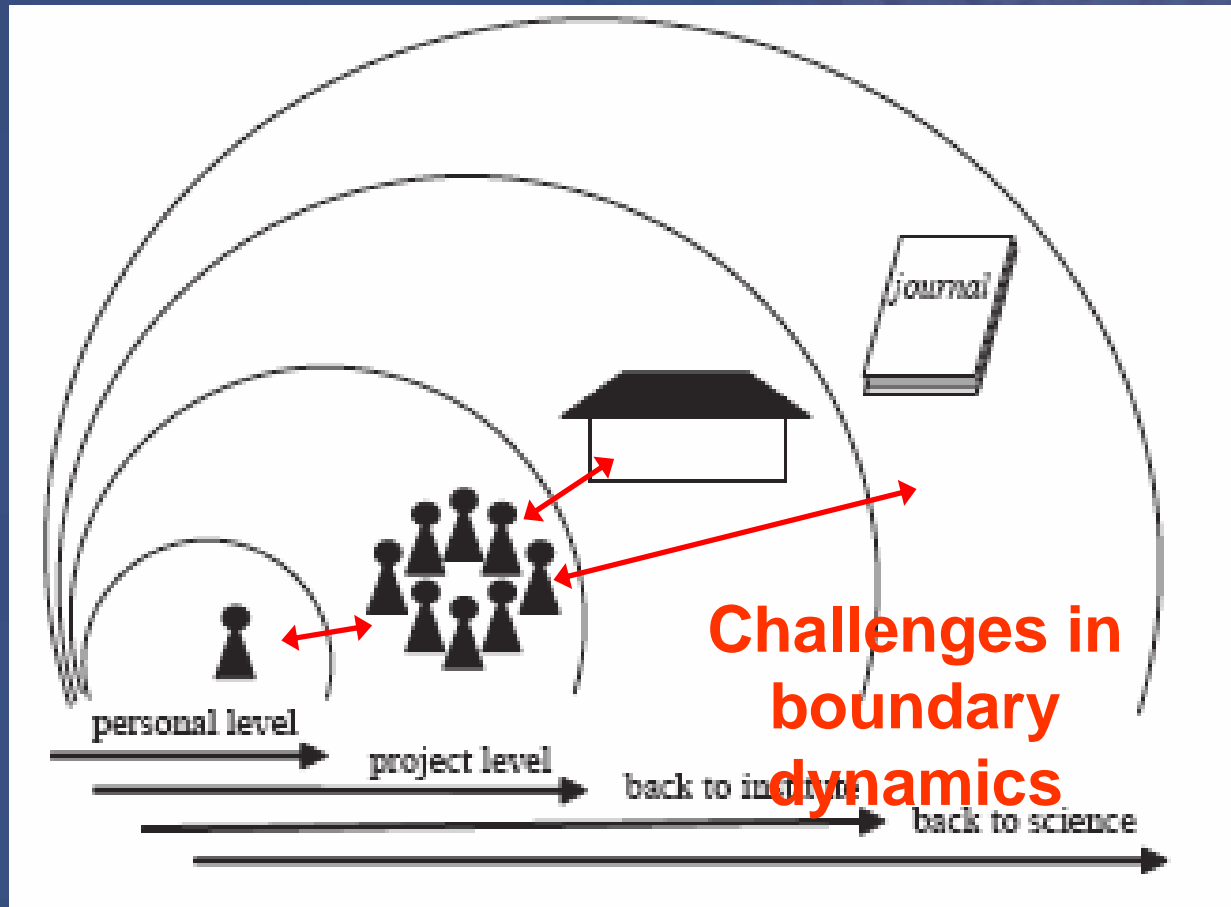
# How to contribute to science?



Challenges from  
perspective  
participant from  
science

(Tress et al. 2003)

# Challenges of Transdisciplinary Research



- How to deal with tension between institutional requirements (e.g. reputational system based on number of publications) and participation in project?
- What new competences are needed and how are they acquired?
- How to contribute to science?

