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GEIGER

Participation of stakeholders in MCDA applied to EA: processes and tools

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1. PP in environmental assessment
1.1. EA: key aspects

Environment, natural resources and land-use planning: systems and complexity

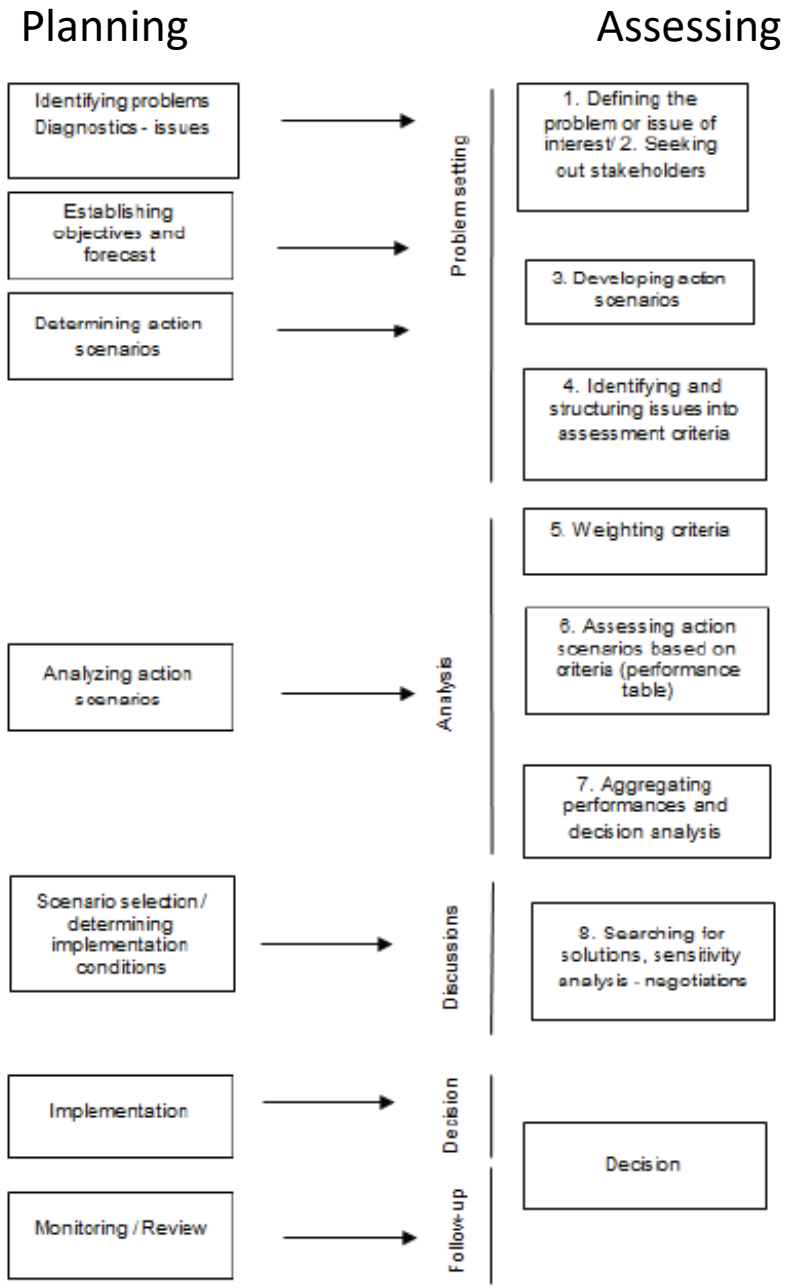
- Plurality of administrative authorities and processes
- Multiple spatial levels and times horizons
- Multiple stakeholders and diversity of decision-makers
- Conflicting opinions, perceptions, beliefs, values
- Types of knowledges
- Multiples dimensions, preoccupations, needs, issues including environmental and social impacts
- Links and interconnections

