

Public Participation in Environmental Planning in the Great Lakes Region

Thomas C. Beierle
David M. Konisky

Discussion Paper 99-50

September 1999



1616 P Street, NW
Washington, DC 20036
Telephone 202-328-5000
Fax 202-939-3460
Internet: <http://www.rff.org>

© 1999 Resources for the Future. All rights reserved.
No portion of this paper may be reproduced without
permission of the authors.

Discussion papers are research materials circulated by their
authors for purposes of information and discussion. They
have not undergone formal peer review or the editorial
treatment accorded RFF books and other publications.

Public Participation in Environmental Planning in the Great Lakes Region

Thomas C. Beierle and David M. Konisky

Abstract

The need for greater public involvement in environmental decision-making has been highlighted in recent high-profile research reports and emphasized by leaders at all levels of government. In some cases, agencies have opened the door to greater participation in their programs. However, there is relatively little information on what can be gained from greater public involvement and what makes some programs work while others fail. This paper addresses these questions through an evaluation of public participation in environmental planning efforts in the Great Lakes region. The success of participation is measured using five criteria: educating participants, improving the substantive quality of decisions, incorporating public values into decisionmaking, reducing conflict, and building trust. The paper then discusses the relationship between success and a number of contextual and procedural attributes of a variety of cases. Data come from a "case survey," in which the authors systematically extract information from previously published studies of 30 individual participation cases. The authors conclude that public participation can accomplish important societal goals and that success depends, in large part, on the actions and commitment of government agencies.

Key Words: public participation, advisory committees, evaluation, Great Lakes, Remedial Action Planning, comparative risk, conflict resolution, trust

Table of Contents

| | |
|---|------|
| Executive Summary | ES-1 |
| 1. Introduction | 1 |
| 2. Great Lakes Case Studies | 3 |
| Great Lakes Remedial Action Plans | 4 |
| Comparative Risk Projects | 5 |
| Innovative Public Participation | 6 |
| 3. Methodology | 7 |
| Evaluating Public Participation Using Social Goals | 7 |
| Context and Process Attributes | 9 |
| Case Survey Approach | 12 |
| 4. Results of Case Analysis | 15 |
| Analysis of Goals | 17 |
| What Makes for a Successful Process? | 31 |
| 5. Innovative Participatory Processes | 33 |
| Procedurally Innovative Public Participatory Mechanisms | 34 |
| Innovative Applications of Public Participatory Mechanisms | 38 |
| Other Notable Participatory Processes in the Great Lakes Region | 40 |
| Evaluation of Innovative Participatory Processes | 42 |
| 6. Conclusions, Lessons Learned and Areas for Further Research | 44 |
| Conclusions | 44 |
| Lessons Learned | 45 |
| Areas for Further Research | 48 |
| References | 52 |

List of Tables and Figures

| | |
|--|----|
| Table 1. Context and Process Attributes | 9 |
| Table 2. Example of Coding Template for the Attribute "Perceived Agency Commitment" | 13 |
| Table 3. Education of Participants | 17 |
| Table 4. Education of Wider Public | 18 |
| Table 5. Substantive Quality | 19 |
| Table 6. Relating the Substantive Quality Goal to Context and Process | 20 |
| Table 7. Values | 22 |

| | | |
|-----------|---|----|
| Table 8. | Relating the Values Goal to Context and Process | 22 |
| Table 9. | Representation | 24 |
| Table 10. | Conflict | 25 |
| Table 11. | Relating the Conflict Resolution Goal to Context and Process | 26 |
| Table 12. | Future Conflict | 27 |
| Table 13. | Trust | 29 |
| Table 14. | Relating the Trust Formation Goal to Context and Process | 29 |
| Figure 1. | Number of Cases Rated Against Social Goals | 16 |
| Figure 2. | Building Consensus for a Sustainable Future: Guiding Principles | 39 |

Appendices

For Appendices to this document, go to: http://www.rff.org/disc_papers/summaries/9950_app.pdf

EXECUTIVE SUMMARY

The search for better ways to involve the public in environmental decision-making has risen to the top of the environmental policy agenda. From President Clinton on down, leaders and administrators at the federal, state, and local levels have joined a chorus calling for environmental agencies to increase their cooperation and collaboration with "stakeholders" outside of government. Federal agencies addressing environmental issues, as well as their state and local counterparts, have initiated various programs to engage the public, especially at the local level. This increased attention to participation is fueled by optimism about how public involvement can increase the effectiveness and responsiveness of environmental management. Yet, there has been little systematic analysis of what is to be gained from increased participation or what lessons can be learned for improving its future use.

