

Connecting science with environmental policy

Challenges and opportunities for evidence-based policy

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1. The challenges

- evidence is absent or unreliable
- evidence is unclear or in dispute
- issues are complex
- scientific uncertainty about impacts/solutions
- positions are irreconcilable
- high degree of public outrage
- decisions are urgent

Examples of contentious science-policy issues

- Genetic modification
- Non-ionising radiation
- BSE crisis
- RCD
- Climate change

Typical controversy over evidence

Position A	Position B
Claims scientific justification and legitimacy	Claims scientific justification and legitimacy
Focuses on supportive scientific data, intended outcomes and benefits	Raises scientific uncertainty, competing scientific results, unintended outcomes and risks
Narrows the issues to known facts	Broadens the issues to include consideration of values, long-term unknowns
Impacts are predictable and manageable	Impacts are unpredictable, therefore caution needed
Solution is straightforward	Solution is complex

Single perspectives of complex problems lead to only partial solutions

- Complex environmental issues can be:

- * Multi-dimensional (GM)
- * Multi-scale (climate change)
- * Multi-disciplinary (sustainable development)

Need to match risks and responses

Situation	State of knowledge	Action
Risk	Known impacts and known probabilities	Prevention
Uncertainty	Known impacts but unknown probabilities	Precautionary prevention
Ignorance	Unknown impacts and unknown probabilities	Precaution

Some dilemmas facing environmental policy-makers

- precautionary action = more alarm
- more information = more uncertainty
- more reassurance = more scepticism
- rapid response = over-reaction
- measured response = too little too late
- evidence-based decisions = disregard for values

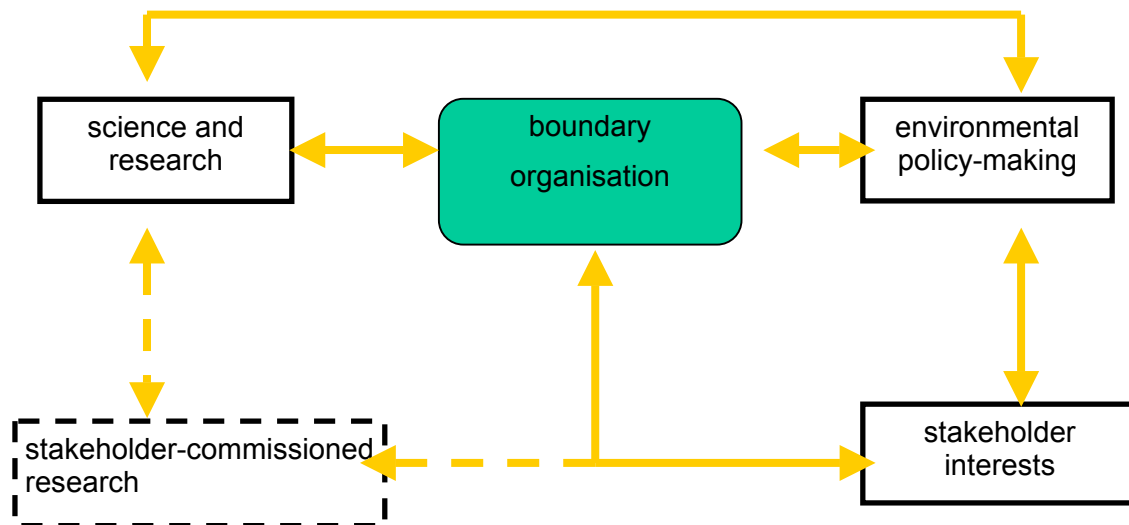
2. The opportunities – linking scientific evidence to environmental policy needs

- 3 key characteristics of effective scientific information :
- Credible
- Salient
- Legitimate

Policy-making under conditions of uncertainty and complexity

- ♦ define the problem
- ♦ match the science to the policy needs
- ♦ communicate, interpret and test advice throughout the policy cycle
- ♦ establish forum to resolve any conflicting or outstanding issues

The 'boundary organisation'



Key characteristics of a boundary organisation

- ♦ issue specific
- ♦ multiple stakeholders and disciplines
- ♦ use of 'boundary objects'
- ♦ communicates, translates, mediates
- ♦ independent, accountable
- ♦ separates science from politics

Conclusion

Forge better science-policy links and outcomes through:

- ♦ Transparency
- ♦ Trust
- ♦ Testing