ENVIRONMENTAL SCIENCE AND PUBLIC POLICY IN VERMONT:

Creating a Framework for Evidence-Based Policy Making

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Overview

Vermont's economic and community infrastructure is strongly tied to the maintenance and development of environmental quality. An understanding of environmental processes, gained through scientific research, is an essential tool for accomplishing this goal. There is, however, little understanding of the mechanisms by which scientific information is incorporated in state environmental policy making. This project seeks to:

(1) Understand how environmental science makes its way into policy discussions and outcomes

(2) Identify new models or strategies that could facilitate the integration of scientific information into environmental policy making

Dilemmas in Vermont Environmental Policy

Vermont is commonly considered a "green" state with strong environmental regulation. Nevertheless, in recent years, Vermonters have witnessed substantial debate about the appropriate management goals for a variety of environmental issues, such as:

- Development review (e.g., Act 250 permit reform)
- Water quality (e.g., toxic algae, stormwater permitting)
- Land conservation (e.g., Champion Lands, prime agricultural lands)
- Agriculture and forestry (e.g., GMO's, regulation of large farms, timber sales)
- Sprawl and transportation (e.g., Circumferential Highway, light rail)

Scientific information is a core contributor to understanding the decision context for environmental issues. Yet the way that science is elicited, evaluated, and incorporated into environmental decision making can vary considerably. For example:

Missisquoi Bay Causeway Removal The impact of the Missisquoi Bay bridge and causeway on water quality has become a hot button issue in northwestern Vermont. Numerous local residents and business owners are calling for the causeway's removal because they have come to believe that it is trapping phosphorus in the bay, leading to the growth of toxic blue-green algae. Following a conversation between President Bush and Prime Minister Paul Martin about the condition of the bay, the U.S.-Canada International Joint Commission (IJC) formed the Missisquoi Bay Task Force, a four-person team of U.S. and Canadian scientists. The Task Force and the IJC determined that the causeway increases phosphorus levels in the bay by approximately 1%, while nutrient and sediment loading from the surrounding watershed is the fundamental cause of poor water quality. However, in their February 2005 report[1], the IJC recommended that the bridge be removed (at an estimated cost of $1.4 million) in recognition of "prevailing local belief", despite their assessment that little water quality improvement would result. Bay residents welcomed the recommendation as an appropriate contribution by the government to water quality improvement. Environmental advocates criticized the recommendation, saying bridge removal is a "symbolic gesture" that would divert resources from anti-pollution efforts that could have real impact on water quality in Missisquoi Bay.

[1] U.S.-Canada International Joint Commission. 2005. Transboundary Impacts of the Missisquoi Bay Causeway and Missisquoi Bay Bridge Project.

Wilderness vs. Working Forest in the Green Mountain National Forest U.S. Forest Service officials at the Green Mountain National Forest have proposed a revised forest management plan to be completed in 2006[2]. The public engagement process (including ~70 public meetings) has revealed widely divergent opinions regarding appropriate management goals for GMNF lands. Valued forest land uses include logging, designated wilderness, wildlife habitat, and a broad range of recreational activities (camping, hiking, biking, hunting, trapping, horse-riding, skiing, bird-watching, snowmobiling, and ATV-riding). Wilderness advocates are disappointed that only 19% (rather than the requested 27%) of GMNF acreage would be given wilderness status, while 'traditional use' advocates push to minimize wilderness designation. The Vermont House of Representatives weighed in on the issue in April 2004 with the 86-56 passage of a 'No More Wilderness' resolution. The selectboards of some towns containing GMNF lands have declared official opposition to increased wilderness designation.

Prioritizing Responses to Mercury Pollution In their 2005 annual report, Vermont's Advisory Committee on Mercury Pollution made a series of recommendations intended to reduce the public health and environmental impacts of this powerful neurotoxin[3]. The report states that, in the northeast, substantial reductions in mercury emissions have been achieved through controls on waste incinerators and industrial sources, but acknowledges that approximately one-third of mercury deposition in Vermont is attributable to out-of-region sources. Major recommended policy actions include: limits on mercury use in consumer goods and devices, fluorescent lamp recycling, and source reduction from medical and dental facilities, in addition to further monitoring and research. While the Advisory Committee report provides a valuable and comprehensive assessment of the state of knowledge about mercury pollution and current research and policy efforts, the report recommendations do not address the two largest in-state sources of mercury emissions: on-road mobile sources (39.9%) and residential heating (33.9%).