In this report, we start to address this need for evaluation by examining a set of cases of public participation, mainly through citizen advisory committees, in environmental planning. We seek to understand what participation has accomplished, what factors have led to successful programs, and what kinds of improvements can be made. Our analysis focused on three types of cases, all in the Great Lakes region:

- The Remedial Action Plan (RAP) process--A series of efforts under the United States-Canada Great Lakes Water Quality Agreement to develop local plans for restoring the most contaminated "hot spots" around the Great Lakes;
- Comparative Risk projects--Environmental policy priority-setting efforts undertaken at regional, state, county, and city levels; and
- "Innovative" processes--A diverse set of creative and experimental efforts to involve the public in environmental decision-making.

Objectives of the Research

Our first objective was to understand what public participation in these various cases has accomplished. To do this, we measured performance against a set of "social goals"--that is, goals that transcend the immediate interests of those involved in a decision, but that reflect a broader societal interest in a better-functioning environmental management system. The goals we considered were:

- Educating and informing the public;
- Increasing the substantive quality of decisions;
- Incorporating public values into decision-making;
- Resolving conflict among competing interests; and
- Rebuilding trust in government agencies.

Our second objective was to identify which features of the context and process of public participation were related to the achievement of these social goals. Focusing on the RAP and

comparative risk cases, we examined the relationship between successful participation and fifteen attributes of each case--such as the scientific understanding of the problem and the quality of the deliberative process (see Table ES-1 for a list of the attributes studied).

Table ES-1: Context and Process Attributes

| Context | Process |
|---|---|
| <ul style="list-style-type: none"> • Atmosphere Conducive to Agreement • Attitude Toward Lead Agency • Confidence in Process • Problem to be Addressed • Scientific Understanding of Problem • Shared Jurisdiction • Geographic Complexity | <ul style="list-style-type: none"> • Scope of Tasks • Deliberative process • External Communication • Freedom of Participants • Bottom Up vs. Top Down • Commitment of Lead Agency • Perceived Impact on Decision-making • Leadership |

The data for quantitative and qualitative analysis were compiled from a "case survey" methodology in which researchers used a standard set of questions to "code" data from published studies on the cases of interest. Data from 30 case studies were used for quantitative and qualitative analysis. We relied mainly on bivariate correlations to examine the relationships between attributes and goals.

Our third objective was to investigate what lessons innovative cases offer for improving the practice of public involvement. For these cases, we used a more descriptive and qualitative approach. We identified what made the cases unique and determined how they might substitute for or complement more traditional forms of public participation.

In many ways this research has been a "pilot project." It focuses on a defined set of cases and applies a formal evaluation framework using a somewhat novel approach for collecting and analyzing data. Undertaking the research has served to test and refine the methodology so that it may be applied to a much broader selection of public participation case studies. We plan to undertake such a broader study.

Conclusions

The conclusions from our analysis were mostly positive about public involvement. We encountered a number of extremely successful cases, and found that success was often related to procedural issues over which policy-makers and the public have influence. However, we were left with lingering questions about the legitimacy and significance of public involvement efforts that purport to represent the interests of the public at large through representation by a relatively small number of people. Our conclusions are summarized below.

A. When done well, public participation can achieve a number of social goals.

Many of the cases we examined measured up quite favorably against the social goals, suggesting that public participation can, in fact, meet many of the expectations that have driven its recent growth. In most cases, the public participating in decision-making processes learned a great deal through workshops, reports written by technical advisory committees, and direct discussions with experts. Moreover, they often shaped final decisions with their future "vision" for the resource of interest, goals for restoration, and priorities for action. Even where pre-existing relationships were poor, some processes were able to resolve conflict and increase trust, and many led to the creation of new institutions for solving problems cooperatively. The innovative cases provided excellent examples of how to enhance some of these results.

B. Aspects of the participatory process are key ingredients to success.

In general, successful participation was highly related to features of the participatory process, including:

- Undertaking tasks consistent with the capabilities and expectations of the public and government agency;
- Having open, fair communication among participants, with an emphasis on deliberation and consensus;
- Ensuring good two-way communication between participants and government decision-makers and scientists; and
- Committing sufficient government funds and staff to support the process.

C. Agencies play a large role in fostering a successful process.

Many of the features of successful processes mentioned above are highly influenced by sponsoring agencies. The quality of communication between stakeholders and an agency, the scope of tasks, the commitment of resources, and even the quality of the internal stakeholder process are all influenced by agency decisions and support. They all emphasize the importance of agency commitment to legitimate public involvement.

