



# Multi-level Governance of Natural Resources: Tools and Processes for Water and Biodiversity in Europe

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# Presentation of criteria of GoverNat evaluation grid

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- This presentation assembles the different presentations given by the GoverNat Early-Stage Fellows at the Summerschool in Leeds, July 2007.
- It starts with 4 slides giving an overview of the criteria (4 groups: Information management, Legitimacy, Social Dynamics, and Costs)
- Slides explaining the different criteria follow
- For more background, refer to
  - Rauschmayer, F. and H. Wittmer (2006). "Evaluating deliberative and analytical methods for the resolution of environmental conflicts." *Land Use Policy* 23(1): 108-122.
  - Wittmer, H., F. Rauschmayer, et al. (2006). "How to Select Instruments for the Resolution of Environmental Conflicts?" *Land Use Policy* 23(1): 1-9.

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## Information Management

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- 1) How well can different types of information (different disciplines, lay and expert knowledge) be elucidated?
- 2) How are different types of information integrated?
- 3) What are the environmental outcomes of altered management options and governance structures?
- 4) How are uncertainty and complexity taken into account?

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## Legitimacy

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- 5) Are the procedure and the proposed outcome compatible with existing legislation?
- 6) Is someone held accountable for the decision and its outcome? Is it clear who?
- 7) Are all relevant interests and values included or at least represented?
- 8) Are rules and assumptions transparent to insiders and outsiders?

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## Social dynamics

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- 9) How does the process affect the relationships and networks of the actors?
- 10) Is there scope for agency or empowerment of the actors?
- 11) Does the process allow for the changing of perspectives or learning to take place?
- 12) Does it facilitate convergence or illustrate diversity?

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## Costs

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- 13) Does the process consider the cost-effectiveness of the proposed solutions?
- 14) Is it expensive itself in proportion to the issue at stake?
- 15) To which degree is it sensitive to decision failures?

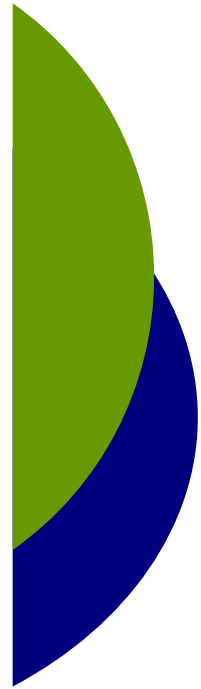


## Information Management

- 1) How well can different types of information (different disciplines, lay and expert knowledge) be elucidated?
  - 2) How are different types of information integrated?
- 

### GoverNat evaluation criteria

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## Classical taxonomy of knowledge (after Lundvall):



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**Data** – raw facts without internal organization

**Information** – data structured and put into context, carries meaning

**Knowledge** – activated in human mind

**Wisdom** – deeper understanding, ethical grounds for action

## Dichotomies and beyond:

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- Scientific knowledge      Lay knowledge
- Codified knowledge      Tacit knowledge      (Polanyi)
- Explicit knowledge      Implicit knowledge      (Lundvall)
- Global knowledge      Local knowledge
- Collective knowledge      Individual knowledge
- Contributory exp. - Interactional exp. - No exp.      (Collins&Evans)
- Warranted belief      Valuable belief      (Bromley)
- Disciplinary / interdisciplinary knowledge
- Lay expert knowledge      (Fischer)
- Experience based expertise      (Collins & Evans)
- Nonprofessional expertise      Public expertise      (Carolan)
- Know-what      Know-why      Know-how      Know-who  
     (Lundvall)

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## Knowledge in PDM

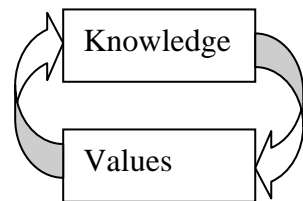
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- Production of knowledge is a *cultural process* in which the realms of science and politics are in many ways intertwined (Jasanoff & Wynne 1998).
- Expert knowledges have been efficiently used as a means of controlling and restricting the argumentation, thus creating closures of power (Peuhkuri 2002).
- Skilled actors may successfully use expert information as a means of challenging established power structures (Peuhkuri 2002, Åkerman & Peltola 2006) or of opening up common ground for communication between various, conflicting groups of actors (Åkerman 2003).