These examples illustrate several environmental science policy dilemmas. In the Missisquoi Bay, residents have come to distrust scientific findings outright and are calling for public policy that is at odds with available scientific information. In the GMNF planning process, advocates of competing values and visions for the forest invoke divergent scientific studies, creating a challenging atmosphere for decision-making about forest management.[4] In evaluating opportunities for reducing mercury pollution, major sources are presumed to be uncontrollable and recommendations are focused on the 'low-hanging fruit' of targetable sources.

A Framework for Science in Public Policy

Vermont policy makers and citizens already derive substantial assistance, directly and indirectly, from scientists in understanding environmental challenges, identifying possible responses, and evaluating the success of management strategies. It is important to

[2] US Forest Service. 2005. Green Mountain National Forest Proposed Revised Forest Plan.
[3] Advisory Committee on Mercury Pollution. 2005 Annual Report to the Governor, General Assembly and Citizens of the State of Vermont.
[4] Lisa Chase. 2005. Logging and Wilderness (Presentation). Rubenstein School of Environment and Natural Resources seminar series on Advocacy, Compromise and Survival in Public Environmental Decision Making: Does Science Really Matter?

note that science is a process for understanding the world that can produce divergent conceptions of environmental conditions and concerns. Within the traditional scientific realm, the peer review process is a time-tested mechanism for adjudicating among scientific knowledge claims. As science transitions into the public policy sphere, there is a need for a framework in which scientific knowledge that derives from multiple disciplines and sectors can be evaluated, synthesized, and aggregated. In constructing such a framework in Vermont, there are a number of questions that arise:

- How can we maximize the *integration of scientific knowledge* into policy making while maintaining the integrity and credibility of scientific knowledge gathering?
- What protocols are needed to prevent *politicization of science* while expanding the participation of scientists in public dialogue?
- How can we achieve *transparency* and *accountability* in how scientists from diverse disciplines across the academic, governmental, and industrial sectors aggregate their opinions?

There are many possible roles for scientists to play in providing information and ideas to policy makers (see Appendix A). Through publication of their research findings and in review or advisory roles, scientists have important contributions to make as 'expert citizens'[5]. Scientists may be most effective in enhancing policy formulation when they direct their efforts toward (a) identifying and demystifying environmental phenomena, and (b) monitoring and assessing the efficacy of environmental management in meeting socially-defined goals.[6] To maximize the contribution of scientists to evidence-based policy making in Vermont, several important questions must be addressed:

- What are the particular responsibilities and constraints for state agency scientists in studying, managing, and monitoring Vermont's environment?[7]
- What is needed to amplify the attention of Vermont's academic research institutions to the state's environmental concerns?
- What incentives are needed to encourage Vermont-based research scientists to participate in informing environmental policy makers? (see Appendix B)
- How can science be made more "popular, relevant and participatory"?[8] Can we identify and implement strategies to increase public understanding and engagement in environmental decision making?

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[5] Frank Fischer. 2000. Citizens, Experts, and the Environment: The Politics of Local Knowledge. Duke University Press, Durham, NC.

[6] Daniel Sarewitz. 2000. Science and Environmental Policy: An Excess of Objectivity. p.49-98. *In* R. Frodemen (ed.) Earth Matters: The Earth Sciences, Philosophy, and the Claims of Community. Prentice Hall, Upper Saddle River, NJ.

[7] Agency scientists work in departments and divisions that serve multiple managers: the Governor, the Legislature, and federal authorizing agencies, in addition to interest groups and the general public. There are real resource limits for conducting research and monitoring, gathering and evaluating scientific information, and educating and communicating with constituencies.

[8] David Guston. 2005. From Politicization to Democratization: An Agenda. *In* Panel on The Prognosis for Science in the Next Four Years: Strategies for Preventing the Misuse of Science. Annual Meeting of the American Association for the Advancement of Science. February 2005.

By engaging in a dialogue about these questions, leaders in Vermont's political, scientific, and advocacy communities can enhance public understanding of environmental issues and the quality of environmental policy.

