

Involving stakeholders in the setting of priorities for adaptation

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Outline

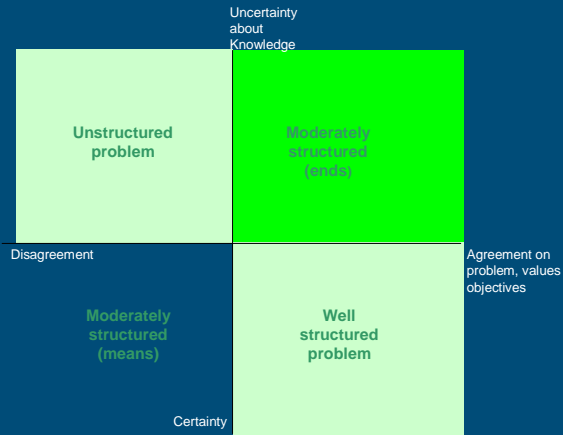
- Science for adaptation to climate change: The need for a transdisciplinary approach
- Challenges in projects on adaptation to climate change taking up a transdisciplinary approach
 - Organizing real participation
 - Facilitate integrative negotiations
 - Addressing differences in vulnerability
 - Dealing with uncertainty
 - Enhancing transparency in decision making and building trust (use of models easily provoke a black box feeling)
- Conclusions



Adaptation to climate change as unstructured problem

Unstructured problems are characterized by uncertainty and diverging perceptions

Transdisciplinary research is a new form of knowledge development and problem solving involving cooperation among different parts of society and academia in order to meet complex challenges of society.




Structured and unstructured problems (Hirschmoller en Hoppe, 1989)

Transdisciplinary research: Knowledge co production through interplay between science and society



Interdisciplinairity and transdisciplinairity compared

	Interdisciplinair	Transdisciplinair
Knowledge involved	Scientific knowledge (Beta and gamma)	Tacit and scientific knowledge are integrated
Knowledge involved	Scientific knowledge (Beta and gamma)	Tacit and scientific knowledge
Perspective on knowledge	Knowledge is objective or subjective	Knowledge is contextual and socially constructed, ideas, opinions and facts are difficult to separate
Knowledge production	Scientists and specialist develop knowledge which is transferred to (other) stakeholders	Knowledge creation is an interactive and iterative process with feed back loops
Quality control	Peer review + Quality criteria: reliability, validity	Peer review + Quality criteria: empirical adequacy, applicability, and contextual adequacy
Methodology	No difference in the modus of working	Scientists and other stakeholders jointly search for the right methodology for addressing the problem



Adaptation to climate change: The need for transdisciplinary research

- Transdisciplinary research:
 - Cooperation within the scientific community and a debate between research and the society at large
 - Transgresses boundaries between scientific disciplines, between sectors and between science and other societal fields
 - Includes deliberation and negotiation about facts, practices and values
 - Dismantles the traditional sequence leading from scientific insight to action
 - Can significantly improve the quality, acceptance and sustainability of solutions



Challenges in projects on adaptation to climate change taking up a transdisciplinary approach

- Organizing collaboration between science and society through a participatory research process
- Acknowledging multiple (conflicting) values and interests: facilitating negotiation about facts, practices and values
- Acknowledging differences in vulnerability
- Encouraging future thinking
- Addressing uncertainty
- Transparency in decision making and building trust (use of models and soft ware easily provoke a black box feeling)



Organizing real participation

	levels of participation	Advantages	Disadvantages
Real Participation ↑	Co-decide	<ul style="list-style-type: none"> ■ Optimal use of participants' resources ■ Democratic 	<ul style="list-style-type: none"> ■ Intensive ■ Quality of the facilitator and other stakeholders are key factors for success
	Co-produce	<ul style="list-style-type: none"> ■ Increases commitment of stakeholders involved ■ Production of (new) Knowledge 	<ul style="list-style-type: none"> ■ Intensive ■ Quality of the facilitator and other stakeholders are key factors for success
Hardly any participation	Consultation	<ul style="list-style-type: none"> ■ Can result in new perspectives 	<ul style="list-style-type: none"> ■ Can lead to unrest and dissatisfaction ■ Difficult to guarantee transparency
	Informing	<ul style="list-style-type: none"> ■ Takes relatively little time and effort 	<ul style="list-style-type: none"> ■ Can cause dissatisfaction ■ No opportunity to make a contribution



Addressing differences in vulnerability

- Vulnerability: reaction to risk/hazard
- Dimensions:
 - Environmental
 - Socio-economical
 - Institutional
 - Biophysical
- Vulnerability is gender differentiated
- Participatory vulnerability assessment:
 - Multi leveled approach
 - Vulnerable situation at present, analyzing causes and defining actions
 - Awareness raising and motivating to act



Facilitating an integrative negotiation process

- Acknowledging multiple (conflicting) values and interests
- Facilitating negotiation about facts, ideas and values
- Integrative negotiations rather than distributive negotiations
 - Disputants are joint problems solvers rather than adversaries
 - Focus on interests and not on positions
 - Use reasons and not pressure
 - Look for win-win opportunities rather than look for win for you alone



Encouraging future thinking: Shell scenario method

- Important for the identification of adaptation options
- What if scenarios': exploring possible futures rather than predicting
- Can help with the identification of robust strategies
- Can produce completely new insights about the future
- 2 most uncertain driving forces and describing 4 extreme scenarios