D. Turning over substantial amounts of power to stakeholders may not be required for processes to be successful.

Some of the most interesting and successful cases we examined were "bottom up," where the participants had a high degree of freedom over the process and influence over decision-making. However, cases could also be successful when the public had less overt power and influence. As long as agencies were flexible and responsive, even tightly managed and strictly advisory processes could be successful.

E. Participatory processes can be successful in a wide range of decision-making contexts.

The success of a particular program appeared to be unrelated to a number of issues that described the complexity of a particular decision, such as the number of problems to be addressed, the degree of scientific uncertainty, and the geographical setting (e.g., an urban vs. a rural area). This suggests that participation can be successful in a variety of contexts.

F. There are a number of "outside the group" problems that raise larger questions about the legitimacy and significance of public involvement.

In most cases, the public advisory committees used as the primary means of participation were unrepresentative (in terms of socioeconomic criteria), were often missing important interests, and sometimes excluded the most conflictive stakeholders. While everyone might gain from substantively improved decisions, many of the other benefits of these participatory processes accrued only to participants in the planning process. For the most part, the wider public was unaware of the processes, limiting opportunities for education and trust formation to the participants themselves. This is a significant qualification about how successful these processes have been.

G. A "modular" approach to public participation may help resolve some of its problems.

Different parts of the decision-making process may require different people to be involved. The people who are "right" for the planning phase of a project, for example, may not be the same as those that should be involved in the implementation phase. This suggests a modular approach to participation, where participatory efforts are tailored to the particular tasks at hand as programs evolve. The innovative cases may be helpful guides in this regard. While they may not be substitutes for more "tried and true" participatory methods, they could be included as components of a larger modular process.

Areas for Further Research

The cases we examine in this report represent only a small slice of the variety of ways in which public participation has been incorporated into environmental decision-making. Perhaps our conclusions are best thought of as jumping-off points for a more in-depth understanding of how participation affects policy development and implementation. Some of the conclusions can be thought of as hypotheses to be tested through further analysis. Collectively, they point to some areas for further research:

A. Expanding the scope to a larger number and wider variety of cases.

An expanded project would test the conclusions of the present project and compare how participation varies for different types of problems and different phases of decision-making. Over the course of the next year, we will be undertaking such a project with funding from the National Science Foundation.

B. Examining the relationship between participation and implementation.

A study of implementation would focus on whether and how public involvement generates support and capacity for implementation activities. It would examine the capacity of participatory groups to take action, and it would investigate how they interact with other institutions and actors in the implementation process.

C. Clarifying and understanding the "outside the group" questions.

This research would examine the normative and practical impacts of using small groups as representatives of the wider public and seek ways to broaden the reach of participation.

D. Supporting ambitious participation.

Although we did not measure it in any quantitative way, it became clear in our research that in particularly successful cases, participants appeared to have a high level of what might be called "ambition." Research would focus on how to sustain and support the kind of drive and aspiration exhibited by these groups.

PUBLIC PARTICIPATION IN ENVIRONMENTAL PLANNING IN THE GREAT LAKES REGION

Thomas C. Beierle and David M. Konisky*

1. INTRODUCTION

Public participation is increasingly recognized as an important component of environmental planning and decision-making. From President Clinton's directive "NEGOTIATE, DON'T DICTATE" to the conclusions of high profile research reports, a general consensus has seemingly emerged that increasing public involvement can improve the substantive and procedural quality of environmental decisions (Clinton, 1995; NRC, 1996; PCRARM, 1997). Charles Fox, former Associate Administrator for Reinvention at the U.S. Environmental Protection Agency, recently summarized this view: "Involving citizens--and doing so starting in the early stages, when their suggestions can substantially influence how decisions take shape--is the way we believe environmental decision-making works best" (Fox, 1998). Responding to such calls for greater public involvement, environmental protection agencies at all levels of government have begun instituting programs to increase the public's role in environmental decision-making.

Despite growing interest in public participation, there remains a poor understanding of what it actually accomplishes and what contributes to its success. This leaves policy-makers and agency personnel with little information to use in designing effective participatory programs or improving those currently underway.

The purpose of our research was to begin to provide such information by evaluating a set of participatory planning exercises in the Great Lakes region. Because of the particularly intense interactions between humans and the natural world in the Great Lakes region, it has long been a testing ground for new approaches to environmental management. The proliferation of public participation in environmental decision-making in the region is no exception, and it provides a good setting for examining the success of such programs.¹

* The authors are, respectively, Fellow and Research Assistant, Center for Risk Management, Resources for the Future. The authors would like to thank the Joyce Foundation for supporting this research, and Julia Klee for her work as the project's original program officer. Terry Davies provided tremendous help in designing and carrying out the research and in reviewing the report. Kate Probst, Kris Wernstedt, Lee Botts, Gail Krantzberg, Jack Manno, Judy Beck, Judith Bradbury, and Troy Hartley all reviewed a draft of the report and provided helpful comments.