## Integrating different types of knowledge

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- Intermingling of knowledge and *values*



- -> *rendering values visible (value trees)*

- Different deliberative *institutional settings* have varying potential in dealing with uncertainties of knowledge (Pellizzoni 2004).
- Suitable means for participation and data gathering: group-based or individual deliberation-based participatory methods (Meadowcroft 2004)
- Selecting and evaluating participatory and multi-criteria methods: Rauschmayer et al. 2006, Wittmer et al. 2006.
- Participatory environmental decision making tools (WP1 paper coming up..)

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## Literature 1/2

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## Literature 2/2

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- Peuhkuri, T. (2002) Knowledge and interpretation in environmental conflict. Fish-farming and eutrophication in the Archipelago Sea, SW Finland. *Landscape and Urban Planning* 61:2–4, 157–168.
- Rauschmayer, F., Wittmer, H., 2006. Evaluating deliberative and analytical methods for the resolution of environmental conflicts. *Land use policy* 23(1), 108-122.
- Wittmer, H., Rauschmayer, F., Klauer, B., 2006. How to Select Instruments for the Resolution of Environmental Conflicts? *Land use policy* 23(1), 1-9.
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## Information Management

3) What are the environmental outcomes of altered management options and governance structures?

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Oliver Fritsch



What are the environmental outcomes of altered management options and governance structures?



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## Research questions posed:

- Conceptualisation: output (agreement, plan) > implementation > compliance > outcome
- Do collaborative processes produce different outputs than noncollaborative processes?
- Do collaborative outputs produce better environmental outcomes?

What are the environmental outcomes of altered management options and governance structures?



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## Outputs: measurement and methods

- Agreements reached (group surveys and interviews, document analysis)
- Restoration projects completed (GSI, DA)
- Education campaigns conducted (GSI, DA)
- Changes to public policy (GSI, government official interviews)
- Changes to land management practices (GSI, landowners surveys)
- Land protected from development (GSI, DA, GOI)



What are the environmental outcomes of altered management options and governance structures?



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## Outcomes: measurement and methods

- Perceptions of change in environmental quality (GSI)
- Changes in land cover (remote sensing)
- Changes in biodiversity (ecological studies)
- Changes in environmental parameters appropriate to a specific resource (ecological studies)

What are the environmental outcomes of altered management options and governance structures?



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## Research challenges

- Gathering data that measures environmental outcomes
- Allowing for long-time horizons between the implementation of environmental outputs and environmental change
- Designing research protocols that untangle the effects of multiple interacting variables that shape environmental change (causality)

What are the environmental outcomes of altered management options and governance structures?



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## State of research & literature

- Koontz, Tomas & Thomas, Craig (2006) 'What Do We Know and Need to Know about Environmental Outcomes of Collaborative Management?', *Public Administration Review* 66: 111-121
- Fritsch, Oliver & Newig, Jens (forthcoming) 'Public Participation in Environmental Governance and the Attainment of Sustainability Goals: Ne'er the Twain Shall Meet?', in: Brousseau, Eric & Dedeurwaerdere, Tom (eds.) *Reflexive Governance for Global Public Goods*, Cambridge, MA: MIT Press



## Information Management

4) How are uncertainty and complexity taken into account?

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Catrin Egerton

# Complexity, uncertainty and management



- Rammel (2007):

'The overexploitation of natural resources and the increasing number of social conflicts following from their unsustainable use point to a wide gap between the objectives of sustainability and current resource management practices. One of the reasons for the difficulties to close this gap is that for evolving complex systems like natural and socioeconomic systems, sustainability cannot be a static objective. Instead sustainable development is an open evolutionary process of improving the management of social– ecological systems, through better understanding and knowledge. Therefore, natural resource management systems need to be able to deal with different temporal, spatial and social scales, nested hierarchies, irreducible uncertainty, multidimensional interactions and emergent properties.'

# Complexity in ecological systems



- Spatial, time scales
- Interactions, co-evolution of systems, tipping points
- Non-linear paths
- Firth:

**Complexity and connect-  
edness**

**Manager should understand  
the value of biological di-  
versity and structural com-  
plexity to stability and  
sustainability of ecosys-  
tems, and acknowledge  
that with complexity  
comes uncertainty.**



# Complexity in social systems

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- Different levels of government/governance
- Multiple stakeholders
- Who is included/excluded
- Definitions of problems
- Decisions always value laden
  
- New forms of governance



# Uncertainty in ecological systems

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- Complex systems – unanticipated effects
- Effects beyond boundaries
- Disagreements between experts
  
- Statistical analysis, models
- Acceptable uncertainty in science



# Uncertainty in social systems

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- Stakeholders and decision-making
- Human dimensions – causal systems
- Short-term political cycles. Longer social processes

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## Science-policy gap?