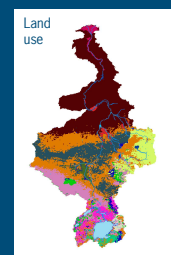
Enhancing transparency in decision making and building trust: methodologies for setting priorities



Matrix ranking
Pair wise ranking

A vs. B	Capacity		Better	Intensity
	A	B		
Accord vs. Accord Hybrid	14.0	14.0	A	1
Accord vs. Pilot	14.0	87.6	B	2
Accord vs. CRV	14.0	72.9	B	2
Accord vs. Element	14.0	74.6	B	2
Accord vs. Odyssey	14.0	147.4	B	3
Accord Hybrid vs. Pilot	14.0	87.6	B	2
Accord Hybrid vs. CRV	14.0	72.9	B	2
Accord Hybrid vs. Element	14.0	74.6	B	2
Accord Hybrid vs. Odyssey	14.0	147.4	B	3
Pilot vs. CRV	87.6	72.9	A	1
Pilot vs. Element	87.6	74.6	A	1
Pilot vs. Odyssey	87.6	147.4	B	2
CRV vs. Element	72.9	74.6	B	1
CRV vs. Odyssey	72.9	147.4	B	2
Element vs. Odyssey	74.6	147.4	B	2

Analytical Hierarchy process tool
Cost Benefit analysis



MCA
Waterwise

← Appropriate for participation of all relevant stakeholder at the local decision making level

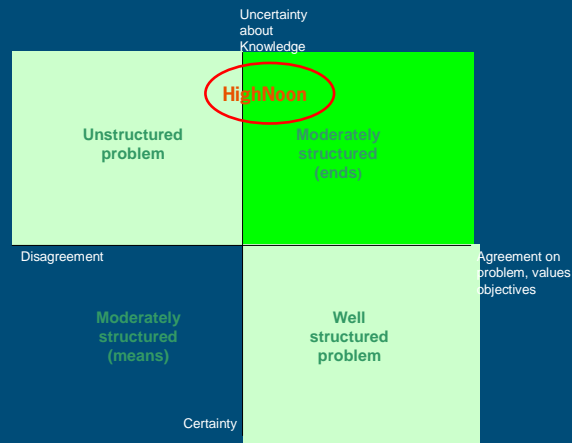
→ Less appropriate for participation of relevant stakeholder at the local decision making level

Waterwise in participatory decision making: lessons learnt

A data driven DSS is not as flexible as more process oriented tools; co production is needed not only for building trust but also for defining the right problem focus

Often a problem is defined too quickly as well structured

Uncertainties are often not taken into account as it is felt that this will complicate the stakeholder process

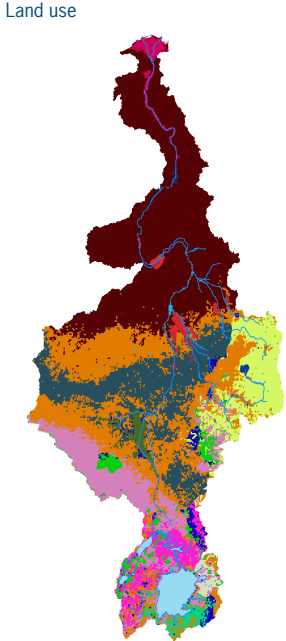


*Domain of the WaterWise tool (dark green = most suitable)
adapted from Hoppe, 1989*

Waterwise in participatory decision making: lessons learnt

- A tool that links water allocation and land use options
- Uses optimization techniques (cost-benefits in combination with other criteria like a secure drinking water allocation)
- Links stakeholder priorities to the biophysical knowledge base (water system, agronomic system, climate)
- Data driven with a focus on analysis, but.....
- Shows value of combining objectives (tries to find win-win)
- Links preference at different scale levels (nested approach)
- Can evaluate robustness of measures (using multiple scenarios)

Land use



Waterwise– the Nile Basin

Questions asked


- Where and in what should I invest (land use, water management reservoirs)?
- What measures (including land use changes or intensification) are needed to reach food security in the Nile basin?
- What will be the effect of ignoring climate change? Or what measures are robust under various climate scenarios?
- What is the effect on downstream water availability if measures in upstream countries get priority?

Insights gained

- The value of cooperation: investment in upstream reservoirs can benefit downstream countries (Egypt now opposes)
- Investments in land use change seem more economic than investments in intensification of current land use
- However intensification can make the basin self sufficient (with benefits for both upstream and downstream countries)
- Climate proofing: under construction

Improvements

- Link to lower scale levels (better data, validation possible)
- Improve climate proofing
- Impact of small scale water management measures is not (yet) generally accepted – more study needed
- More information on agro-economy needed

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Conclusions

- Research on adaptation to climate change needs more than multi and interdisciplinary research approaches only: Need for adding a transdisciplinary approach
- A transdisciplinary approach to adaptation requires
 - Well organized collaboration between science and society
 - Acknowledging differences in vulnerability to also address most vulnerable groups and regions
 - A facilitated integrative negotiation about facts, practices and values
 - Encouraging future thinking in the identification of adaptation measures
 - Addressing uncertainty
 - Assuring transparency in decision making and building trust

-very limited efforts have been devoted to understanding theory and the practice of adaptation till now. In practical terms, research efforts need to address questions such as: "How does adaptation decision take place? What are the roles of different stakeholders in decision making for adaptation? What hinders and encourages adaptation actions? How to evaluate adaptation options? etc. .. (European Environment Agency, 2006)



Thank you

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