

Better Stakeholder Involvement Through Multi-Attribute Decision Analysis

A Decision Analysis Framework for Consultation



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Overview

- Public participation in Environmental Assessment
- A decision analysis approach
- Case studies
- Research project
- Conclusion

Public Participation in Environmental Assessment

➤ It's important!

➤ It's difficult!

Complexity *Multiple objectives*

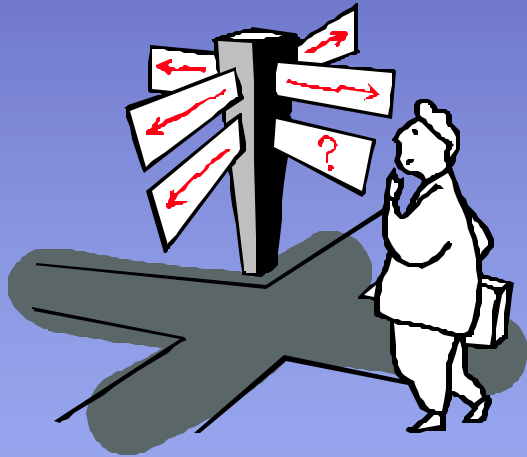
**Multi-Attribute
Decision
Analysis**

Uncertainty *Different perspectives*

Challenges

- Incomplete understanding of stakeholder values
- Late involvement
- Dealing with highly technical issues
- Little government guidance or standards

What is Decision Analysis?



- Systematic approach to decision-making
 - Principles
 - Process
 - Tools
- Multi-Attribute Decision Analysis is a subset developed for multiple stakeholders

Principles of Decision Analysis

- Desirability of alternative depends on:
 - Probability of consequences (“facts”)
 - Preference for those consequences (“values”)
- Value-focused
- Multiple objectives
- Explicit about:
 - Uncertainty
 - Subjective judgment (assumptions)

Decision Analysis Process

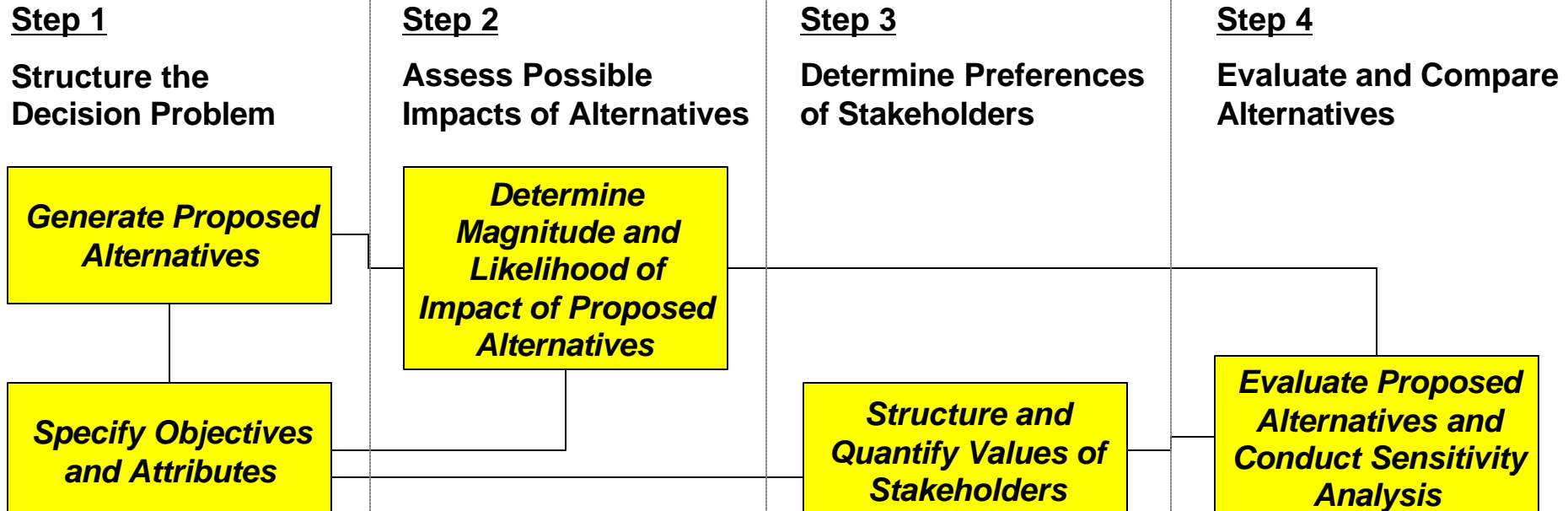


Diagram modified from:

Keeney, R. L. (1982). "Decision Analysis: An Overview." *Operations Research* **30**(5): 803-838.

Zortman and Landusky Mines Multiple Accounts Analysis

- Owner bankrupt, regulators responsible for reclamation with limited bond funding.
- Involved regulators, Indian band representatives, contractor, consultants.
- Technical committee able to reach consensus recommendation.
- Regarded as successful by all participants.



Multi-Attribute Tradeoff Analysis at BC Hydro



- State of the art stakeholder involvement for Water Use Planning (WUP) process
- Advisory stakeholder consultative committees used MATA to develop plan
- WUPs recognize multiple water use objectives: hydroelectric, recreational, community, flood management, and fish habitat



Multi-Attribute Approaches

Strengths

- ✓ Framework for fostering collaboration and mutual learning
- ✓ Separates facts from values, then integrates them
- ✓ Encourages transparency
- ✓ Facilitates strategic data collection and monitoring

Weaknesses

- ✗ Not suitable for majority opposition
- ✗ Difficult to get stakeholders together
- ✗ Managing expectations
- ✗ Transparency required can be threatening
- ✗ Decomposition can be problematic

Research project

- Project will assess a Multiple Accounts Analysis that is currently being planned for an operating mine intending to optimize its tailings management system
- MAA with stakeholders will form part of the consultation process
- Research project will assess MAA process from perspective of all participants

Conclusion

- Multi-Attribute Decision Analysis (MADA) provides a systematic means of integrating stakeholder values and technical analysis
- Companies and government agencies have found it a useful aid to decision making
- Research project should provide basis for further use in consultation and public participation

Questions?

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Sustainability Working Group

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