(Tress et al. 2003)

# Contribution to science

- In what different ways do the Transdisciplinary Research projects at TransForum (and the monitoring thereof) contribute to science?
- We identify three different types of contributions to science

# What is the contribution to science?

1. Contribution to monodisciplinary science
2. Description of exemplars
3. Meta-analysis



# What is the contribution to science?

## 1. Contribution to monodisciplinary science

Eg.1 Developing Agroparcs

Eg.2 Impact on knowledge infrastructure  
(Closed Greenhouse)

## 2. Description of exemplars

Eg.3 Science-Entrepreneurs collaboration  
**contribution to Action Learning**

## 3. Meta-analysis

Eg.4 Comparison Dynamic Learning Agenda's  
**contribution to monitoring & evaluation**

# What is the contribution to science?

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## 3. Meta-analysis

Eg.4 Comparison Dynamic Learning Agenda's  
contribution to monitoring & evaluation

# Example 1: Developing Agroparcs

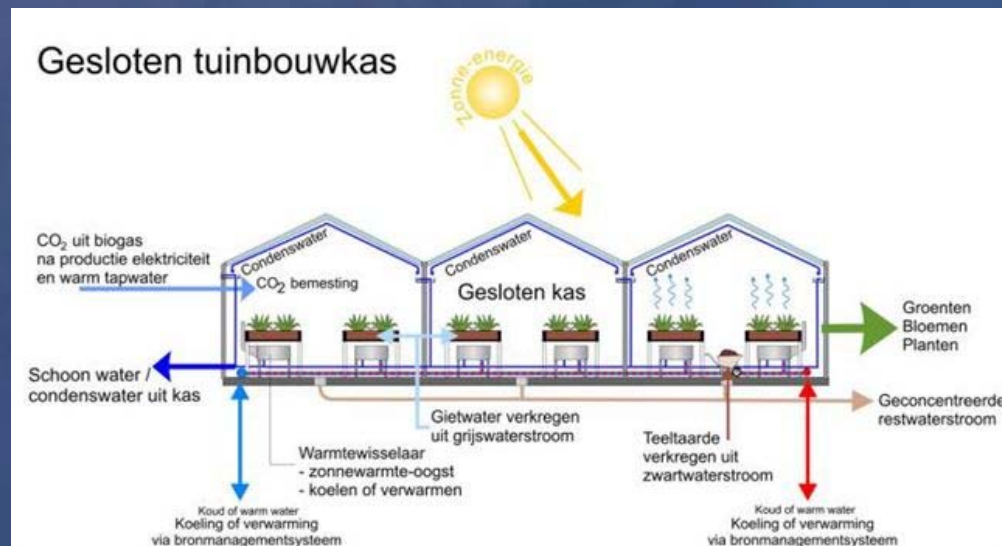


# Example 1: Developing Agroparcs

- A monodisciplinary scientist (process technologist) participating in a transdisciplinary project, such as the development of an Agroparc, enriches his scientific field by:
  - New empirical data
  - New insights in own field through collaboration with other scientific fields
- However, different experiences in two cases:
  - NGB: enriching of own research field AND relevant to actors from practice, due to open communication, co-creation of research questions, and mutual vision development
  - BPT: enriching of own research field, but no use to practice, due to lack of transdisciplinary facilitation

## Example 2: Impact on knowledge infrastructure

- Synergy is a learning network of Greenhouse entrepreneurs (innovators) committed to developing the Closed Greenhouse
- Involved scientific fields are enriched by this network through new questions, issues, and empirical data
  - Eg. Shift from technical (energy) research to plant physiology
  - Eg. Funding collaborations for new research programs



# Conclusions

- The ILA offers a framework for transdisciplinary research on complex and challenging issues such as sustainable development
- Challenges are both internal and at the boundaries of transdisciplinary projects
- Closely monitoring transdisciplinary projects using ILA enhances learning of participants and generates new knowledge:
  - Mono/multi disciplinary knowledge
  - Case-studies on transdisciplinary projects
  - Generic knowledge on new strategies for sustainable development