1. PP in environmental assessment
1.2. Interrelating the decision processes

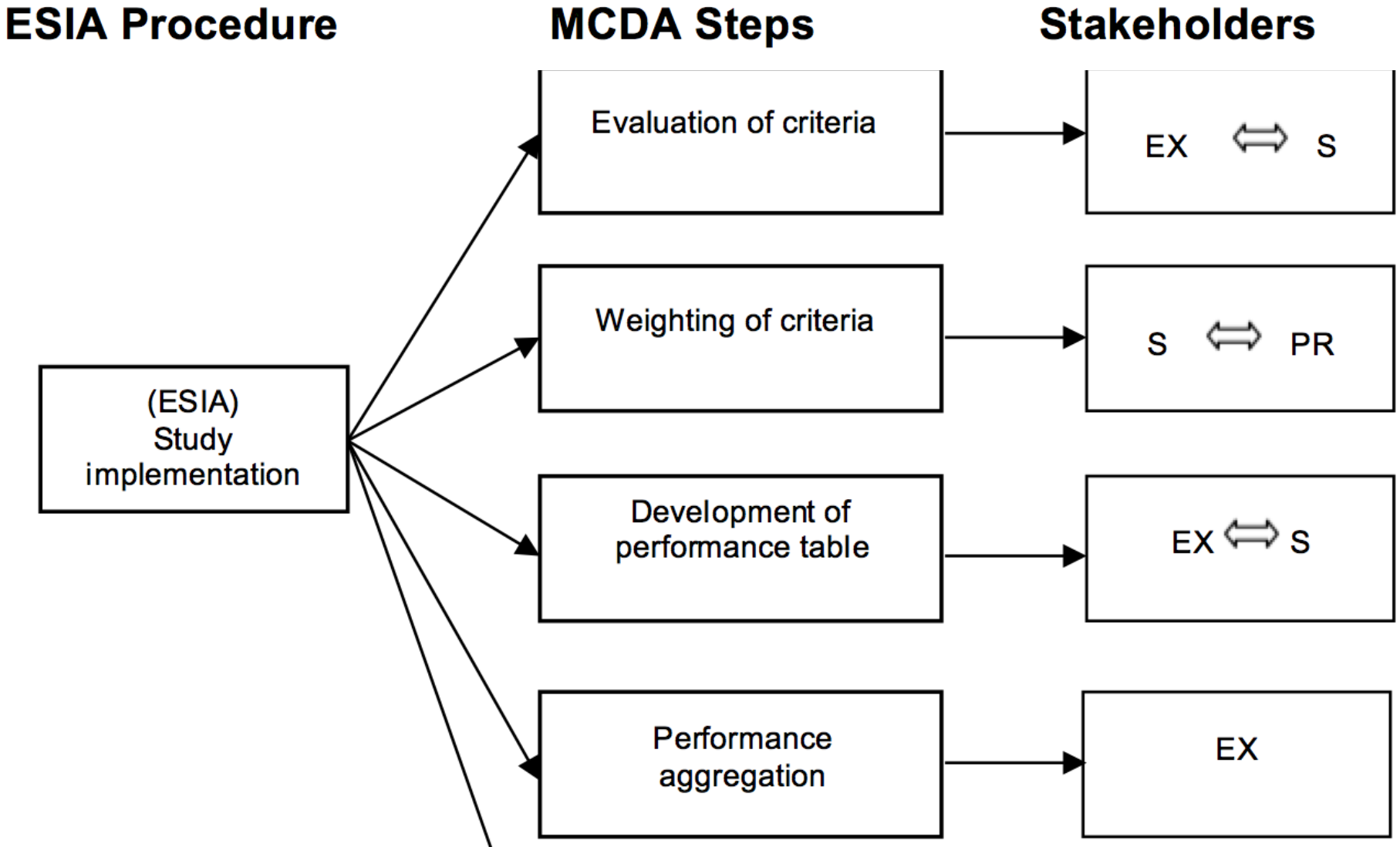
All relevant decision processes should be linked to the problem:

- Planning at different decision levels: from projects, to strategic proposals such as programmes, plans, and policies
- Other inter-related planning processes from different promoters at the same level or upstream.
- Environmental assessment
- MCDA
- Public participation at different steps
- Other assessments related to the same problem (ex.: economic assessment)

Integrating planning and MCDA processes related to SEA



Application of MCDA to ESIA



PR=promoter; RA=responsible authority; Ex=experts; S=stakeholders; P=public

2. MCDA in a multi-stakeholder context
2.1. Different perspectives

- We recommend here to co-construct a single performance table (scenarios-criteria) that will be the culmination of a sharing phase upstream of the process and that constitutes a common and shared understanding of the problem.
- Other methods (ex.: MAMCA) allow each actor to build his own performance table and the sharing is done later in the discussions, based on results from these individual and more or less shared understandings of the problem.
- It seems to us more profitable to have beforehand all the necessary discussions to clarify the issues, criteria and indicators.
- It also helps to distinguish between uncertainties and ambiguities. The first correspond to a probabilistic reality while the second ones resolve as and when discussions by verbal clarification of the meaning to give.