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- Time lag before science finding assimilated?
- Inaccessibility of numeric data
- Information networks
- More than just information – confidence
- Attitudes to science finding/trust vary according to location



# Science and policy interaction

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- Dose (2006):

'the ambivalence of goals can only be decided upon politically, and not scientifically. Science can, however, provide criteria for assessment in order to help organize a transparent and responsible decision-making process.'

# Complexity and uncertainty at different levels



- Uncertainty undermines political actors
- Politicians delegate authority (cover themselves, enduring legacies)
- Independent administrative authorities

Institutional characteristics  
Multi-criteria decision aids

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## References

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- Dose, Nicolai ([2006]) 'How Governance can still be successful', Paper for the Workshop: Governance for Sustainable Development: Steering in Contexts of Ambivalence, Uncertainty and Distributed Control
- Firth, Penelope L. (Aug., 1998) 'Fresh Water: Perspectives on the Integration of Research, Education, and Decision Making' *Ecological Applications*, 8, No. 3. pp. 601-609
- Rammel, Christian, et al (2007) 'Managing complex adaptive systems' *Ecological Economics*, 63, pp. 9-21



## Legitimacy

5) Are the procedure and the proposed outcome compatible with existing legislation?

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## Legitimacy of decision -

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- compatibility with **generally agreed principles.**

(Wittmer, Rauschmayer, Klauer, 2006)

What is the **generally agreed principle?**

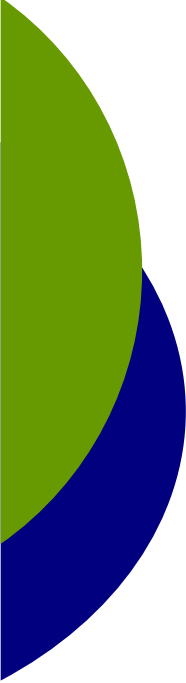
1. Existing laws, but also
2. Informal rules, norms etc.

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# problematic

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- If existing Laws are just, a political decision is really legitimate if it complies to generally agreed principles (democracy)
- If existing rules are NOT just, then a decision can not be considered legitimate if it agrees to existing rules (dictatorship)



# What is “just”?

## How we can measure it?

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Proposal: the other criteria on legitimacy (accountability, inclusion/representation, transparency of rules and assumptions to insiders and outsiders)

## References:

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- Follesdal, A., 2004, Legitimacy Theories of the European Union



## Legitimacy

6) Is someone held accountable for the decision and its outcomes? Is it clear who?

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# Exploring the relationship between governance & Accountability



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## **Governance & Accountability:**

- “ Governance is the formalization of the relationships among the members/partners, combined with mechanisms for accountability of the collaborative enterprise for its actions”
- “ Accountability refers to the obligation to demonstrate and take responsibility for performance in the light of agreed expectations”

Ref.: Fitzpatrick, Tom. Horizontal Management: Trends in Governance and Accountability. Canadian Centre for Management and Development.



# Who is responsible for whom and for what?

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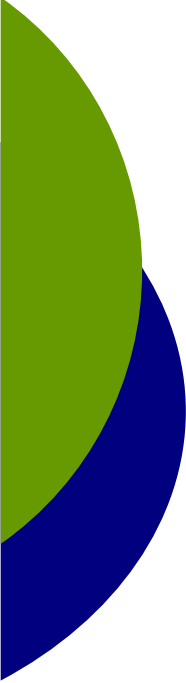
## **Vertical accountability:**

Created by a higher governing bodies  
(Governance Type1)

## **Horizontal accountability:**

Created among partners (Governance Type2)  
Governance structure is built during the  
process through collaboration

**Challenges:** transparency of information and  
decision-making and fair process



# Key aspects of accountability in governance processes



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- Which organizations and actors are key on granting authority?
  - Who gives them policy-making authority?
  - What in general are the participants expected to do? (Duties and responsibilities)
  - What types of decisions does the participants have the authority to make? (Decision-making process)
  - How will the outcomes or outputs of the process be reported? Consequences? (accounting implementation process)