¹ The International Joint Commission (IJC), a bi-national body that coordinates U.S. and Canadian policies regarding the Great Lakes, began seeking public input through public hearings and citizen advisory committees in the 1960s to advise it on a wide range of issues (Grima, 1983). Since the 1970s, the IJC has increasingly opened its activities to citizen involvement, and an expansive network of non-governmental organizations has played an important role in implementing bilateral ecosystem management initiatives in the Basin (Botts and Muldoon, 1997; Becker, 1993).

We focused on three sets of cases, all of which involved bringing together people with a wide variety of interests and viewpoints to discuss, and usually decide on, alternatives for improving environmental quality. The first were a series of water quality and environmental restoration projects underway as part of the United States-Canada Great Lakes Water Quality Agreement, known as the Remedial Action Plan (RAP) process. The second were comparative risk projects that were initiated in the region during the 1990s as part of government priority-setting efforts. The third were a number of "innovative" efforts to involve the public in environmental planning in the region, such as citizens juries, study circles, and policy dialogues. Our primary objectives were to understand what these efforts accomplished, what factors led to success, and what kinds of improvements can be made.

In order to understand what public participation in these various cases has accomplished, we measured performance against a set of "social goals." These are goals that transcend the immediate interests of those involved in a decision, but that serve society's broader interest in a better-functioning environmental management system.² The goals we considered are:

- Educating and informing the public;
- Increasing the substantive quality of decisions;
- Incorporating public values into decision-making;
- Resolving conflict among competing interests; and
- Rebuilding trust in government agencies.

Not only did we want to understand whether participatory efforts were successful in meeting these goals, we also wanted to determine what led to that success. What was it about the context of these efforts or the processes by which they were undertaken that made some successful and others not?

We used two approaches to answering our questions about the performance of public participation efforts. The first involved systematically gathering data from published case studies using a "case survey" methodology and using the data for quantitative and qualitative analysis. We used this approach to analyze the RAP and comparative risk cases. The second approach was more descriptive and qualitative. It focused on the innovative cases. We sought to understand what made these processes different from more frequently used forms of public participation and what lessons they provide for improving future participatory efforts.

This report describes what was in many ways a pilot project. The research involved a relatively novel application of the case survey methodology to the study of public participation. It used an explicit, but by no means universally accepted, framework for evaluating success and identifying its determinants. In order to keep the analysis tractable, it focused on only a

² The list of social goals are suggested by a number of recent research studies, which describe problems with the current environmental management system. The studies include Davies and Mazurek (1998), Chertow and Esty (1997), John (1994), NAPA (1997), NEETF (1997), NRC (1996), and Ruckleshaus (1996). For more information on the social goals approach, see Beierle (1998).

particular type of involvement in environmental planning efforts in a defined region. As a pilot project, this was useful for testing and refining the methodology for future application to a wider set of cases. Because the evaluation approach and methodology are relatively novel, this report contains quite a bit about what we *did* as well as what we *found*. The detail on each step is presented in order to explicate how we came to our conclusions and to provide an example for others who seek to test or extend the methods.

While the research focused on a relatively small slice of the spectrum of public participation, it did highlight some larger lessons. First, we found that, when done well, public participation programs could be highly successful in achieving the social goals specified above. Second, many of the procedural factors related to success had a lot to do with the commitment and responsiveness of public agencies to public involvement. Third, good processes seemed to be able to prevail over daunting contextual issues, such as the complexity of the problem and the level of pre-existing conflict. Finally, the innovative programs offered interesting opportunities for enhancing particular aspects of conventional participatory methods, particularly with respect to issues of education and eliciting public values. While all of these findings are good news for participation, we also found that most of the benefits of participation accrued only to those who actually participated. This raises questions of just how legitimate and significant these processes were in representing the voice of a larger public.

The paper is organized as follows. Section 2 contains an overview of the Great Lakes case studies in greater detail, with attention to the common features of their public participation programs. Section 3 describes the evaluation approach and case survey methodology used in the analysis of the RAP and comparative risk cases. The results of the analysis are in Section 4. In Section 5, the focus shifts to the innovative cases and their evaluation in light of the findings about the RAP and comparative risk cases. Section 6 concludes the paper with "lessons learned" and areas for further research.