2. MCDA in a multi-stakeholder context
2.2. Actors and stakeholders

- Actors are individuals or groups of individuals in a decision-making process. Through their value system, they directly or indirectly influence the decision, be it in the first degree because of their intentions, or in the second degree because of how they involve the intentions of others.
- Be proactive to search for societal representativeness
- Social acceptability and legitimacy
- A decision is legitimate when the procedures used are legitimate

Actors include, for example

- Decision makers
- Promoter(s)
- Process managers
- Experts of the support team
- Governmental authorities of various levels
- Stakeholders from civil society
- People in charge of decision implementation and monitoring
- The public (individuals).

RQ: We associate the expression of stakeholders with organized groups of civil society and reserve the expression of public to individuals.

Aspects to consider when making up a working group (1/2)

- 1. Actively seek out actors.
- 2. Make sure the working group is representative of the milieu.
- 3. Ensure the actors are representative of their home organization.
- 4. Give the possibility of simulating fictitious actors (absent, weak, etc.).
- 5. Agree on a mediator, facilitator or communicator.
- 6. Select a support team for the decision-aid process (analysts) and make sure it is well accepted by working group participants.

Aspects to consider when making up a working group (2/2)

- 7. Agree on a statement of work for the working group, reflecting the available resources (especially in terms of deadlines), mode of operation (information availability, intermediary decision-making, accountability, transparency, etc.), degree of involvement, conflict resolution mechanisms, etc.
- 8. Agree on the modes of communication to be used throughout the process.
- 9. Agree on the distribution of power within the working group.
- 10. Prepare and give all actors training on the process and its related support tools.

Adaptation to context

- Political and democratic context
- First Nations
- Geography
- New application domains: public health
- Application in different countries

Consultation with stakeholders in Guinea

Environmental technical services

Women mareyeuses in Kamsar

Village of Baralendé in Boffa

- Taking into account stakeholder concerns and review of criteria and indicators;
- Validation of the criteria and their weighting by stakeholders;
- Improvement and validation of scenarios with stakeholders.

Round table in Conakry

3. PP in EA process with MCDA: step by step
3.1. Who and at what stages?

- Ensure that the actors recognize the need to assess using several criteria.
- The problem setting evolves with the actors, including the stakeholders
- Iterations, but when to stop
- Have confidence in the tools and avoid the temptation to use so-called black box super systems
- Stakeholder availability (seasonal)

Definition of roles at each steps of the decision process

- Example of SEA of shale gases in Quebec
- The level of implication of the stakeholders
  - Information
  - Consultation
  - Validation
  - Contribution
- Types, number and duration of the meetings
- Face to face mode and virtual mode (combinations)

3. PP in EA process with MCDA: step by step
3.2. Problem definition

Benefiting from a specialist (coordinator, facilitator, mediator: the myth of neutrality versus being pluralistic and explicit on its role in a transparent process)

- Preconditions
- Art of Hosting: welcoming meaningful conversations and dialogue
- Art of harvesting the fruit of our most important conversations (collective meaning)
- How to encourage listening, the emergence of common ideas in a co-construction mode (being contributive)