Opportunities for Evidence-Based Environmental Policy

Through a series of interviews with sixteen top environmental managers, policy makers, advocates, and scientists working in the public, private, and nonprofit sectors, the Snelling Center compiled a broad set of ideas about the current role played by science in the environmental policy process (see Appendix C). Through analysis of the information gathered through these interviews, we have developed the following list of opportunities for achieving a more evidence-based environmental policy process in Vermont:

1. Expand and/or formalize the use of scientists in the public and private sectors on review, advisory, and study design committees.
2. Improve specific mechanisms by which scientific information is incorporated into various levels of policy making (i.e., creating statutes, formal rules, and regulatory decision-making).
3. Strengthen capacity for integrated, long-term planning and comparative risk analysis of Vermont's environmental challenges and shift resources to addressing priority problems and emerging issues.
4. Expand opportunities for structured policy discussions among multi-sector stakeholders that generate collaboratively-derived recommendations to policy makers (for emerging issues) and regulators (for rule-making and permit review).
5. Enhance transparency of the relative contributions of science, values, economics, and other considerations in policy outcomes.
6. Explore the potential benefits of Adaptive Management in which regulatory standards evolve with increasing scientific understanding of environmental processes and conditions.
7. Enhance priority-setting, fundraising, and partnering to conduct long-term, landscape-level environmental studies that address cumulative effects of land use change.
8. Create new linkages among agency scientists, local officials, and the public to boost scientific literacy and capacity for environmental decision-making.

These ideas point to opportunities for innovation in how science is conducted, how research findings are used to answer policy-relevant questions, and how scientists participate in public education and governance.

The National Conversation on Science Policy

Vermonters are not alone in wrestling with how best to evaluate and integrate scientific information with other public policy considerations. At the national level, politicization of science in policy formulation, as well as changing approaches to appointing scientific advisors, has attracted considerable attention among the scientific

community.[9] Last year, the Union of Concerned Scientists, a national environmental science advocacy organization, initiated a 'Restoring Scientific Integrity' campaign to publicize documented abuses of science in the policy making process in recent years. Their projects have included: (1) reports and statements by prominent U.S. scientists calling for scientific integrity in policy-making[10], (2) a survey of US Fish and Wildlife scientists that documented perceptions of political interference in scientific determinations[11], and (3) public polling that found strong support for the independent conduct and reporting of science.

Politicized debate over the scientific knowledge base for global climate change has been particularly intense among scientific societies, think tanks, industry, and the government. This controversy will be evident in an upcoming federal court case about whether the National Environmental Policy Act (NEPA) applies to potential global warming effects of U.S.-funded overseas oil drilling and power plant projects.[12]

Charges of extremism and partisanship have raised concerns and sparked discussion about the credibility of data underlying recent national environmental policy decisions. In 2004, thirteen scientific societies issued a formal statement on scientific peer review for federal policy, calling for "objectivity, quality and thoroughness [in] the body of science underlying management decisions".[13] The President's Science Advisor, John Marburger, recently said that, "the nascent field of the social science of science policy needs to grow up, and quickly."[14]

Innovative Strategies and Alternative Models

The national conversation is highlighting many of the central issues of environmental science policy and producing a variety of useful concepts and models that may be relevant for evidence-based policy making in Vermont. Because of the smaller scale of

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[9] The National Council for Science and the Environment's annual conference on 'Science, Policy and the Environment' brings together an interdisciplinary group of environmental scientists to evaluate current policy challenges. Focus topics have included: Improving the Scientific Basis for Environmental Decisionmaking (2000), Sustainable Communities: Science and Solutions (2001), and Forecasting Environmental Changes (2005). The theme of the 2005 American Association for the Advancement of Science Annual Meeting was 'Where Science Meets Society' and included symposia on many dimensions of environmental science policy, including: Adaptive Management in the 21st Century, Prognosis for Science in the Next Four Years, When Scholarship and Politics Clash, Science and Policy Transformations for Sustainability, and Strategies for Scientists to Connect with the Public.

[10] Union of Concerned Scientists. 2004. Scientific Integrity in Policymaking: An Investigation in the Bush Administration's Misuse of Science [Online]. Available at http://www.ucsusa.org/global_environment/rsi/page.cfm?pageID=1641 (retrieved 30 May 2005).

[11] Union of Concerned Scientists. 2005. U.S. Fish and Wildlife Service Survey Summary [Online]. Available at http://www.ucsusa.org/global_environment/rsi/page.cfm?pageID=1601 (retrieved 30 May 2005).