## Accountability of experts

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- Science as a source of legitimacy for political actors
- Sc. As instrument of persuasion or rationalization in debates and negotiations
- Sc. As a mechanism for delaying action
- Sc. As justification for unpopular policies

“ If Sc. Has a normative framework and claims to be objective in its results, and if environmental sciences focuses on global and or globally recurring problems calls for universally applicable results, then how we can deal with the competing normative frameworks?”  
(Joyeeta Gupta)

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## References

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## Legitimacy

7) Are all relevant interests and values included or at least represented?

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# General

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- In order to be legitimate a decision has to be compatible with generally agreed principles.
  - A decision may be legitimate, if it is functional for the good life of the concerned persons or
  - alternatively, if the concerned persons (or—procedural fairness guaranteed—a majority thereof) expressed freely their agreement with the decision (Kauffmann, 1999).

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A decision is often considered legitimate, if it is compatible with the prevailing set of rules in a society.

# Inclusion / Representation

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## Techniques for determining the stakeholders

- Stakeholder mapping, brainstorming, focus groups, snowballing, ...
- For analysing an involvement process it is important to determine:
  - Who conducted the invitation process?
  - Which groups were included and why?
  - Which groups weren't included and why?
  - What kind of techniques were used and what limitations do they have?

## Inclusion / Representation is process dependent

- The kind of participatory process used determines the involvement strategy. Different forms of involvement are sought in various processes (Mediation, Consensus Conferences, Citizen Juries,...)
  - A cross section of the general public
  - Representation by socio-economic criteria (Challenge: future generations, animals, etc.)
    - Stakeholders (governmental vs. Non-governmental)
    - Citizens
    - Experts

# Inclusion / representation

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- Questions to be asked
  - Who has a right to participate?  
This can range from the population of an area, those directly affected, to representatives of predefined interest groups, etc.  
*(Johnson and Wilson, 2000)*
  - Are all relevant interests represented adequately?
  - Does the procedure permits to protect or ideally enhance the interests involved?
  - Are the least powerful represented—are they known about?
    - Are the rules such that they can articulate their interests?

# Inclusion / representation

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- Are all relevant interests included or at least represented?
  - Inclusion per se is by no means sufficient. The issue is whether all relevant interests and affected stakeholders are known, included and/or represented in a way to assure their equitable participation in the process.
  - Identifying all interests involved is hard to achieve as many environmental decisions have far reaching consequences with regard to time and space.
  - Number of representatives from each group should be in rough proportion to the groups size and the intensity of its interests in the policy outcome
- Conditions that should be fulfilled
  - Participants should be in active communication with those they represent
  - If the participants reflect the range of interests, values and relevant demographic characteristics of the nongovernmental stakeholders whom they represent, then their representativeness is improved.

(Trachtenberg and Focht 2005)



## Legitimacy

8) Are rules and assumptions transparent to insiders and outsiders?

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# Transparency of rules and assumptions to in and outsiders



- Distinguish between in- and outsiders:
  - For insiders transparency is crucial in order to enable participation
  - For outsiders, it is important to understand the procedure, including aspects like who participates, in what function as well as the rules within the process.
- Various Forms of involvement:
  - Co-operative Discourse:  
All rules are presented upfront and need explicit approval by all participants
  - Mediation:  
Insiders: High transparency  
Outsiders: Rules of procedure is transparent  
Content of negotiation is intransparent



**The more complicated the procedure (complex mathematical method), the more challenging becomes the task to communicate it.**

# Transparency of rules and assumptions to in and outsiders

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- Distinguish between in- and outsiders:
  - For insiders transparency is crucial in order to enable participation (understanding of the decision making method)
  - For outsiders, it is important to understand the procedure, including aspects like: who participates, in what function as well as the rules within the process (communication of these issues can be done through the local media).
    - Details on what is debated at what time and how outcomes are reached are less important.