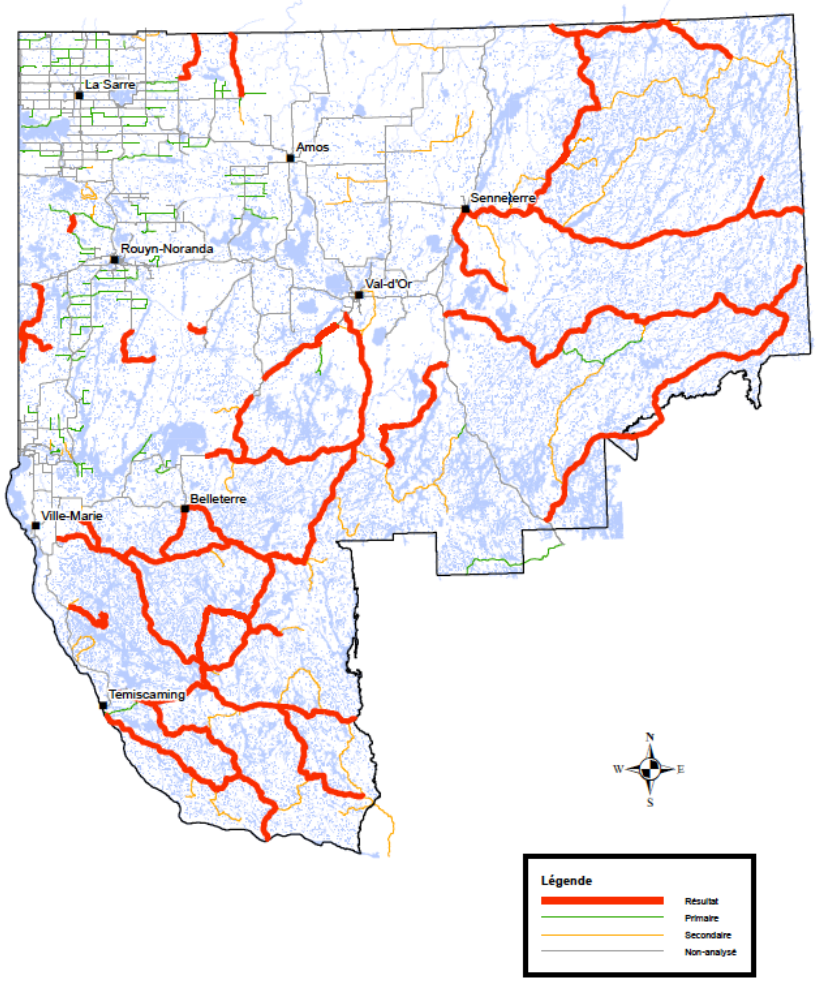
Tools of animation and modes of implication

- Post-up: working with post-it
- Trends: common vision of the future and heuristic mapping
- Motorola
- World cafe
- Market pitch
- Start/stop/continue
- Circle layout
- Three step: emergence, brain storming (zone group), closing
- Be prepared: propose a short list of items to not start the conversation from scratch, but not too detailed to avoid the feeling everything is already decided

Translation into criteria and indicators

- Structuration of a limited set of issues and their translation into qualitative and quantitative criteria and indicators
- Working upstream towards a common and shared understanding of the problem
- Working while managing individual conflicts involving the problem settings (scenarios and criteria)
- Iterations needed to check if the criteria reflect the issues
- Level of compromise between insuring the properties of a coherent family of criteria and the adhesion of the stakeholders (trust level)

Abitibi - Témiscamingue



3. PP in EA process with MCDA: step by step
3.3. Scenario assessment

Measurement of indicators

- Mobilization or not of sectoral expertise
- Budget constraints: it might cost a lot to be fully informed (trade-offs between the cost of information and its usefulness; the 80-20 rule)
- Use of different tools
  - geographic information systems
  - Field works and data gathering
  - Focus groups
  - Delphi or political Delphi (web based)
  - Voting machine
  - Mathematical models

Knowledge based decisions

- Knowledge based decision
- Types of knowledge
  - Scientific
  - Contextual
  - Vernacular
  - Traditional
- Issue:
  - Consider in parallel
  - Integrate into the dominant scientific knowledge,
  - Find a balance,
  - Unite in a new synthesis, etc.

3. PP in EA process with MCDA: step by step
3.4. Stakeholder preferences and priorities

- Intra-criteria information: Preference functions and related thresholds
  - Still an issue for the stakeholders
  - Simplified approach and consequences
  - How to consider the magnitude of the differences between the evaluations for each criterion
  - Actors always proceed by comparing assessments and by assigning preferences to observed gaps for each criterion and not to their absolute values.
  - Moreover, the preference function standardizes the gaps between assessments and thus eliminates all scale effects related to the units with which the criteria are expressed.

3. PP in EA process with MCDA: step by step
3.4. Stakeholder preferences and priorities

- Inter-criteria information: Weighing the criteria
  - The criteria weighting stage enables the actors' value system to be formalized.
  - The relative importance of the criteria according each stakeholder
  - This information directly affects the aggregation of preferences.
  - The mathematical meaning of the weights
  - Weighting techniques: allocation of 100 points directly or according a hierarchy; playing cards
  - Differentiate between our values and personal priorities, and those of the organization we represent.
  - Is there any uncertainty about the interplay of weights

3. PP in EA process with MCDA: step by step
3.5. VP tools

Conditions for an effective participatory process

- Initiate by the authorities
- Initiate as early as possible
- Actors' credibility
- Pedagogy of the proposition under study
- Being accessible to the public
- Project with alternatives
- Sound planning of the public participation mechanisms
- Facilitate a genuine dialogue
- Clear, honest and true information
- Influence on the final decision
- Inclusion of a meaningful follow-up process