[12] Eli Kintisch. 2005. Global warming skeptic argues U.S. position in suit. Science 308:482.

[13] Ecological Society of America. 2004. Position Statement on Scientific Peer Review [Online]. Available at http://www.esa.org/pao/esaPositions/Statements/Position-Statement_ScientificPeerReview.php (retrieved 5 May 2005).

[14] Jeffrey Mervis. 2005. Marburger asks social scientists for a helping hand in interpreting data. Science 308:617.

issues and debates in Vermont, opportunities for adopting innovative approaches may be significant.

Some examples of new strategies for improving the integration of science in environmental policy include:

- Stakeholder processes can bring together local citizens, technical experts, and policy makers to develop collaborative, long-term visions for environmental management.[15]
- Joint fact-finding can be used to resolve technical questions, build trust among stakeholders, and promote collaborative planning in science-intensive policy disputes.[16]
- Partnerships between industry and environmental advocacy groups can produce shared understanding of environmental problems and voluntary changes in industrial practices.[17]
- Scenario planning can be used to analyze future environmental risks and to evaluate the feasibility of specific policy strategies for achieving desirable environmental outcomes.[18]

A greater awareness of the broad range of innovative decision making strategies available to policy makers, environmental scientists, and other stakeholders can help in preventing the distrust and polarization that, in many cases, has detracted from optimal environmental policy.

Snelling Center Initiatives in Environmental Science Policy

A central element of the Snelling Center's mission is to benefit Vermont by facilitating sound public policy development. In the arenas of health care, education, and community development, SCG has served as a convenor of transformative ideas and policy leadership. The Snelling Center is uniquely positioned to facilitate a collaborative and broad-based dialogue about how Vermonters can create a framework for achieving better-informed, evidence-based environmental policy.

The Snelling Center is currently working on a variety of environmental science policy projects:

1. Through a partnership with the Conservation Study Institute, SCG Intern Carmen Jaquez is conducting interviews with Vermont conservation leaders to document the spectrum of approaches to conservation planning at work in the state. This project specifically addresses the tension between science-driven, biogeographic approaches and socio-cultural emphases in conservation efforts and their respective roles in protecting the quality of Vermont's landscape.

[15] One example is Shared Strategy for Puget Sound. See http://www.sharedsalmonstrategy.org/.
[16] One example is the MIT-USGS Science Impact Collaborative (MUSIC) project, a partnership of the Massachusetts Institute of Technology, the United States Geological Survey, and the Bureau of Land Management. See http://web.mit.edu/dusp/epg/music/.
[17] One example is the Pew Center for the Environment's Business Environmental Leadership Council (BELC). Individual business members are setting reduction targets for their greenhouse gas emissions. See http://www.pewclimate.org/companies_leading_the_way_belc/.
[18] The Institute for Alternative Futures provides a description of the techniques used in scenario planning. See http://www.altfutures.com/methods.asp.

2. In response to the public controversy surrounding commercial wind energy facilities, SCG Intern Stephanie Delano is investigating the potential contribution of small-scale, net-metered wind development to Vermont's energy supply future. This project will outline the regulatory, financial, and technical context for small-scale wind projects and address the benefits and impacts for operators, communities, the state, and the environment. The outcome will be an informational resource for individuals and institutions interested in establishing wind turbines, as well as local and state officials and interested members of the public.
3. Through a partnership with The Nature Conservancy, SCG Intern Emilian Geczi is cataloguing the range of policy positions and responses of TNC chapters to wind energy development projects in their states. The project investigates how a science-driven organization can approach an emerging issue in the absence of clear scientific knowledge, in this case of the ecological impacts of wind turbines.
4. Former SCG Intern Ben Machin constructed a policy brief on the emerging environmental issue of invasive insect pest species (specifically the emerald ash borer and the Asian longhorned beetle). His work addressed the potential impacts on forest health, tourism, and the forest products industry. Current SCG Intern Molly Michaud is working to advance recommendations set out in the briefing by fostering dialogue and policy action among federal and state agencies, legislators, and university researchers. Her work includes a focus on cultivating training and regional economic development opportunities for Vermont forestry companies in order to develop expertise in the niche of invasive species management.
5. Through a placement with the Lake Champlain Committee, SCG Intern Helen LaBun Jordan is conducting research and public education on residential sources of phosphorus loading in Lake Champlain. A major element of her work has been interviewing researchers with expertise in the loss of phosphorus from lawns, particularly from granular fertilizer applications, in an effort to evaluate the range and caliber of scientific information available to policy makers.

