

Effective Engagement: building relationships
with community and other stakeholders

Book 3 the engagement toolkit



3.32 MODSS (Multi-objective Decision Support Systems)

Description:

Multi-objective decision support systems technology allows programs to be developed that focus on management effects in environmental issues. This technology is part of the science of environmental management, which recognises that natural and social systems are dynamic, interlinked and unpredictable, and need complex systems that allow flexible responses. Management that uses rigid control mechanisms can contribute to the breakdown of socio-ecological systems. Hence, newer approaches stressing flexibility and responsiveness have developed, and decision support technology has developed that allows for the inter-connectedness of ecological systems. Such computer programs describe the multiple effects of any change, and provide a structured approach to selecting a management plan based on a group's preferences and tradeoffs (based on Heilman et al, 2000).

Objectives:

MODSS technology creates programs that can address widespread, significant problems, and engage stakeholders in considering the best compromise in complex environmental issues where there are many, often conflicting, criteria.

Outcomes:

MODSS offers better solutions that allow flexible responses to complex environmental issues.

Uses/strengths:

- Can offer ways to assess a variety of options and their consequences in a complex environmental issue.

- Can be incorporated into existing computer programs and operating systems, simply adding the components that are needed for decision making support.
- Can provide a structured approach to engage stakeholders in complex environmental issues where there are many, and possibly conflicting, criteria to consider.

Special considerations/weaknesses:

- Can be very high cost for specialist programming.
- Can exclude those who are not computer literate.
- Needs to have been sufficiently used to be validated and minimise software bugs.

Resources required:

- Computers, programmers, good quality data
- Wide range of expertise

Can be used for:

- Develop community capacity
- Develop action plan

Number of people required to help organise:

- Large (> 12 people)

Audience size:

- Large (> 30)
- Medium (11–30)

Time required:

- Long (> 6 months)
- Medium (6 weeks – 6 months)

Skill level/support required:

- High (Specialist skills)

Cost:

- High (> AUD\$10,000)

Participation level:

- High (Stakeholders participate in decision)

Innovation level:

- High (Innovative)

Method:

1. Determine the issue or management decision that needs to be addressed.
2. Review existing databases, programs and options.
3. Using a program such as The Facilitator, add on the decision support tools needed.
4. Trial the Decision Support tool.
5. Modify as needed to develop an operational tool for natural resource management decision making.

References:

- Heilman, P, Davis, G, Lawrence, P, Hatfield, JL & Huddleston, J (2000) 'The facilitator - an open source effort to support multiobjective decision making', Rizzoli, AE & Jakeman, A J (eds.), *Integrated assessment and decision support, proceedings of the first biennial meeting of the International Environmental Modelling and Software Society*, Volume 3, iEMSs, 2002. Available online: http://www.iemss.org/iemss2002/proceedings/pdf/volume%20tre/325_heilman.pdf [accessed 02/07/2005]
- <http://www.modss.org> [accessed 02/07/2005]