# Bibliography and further reading



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# Appendix: Participation and legitimacy



- The parties of the policy making process:  
Governmental vs. Nongovernmental stakeholders
  - Governmental stakeholders: role in policymaking in virtue of their legal authority or technical expertise (governmental officials, scientists, engineers, economists,...)  
Participation is legitimated based on welfare enhancement
  - Non-governmental stakeholders: have an interest in the resource at issue but have no legally mandated role in formulating and implementing policy.  
Participation is legitimated based on the notion of autonomy. The ability to choose one's actions for oneself → helping to determine the structure of law under which one lives (Kant, Rousseau)). Political systems that severely limit political participation are illegitimate precisely because they compromise their citizen's autonomy – even if they happen to enhance wellbeing. (Trachtenberg and Focht 2005)
- Important aspects:
  - Who holds the rule-making authority including the decision on whether participation is granted voluntarily by an agency or an actor or whether it constitutes a right of certain groups or individuals.
  - How binding is the outcome and who can be held accountable for it?  
(Steelman and Ascher, 1997)



## Social dynamics

9) How does the process affect the relationships and networks of the actors?

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GoverNat evaluation criteria

Cordula Mertens

## 9) How does the process affect the relationships and networks of the actors?



### What kinds of relationships are there?

- Strong – weak
- Symmetrical – asymmetrical
- Private – professional
- Friendly – hostile
- Networks
- Interactions of individuals, communities, nation-states, multilateral organizations and private companies
- In-group – out-group
- Vertical relationship (e.g. between government and citizens) and horizontal relationships (among citizens)
- Social capital
  - Bonding (within a group)
  - Bridging (between different groups)
  - Linking (vertical engagement with external agencies)

## 9) How does the process affect the relationships and networks of the actors?

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### What is important for relationships?

- Trust
- Respect
- Communication
- Continuous interactions
- Frequency
- Time: building trust and respect is a complex, long-term process
- Leadership
- Power structures
- Social dynamics and group processes (group identity)
- History between stakeholders
- Interests, common ground

## 9) How does the process affect the relationships and networks of the actors?

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### Questions concerning the process:

- Does the process trust in collective outcomes built on strong, long-lasting relationships?
- Does the process address people's hopes and fears, respect their opinions, strengthen ongoing relationships and existing networks?
- Domination of one stakeholder?
- Is there an overlap of interests?
- Public trust?

### Methods:

- Interviews
- Social network mapping

## 9) How does the process affect the relationships and networks of the actors?



### Literature:

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## Social dynamics

10) Is there scope for agency or empowerment of the actors?

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Is there scope for agency and empowerment of the actors?



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## Empowerment as gaining power

(in process)

- Arnstein (1969): manipulation, therapy, informing, consultation, placation, partnership, delegated power, citizen control
- Dimensions: input (representation, access), throughput (getting heard and voices transformed into decisions), participatory democracy
- Analysis: procedural rules, participatory observation
- Criticism: relationship to representative democracy unclear, empowered citizens might elect representatives – creating the government-citizen dichotomy again

Is there scope for agency and empowerment of the actors?



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## Empowerment as power-free discourse

(in process)

- Habermas' model of discourse: ideal speech situation as power-free communication, based in philosophical thinking of enlightenment: empowerment by way of rational reasoning
- Indicators: voice, force of better argument, excluding external influences, clarification of language, procedural fairness (deliberative democracy)
- Analysis: Can the indicators be observed in the participatory process?



Is there scope for agency and empowerment of the actors?



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## Empowerment as creating citizenship

(after process)

- People are empowered and energized by their engagement in collaborative projects
- Enhanced feeling of ownership on the part of those to collaboration



Is there scope for agency and empowerment of the actors?



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## Literature

- Knops, Andrew (2006) 'Delivering Deliberation's Emancipatory Potential', *Political Theory* 34(5): 594-623
- Fung, Archon & Wright, Erik (2001) 'Deepening Democracy: Innovations in Empowered Participatory Governance', *Politics & Society* 29(1): 5-41
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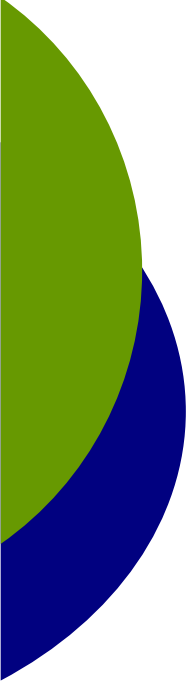
## Social dynamics

11) Does the process allow for the changing of perspectives or learning to take place?