We envision that, through the on-going work of SCG interns and fellows, we will produce a series of policy briefs that explore the policy dimensions of specific environmental issues through analysis of case studies, regulatory frameworks, and public engagement processes. These policy briefs will serve to illustrate how science is, or is not, employed and at what stage in environmental policy making. They will constitute a foundation for facilitated conversations with political officials, natural resource managers, and advocates to improve environmental policy development and outcomes.

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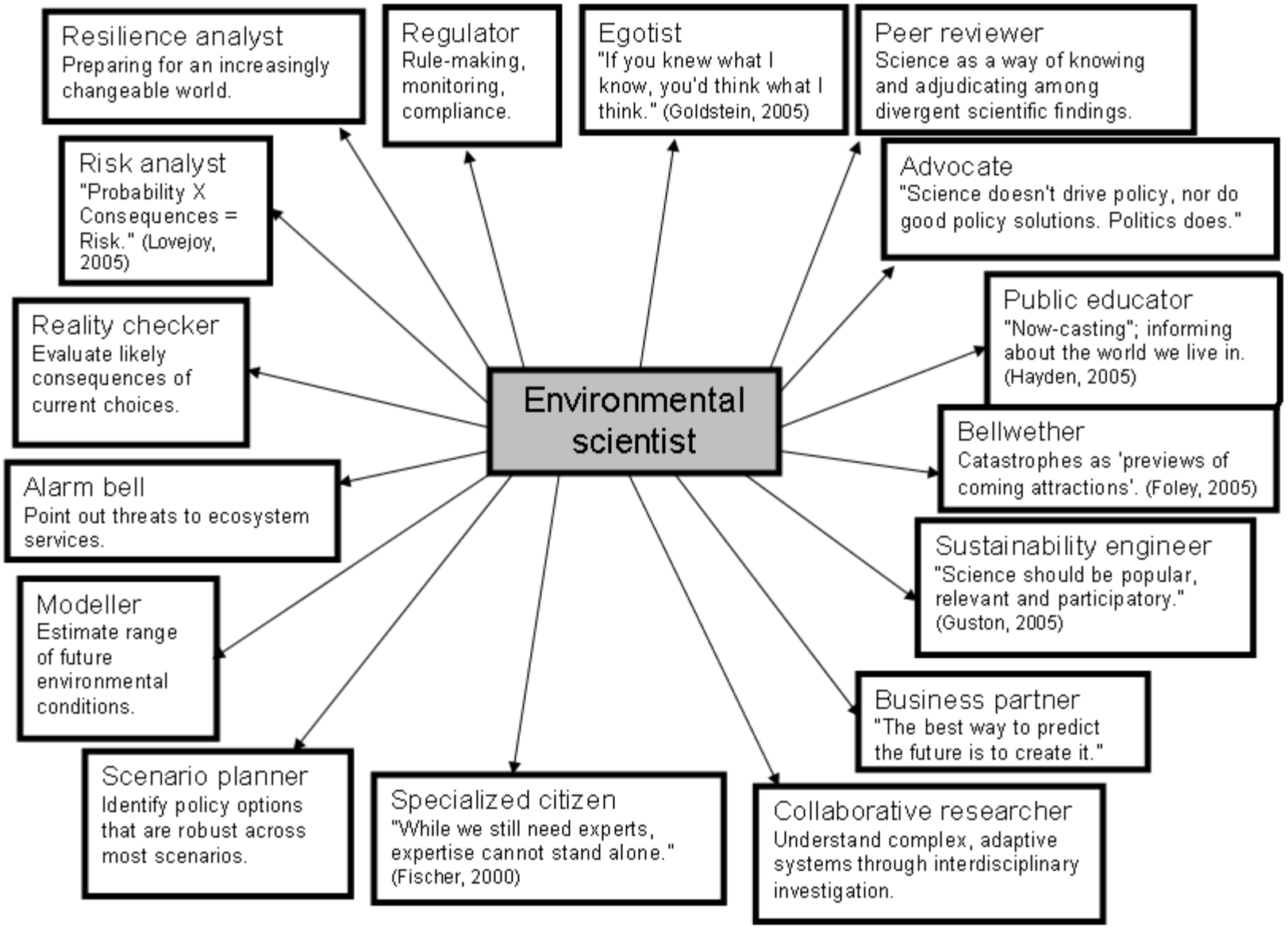
Environmental scientist
Resilience analyst
Preparing for an increasingly changeable world.
Regulator
Rule-making, monitoring, compliance.
Egotist
"If you knew what I know, you'd think what I think." (Goldstein, 2005)
Peer reviewer
Science as a way of knowing and adjudicating among divergent scientific findings.
Risk analyst
"Probability X Consequences = Risk." (Lovejoy, 2005)
Advocate
"Science doesn't drive policy, nor do good policy solutions. Politics does."
Reality checker
Evaluate likely consequences of current choices.
Public educator
"Now-casting"; informing about the world we live in. (Hayden, 2005)
Bellwether
Catastrophes as 'previews of coming attractions'. (Foley, 2005)
Alarm bell
Point out threats to ecosystem services.
Sustainability engineer
"Science should be popular, relevant and participatory." (Guston, 2005)
Modeller
Estimate range of future environmental conditions.
Business partner
"The best way to predict the future is to create it."
Scenario planner
Identify policy options that are robust across most scenarios.
Specialized citizen
"While we still need experts, expertise cannot stand alone." (Fischer, 2000)
Collaborative researcher
Understand complex, adaptive systems through interdisciplinary investigation.