Visual PROMETHEE software

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Multicriteria Decision Aid
Methods, Modeling and Software

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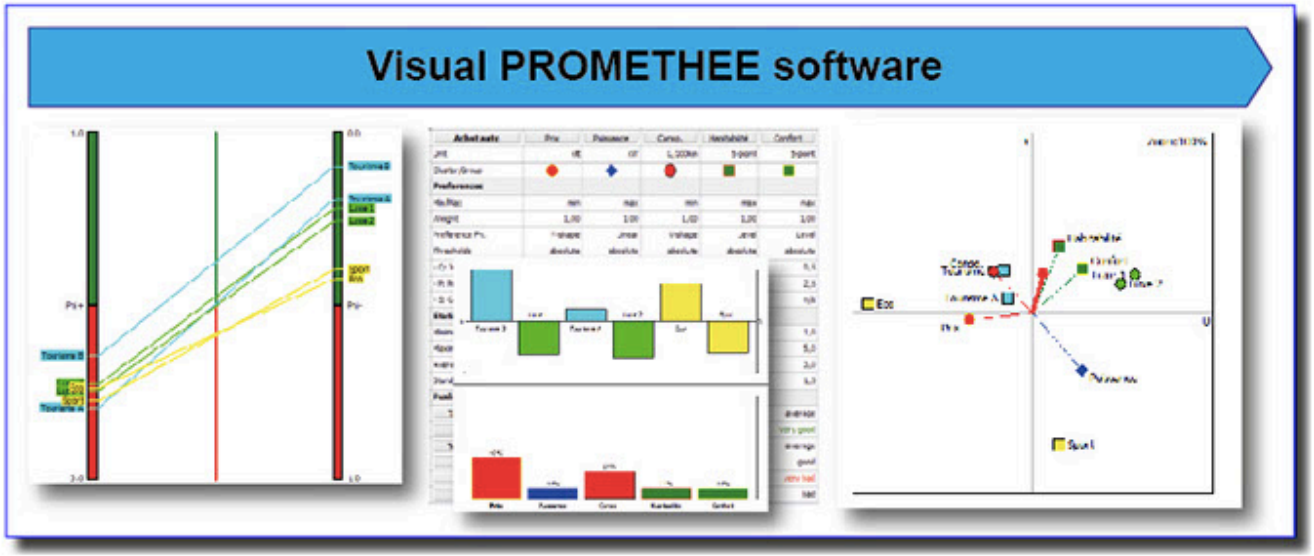
www.PROMETHEE-GAIA.net



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Visual PROMETHEE
Multicriteria Decision Aid Software

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Visual PROMETHEE: tools

- Level of interactions between the experts in decision aid and the stakeholders
- Level of control of the the experts in decision aid
- Accessibility
- Diversity of the tool box
- Design and ergonomics of the presentation modes of the results
- Ease of use

Production and communication of results to the participants

- The participant notebook
  - Appropriation of results
- Using the software in front of the stakeholders?
  - The feeling of manipulation of the decision
  - The feeling of controlling the engine
  - Interactivity (sensitivity analysis with the walking weights) and confidence

Several questions for each stakeholder

1. What is(are) the best option(s)?
   - PROMETHEE Rankings
2. Why is it a good option?
   - GAIA, Profiles, Rainbow
3. What about the weights of the criteria?
   - GAIA, Walking Weights
4. Why not another option?
   - GAIA, Profiles, Rainbow
5. Are there any missing criteria?
   - Brainstorming
6. Is the proposed option a robust one?
   - Visual Stability Intervals

Several Stakeholders-Related Questions

1. Is there a consensus about the best option?
   - PROMETHEE Group ranking, GAIA-Scenarios
2. Who disagrees with the proposed option? Why?
3. How do the stakeholders individually influence the option?
4. Is it a robust option?

Consultation, deliberation, negotiation between stakeholders

- How to evolve towards recommendations to the ultimate decision maker
- Animation techniques and consensus building
- Face to face or on line modes
- Even if the stakeholders are representative of the society, there is often a need to open to a broader audience: public hearings, internet consultation, etc. (social acceptability)

4. Future issues

- Big data and artificial intelligence
- Decision analytics, system analytics, policy analytics
- Sustainable development and global issues (tiering spatial level and time horizons)
- Transition pathways and dynamic multicriteria analysis
- Coupling with models at different steps
- Communication tools
- Web 2.0 and social media

Thank you for your attention