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GoverNat evaluation criteria

Sonja Trifunovova

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## Changing behaviour, changing perspectives/ learning

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Under conditions of high uncertainty and complexity, decision-making and environmental management should be perceived as an adaptive process, where the actors involved are continuously learning from each other.

This requires a shift from substantive to procedural rationality (Simons, 1976), from a focus in the outcomes towards a focus in the process itself. Especially toward a social learning process.

This social learning process goes beyond the acquisition of new factual knowledge and includes the confrontation of underlying assumptions, changes in mental models, values, attitudes, skills and capacities for joint action.

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# Learning

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## 1. Individual

Learning is usually constrained to the individual level even though it can result from the interaction with the others or the environment (Bandura, 1977; Gales, 1996).

## 2. Group

## 3. Social

There is no common conceptual understanding of the term social learning.

- **A process of change on a society level that is based on newly acquired knowledge, a change in predominant value structures, or of social norms which results in practical outcomes (Luks and siembenhunmer) it need to be adapted.**

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# Social learning

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- Under second perspective social learning facilitates the process of social change, cultural transformation and institutional development necessary to achieve a more creative, forward thinking, and socially engaging processes of change (Röling and Wagemakers, 1998). It demands critical thinking, being able to question the assumptions that underlie our actions, values, and claims to knowledge (Brookfield, 1987; Flood, 1990; Pahl-Wostl, 2002).

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# Social learning

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- Social learning refers to the process by which changes in the social condition occur, particularly changes in popular awareness and changes in how individuals see their private interests linked with the shared interests of their fellow citizens) (Webler et al., 1995: 445).
- social-ecological systems are both complex and evolving and their management is faced with uncertainty and surprise, making necessary to abandon the perception of a global steady state. Instead, managing complex, coevolving social-ecological systems for sustainability requires the ability to cope with, adapt to and shape change without losing options for future development and, learning is a common feature of social theories that are dynamic (Stagl, 2005: 9).

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# Social learning

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- Webler et (1995), in their work related to public participation in environmental impact assessment, recognize cognitive enhancement and moral development as the two general components to social learning. According to these authors **cognitive enhancement** is learning the acquisition of knowledge and includes several elements like learning about the state of the problem or learning about solutions and consequences.

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## Recognizing 3 types:

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1. **changing knowledge** within an existing frame of reference which involves the adoption of new facts
2. **changing values and preferences** - change in the evaluation of the new facts on the basis of modified values and assumptions
3. **changing behaviour** - people find new ways to deal with a complex and conflict-ridden issues in a constructive way and contemplate to transfer this knowledge to other settings

## Accuring at 2 levels:

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- 1. Short to medium timescales** (at the level of processes between actors)
- 2. Medium to long timescales** (at the level of structural change in the governance structure)

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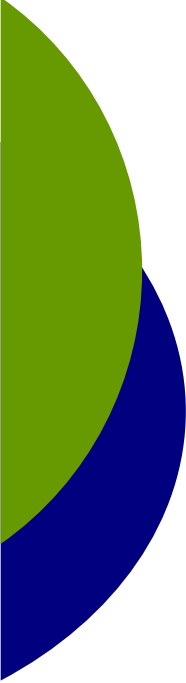
## Social dynamics

12) Does it facilitate convergence or illustrate diversity?

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GoverNat evaluation criteria

Cordula Mertens



## 12) Does it facilitate convergence or illustrate diversity?

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### Diversity:

- Multiple perspectives
- Plurality of values
- Cultural diversity and identity
- Different agendas
- Social and educational background
- Lay and expert knowledge
- Variety of behaviour
- Inhomogeneity of groups

## 12) Does it facilitate convergence or illustrate diversity?

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### Important factors:

- **Respect** for difference and diversity
  - Validity and legitimacy of different agendas
  - Considering a wide variety of viewpoints can assist decision-makers in understanding the interlinked nature of problems
- **Time** and patience is crucial for facilitating convergence
  - Consensus on the existence of a problem is important to start an effective participatory process
  - Participatory decision making processes can facilitate the expression and reconciliation of a variety of behaviours and interests within and between individuals and communities

## 12) Does it facilitate convergence or illustrate diversity?

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### Problems:

- Top-down approaches often limit empowerment and the recognition of differing opinions, and do often not allow enough time to build a consensus
- Forced consensus may prevent important issues to be raised
- Building consensus is not always possible (opposing values or interests, no respect for alternative views)

### Methods:

- Interviews
- Stakeholder analysis
- Results of the process (agreement?)