Appendix A

APPENDIX B

Challenges for scientists participating in policy issues:

1. Scale, specialization, and site-specificity:
   - Does the environmental scale or disciplinary nature of a scientist's research knowledge lend itself to the policy issue? Is the research or policy issue so site-specific as to make meaningful connection unrealistic?
   - How can research knowledge and local knowledge interact and combine to inform policy?
2. Uncertainty/Indeterminacy:
   - What balance can scientists strike when there is either inadequate evidence or scientific agreement on an emerging issue, but policymakers seek clear, immediate answers? Are there policymaking realms where this prohibits scientists from participating (e.g., courts)?
3. Interdisciplinarity:
   - Can or should scientists attempt to place their technical knowledge in a socio-economic context or should that be left to social scientists, politicians, and the public?
4. Advocacy:
   - What effect can aligning with an advocacy group have on a scientist's credibility and efficacy in public policy?
5. Language:
   - Are there risks for scientific miscommunication associated with portraying environmental science concepts in simplified form and terms?
6. Counterintuitive science:
   - When the state of scientific understanding is at odds with an intuitive or 'common sense' understanding of an environmental problem, can or should scientists try to change public opinion? What credibility can scientists invoke in such cases?
7. Counterexpertise:
   - Beyond the realm of peer-reviewed scientific exchange, how can scientists prevent politicized attacks on their credibility?
   - How can scientists communicate their concerns about low-quality studies that are being acknowledged as credible in the policy realm?
8. Compromise politics:
   - How can scientists communicate the stepped or non-linear nature of certain environmental threats to policymakers who commonly 'split the difference' among interest groups?
9. Check your ego:
   - How can scientists, when speaking to scientifically uneducated audiences, avoid presuming they have all the answers?
10. Access:
    - When choosing to communicate politically unpopular information, do scientists risk being excluded from the policy process?
11. Scientist as elitist:
    - When communicating complex concepts, how can scientists both maintain their technical credibility and avoid alienating policymakers and the public?

APPENDIX C

Key Ideas from Interviews with Environmental Leaders[19]

Gaps in Scientific Knowledge

1. Available data is often insufficient for robust predictions of likely outcomes from policy options, and is often evaluated without attention to cumulative effects.
2. The long time frame and complicated results of many scientific studies is at odds with policy makers' preference for timely, clear-cut information and developers' preference for rapid formulation of straightforward policies that allow them to plan into the future.
3. Long-term, landscape-level environmental studies are expensive, time-consuming and can yield inconclusive observations.
4. Case-specific studies of the environmental impact of proposed developments are funded by developers and conducted by consulting firms who must be responsive to their clients' interests.
5. In a small state like Vermont, agency scientists cannot provide expertise for all important environmental issues and may have insufficient time or resources to conduct independent, rigorous analysis of consultants' studies.
6. Risk assessment studies should be explicit about underlying assumptions of risk, exposure, loading, etc. to ensure that policy makers and the public understand their choices.

Role of Science into Policy

7. There is general agreement that the role of scientists is to evaluate the potential impacts of environmental policy options not to determine policy goals.
8. Scientific information may be incorporated into policy development at many levels (i.e., creating statutes, formal rules, regulatory decision-making).
9. Where there is little controversy over scientific assessments, greater speed and clarity may be achieved by standardized approaches to regulatory action and permit review.
10. Better use of scientific information could result from a formal policy review process (e.g., "sound science audit" or "scientific impact statement") conducted by independent experts.

Scope of Policy Process

11. Without integrated, long-term planning and comparative risk analysis of Vermont's environmental challenges, it may be difficult for environmental agencies to shift resources to priority problems or plan for emerging issues, and may encourage crisis-driven management.
12. An adaptive management approach (coupled with effective monitoring) in which regulatory standards are encouraged to shift as scientific understanding improves could be beneficial.
13. For emerging issues where new legislation may be needed, structured policy discussions among a broad-based group of stakeholders may result in workable policy recommendations.
14. Policy making through the development review/permitting process may draw on only a narrow range of scientific information and may encourage an adversarial

[19] Each of the ideas listed were expressed by one or more of the interviewees.

policy making climate. This may be improved by implementing collaborative decision-making into the early stages of a proposed development.
15. The scope of legislative mandates to agency staff may affect their ability to adopt an integrated approach to environmental management.

Scientific Literacy

16. Even where ample scientific information exists, it is commonly poorly disseminated and policy makers and the public have difficulty comprehending it.
17. Where scientific information is sparse or conflicting, policy makers and the public often exhibit widely diverging opinions about scientific "facts".
18. Many advocacy groups seek to boost public understanding of environmental science through engagement around specific (often crisis) situations.
19. Public understanding of important environmental issues could benefit if the Agency of Natural Resources were able to expand its capacity for science translation to local officials and the public.

Interaction with Other Policy Considerations

20. In the absence of clear guidelines for risk assessment, evaluation of scientific "facts" is open to political influence.
21. Transparency within the policy making process for the respective roles played by scientific and other factors may reduce confrontation.
22. Productive use of natural resources has an inherent private incentive for marshaling scientific data while study of the public benefits of ecosystem services relies primarily on public funds.
23. There is little scientific study of the actual impact of regulation on the health of the business community.

Partnering to Improve Science Inputs

24. We can make better use of existing scientific studies conducted by federal agencies, research institutions, and national organizations by creating structured relationships or formal mechanisms for seeking them out.
25. There may be a tendency for agency scientists to rely on federal partners primarily for guidance on regulatory constraints rather than in developing new policies.
26. Environmental advocates can boost their scientific capacity and credibility by pooling their resources to hire scientific expertise.

<u>Interviewees – Fall 2004</u>

1. Wibs McLain, Secretary, Vermont Agency of Natural Resources
2. Canute Delmasse, Deputy Secretary, Vermont Agency of Natural Resources
3. Jonathan Lash, President, World Resources Institute; Secretary, Vermont Agency of Natural Resources (1987-1991)
4. Elizabeth Courtney, Executive Director, Vermont Natural Resources Council
5. Mark Sinclair, Conservation Law Foundation
6. Pat Parenteau, Director, Environmental Law and Policy Program, Vermont Law School
7. Beth Humstone, Executive Director, Vermont Forum on Sprawl
8. Darby Bradley, Executive Director, Vermont Land Trust
9. Mike Winslow, Staff Scientist, Lake Champlain Committee
10. Chris Stone, CEO, Stone Environmental
11. Ruth Towne (R-Berlin), Chair, House Agriculture Committee
12. Sara Kittell (D-Franklin Dist.), Chair, Senate Agriculture Committee

13. William Johnson (R-Canaan), Chair, House Committee on Natural Resources and Energy
14. Alice Nitka (D-Ludlow), Vice Chair, House Committee on Natural Resources and Energy
15. Ginny Lyons (D-Chittenden Dist.), Chair, Senate Committee on Natural Resources and Energy
16. Steven Adams (R-Hartland), Chair, House Committee on Fish, Wildlife and Water Resources