# 12) Does it facilitate convergence or illustrate diversity?



## Literature:

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## Costs

13) Does the process consider the cost-effectiveness of the proposed solutions?

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Matteo Roggero

# Cost-effectiveness 1/3

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“How well a method is suited to find cost-effective resolutions for the conflict, i.e. how well it takes into account the available means and is able to help elucidate the costs and effects of different resolutions” Wittmer & Rauschmayer, 2006, pg.7

Participation in a ‘thin’ sense:

1. definition as such relates to deliberation exercises and
2. aims at capturing the room given to participants for comparing alternative arrangements according to their cost profile.

## Cost-effectiveness 2/3

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In economics, **effectiveness** refers to the capacity of a given measure or intervention to achieve its objectives.

**Cost-effectiveness** relates such achievements to the underlying cost dimension: an arrangement is more cost-effective than another if it achieves the same target at lower costs.

In a context of participation as collective decision making by a plurality of different actors, cost-effectiveness proves **insensitive to distributional issues** concerning the costs entailed by the arrangement on the participants (criterion can be misleading if distributional issues complicate the decision).

## Cost-effectiveness 3/3

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An increasing number of participants can decrease the relevance of this criterion if the participants are differently affected by the costs of the arrangement to be discussed.

At the same time, if the costs are homogeneously/acceptably shared among actors, considering cost-effectiveness becomes a central criterion for lowering governance costs through participation.

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## Costs

14) Is it expensive itself in proportion to the issue at stake?

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GoverNat evaluation criteria

Mireia Pecurul

## COSTS OF THE METHOD

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### Promoters:

- Costs of Staff:
  - Coordination, mediator, editor board
- Financial Costs:
  - Costs of establish a methodology
  - Costs of edition and diffusion of information (leaflets, websites...)
  - Cost of avenues, catering & others
- Cost and time raising interest
- Cost of monitoring and reporting
- Time invested in the process

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## OTHER COSTS TO CONSIDER

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### Participants:

- Time invested in the process
- Costs of processing the information
- Cost of creating network (?)
- Financial Costs (travelling, day-off...)

### Other costs (If decision failure)

- Lose of legitimacy & credibility
- Lose of trust in participatory processes

## COSTS OF THE ISSUE AT STAKE

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- Legal costs (if legal binding)
- Social Costs (conflicts between stakeholders, lose of opportunities to collaborate)
- Ecological costs (decrease of biodiversity and well-being)

How to measure these costs?



## Costs

15) To which degree is it sensitive to decision failures?

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Matteo Roggero

# Decision-failure costs 1/3

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“The costs incurred due to a sub-optimal level of conflict resolution”.

Wittmer & Rauschmayer, 2006, pg.7

“(...) the costs of having chosen this aim versus other aims, including the costs of choosing no action?” (Berghöfer et al. 2007)

Two elements:

1. deviation from a target
2. uncertainty / ignorance

## Decision-failure costs 2/3

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“Decision failures are inevitable (...) the fact that there will always be some natural error informs us that we had better spend at least *some* time in preparation for error recovery”.

Chermack, 2004, pg.296

“(...) governance institutions cannot be perfectly designed ex ante: it would be prohibitively costly to do so”.

Paavola & Adger, 2005, pg.357 (referring to Williamson, 1985)

The criterion tries to capture the possibilities for participants to introduce reflexivity and learn about their actual decision making by eliciting its limitations/constraints and include possible unintended consequences (See single vs. double-loop learning in Nielsen & Holm, in press).

# Decision-failure costs 3/3

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Socio-ecological systems present risk, uncertainty and ignorance:

1. risk: possible outcomes are known, probability distribution is known
2. uncertainty: possible outcomes are known, probability distribution is not known
3. ignorance: both possible outcomes and probability distribution are unknown

Vatn, 2005 (See also Bromley; Funtowicz & Ravetz, 1994)

**It is not possible to estimate costs deriving from uncertainty and/or ignorance** (Martinez-Alier, 2003, pg.3), thus the criterion tries to capture the capacity of the method and/or governance structure to **adjust to and accommodate** costs stemming from **unforeseen events**.

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# References

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