2. GREAT LAKES CASE STUDIES

The Great Lakes region provides a fertile area for research on public participation because of the extensive environmental protection efforts underway and because the region has a history of active public involvement in decision-making (Grima, 1983). This section describes the three types of public participation cases examined in this report. It begins with a discussion of the cases' similarities and a definition of terms to be used throughout the discussion. Then it describes the Remedial Action Plan (RAP) processes, the comparative risk projects, and the innovative cases in greater detail.

While the cases we examined vary considerably, they also have some common elements. All of the cases can be broadly designated as "planning" efforts, typified by activities such as the identification, evaluation, and prioritization of environmental problems and solutions. In many cases, the planning activities were quite far removed from any concrete implementation steps. However, they were often time-intensive and required

participants to understand technical issues, balance tradeoffs between stakeholders, and define their role in the process.

The "public" in the three sets of cases was usually a core group of non-governmental "stakeholders" in a citizens advisory committee. Committees were usually composed of some combination of representatives of local industries, representatives of interest groups (environmental, public interest, community, etc.), citizens-at-large, and/or representatives from local government. These stakeholder groups were generally considered to represent the voice of the public, and in some of the processes they were responsible for disseminating information to, and receiving input from, the public outside of the group.

Typically, the stakeholders acted in an advisory capacity, although sometimes they had substantial influence over decision-making. The stakeholder group often worked with technical committees and a steering committee on which sat lead agency personnel, technical experts, and sometimes stakeholders themselves. While these institutional arrangements and responsibilities varied from case to case, communication and interaction among the stakeholder, technical, steering, and other groups (such as consultants) in producing the final product was an important area to examine in understanding how these processes functioned.

The output of most of these processes was a report or less formal set of recommendations that were expected to influence policy. In the RAP and comparative risk cases, the influence was often direct through an explicit set of recommendations to a government agency. In the innovative cases, the channels of influence were often more diffuse, involving the media or simply a change in the attitudes of individuals.

In discussing the typical arrangement of participatory processes, we should make some definitions clear. Throughout the report, we refer to members of the stakeholder group as "participants," by which we mean members of the public (i.e., citizens at large, business interests, environmental interests, local governments, etc.) formally involved in the participatory process, generally as members of a citizen advisory group. We refer to the public outside of this small group as the "wider public," which can be thought of as members of the public who are potentially affected by decisions made by the stakeholder group but are not themselves participants. On the government side, we refer to the government agency that has ultimate responsibility for either convening a process and/or acting on its results as the "lead agency." In some cases, other government institutions, consultants, facilitators or even non-profit organizations actually ran a process, but we did not consider them to be the lead agency. In some of the innovative cases, there was no identifiable lead agency.

The following sections describe the three types of cases in greater detail.

Great Lakes Remedial Action Plans

The Great Lakes RAP process was designed to address contamination in the most highly polluted rivers and bays around the Great Lakes. These are known as the Areas of

Concern (AOCs), and there are currently 42 of them in the United States and Canada.³ In the RAP process, government and stakeholders work together to restore the environmental quality of the AOCs through three phases: planning, implementation, and monitoring. We focused our analysis on the planning process in which stakeholders, technical experts, and government representatives defined the problem, described the environmental conditions of the area, and identified sources of contamination.

Although the RAP process was initiated through an international agreement (the 1987 amendments to the 1972 Great Lakes Water Quality Agreement, signed by the United States and Canada), state and provincial agencies have taken the lead in running the projects.⁴ The lead agencies have shared the bulk of the substantive work on the RAPs with local citizens advisory committees. Most RAPs supplemented public participation through the advisory committees with outreach to the wider public through public meetings, newsletters, and other mechanisms. The local orientation of the RAPs was intended to facilitate implementation by ensuring local ownership and building local capacity. In fact, the RAP program grew out of a perception that state and federal agencies were not doing enough to clean up the AOCs and that only official designation as a pollution "hot spot," the galvanization of local concern, and the building up of local capacity would ever lead to the cleanup of these areas.

In most RAPs, the planning phase lasted about 2-5 years, with the public advisory committees meeting on a monthly or bimonthly basis. Many of the RAPs have moved forward to the implementation phase, but only one AOC has been "delisted," that is, certified by the IJC as being environmentally restored.⁵ The RAP process has stalled somewhat in the implementation phase because of a lack of financial resources, withdrawal of lead agency coordination, and the difficulty and expense of dealing with contaminated sediments--a problem common to most AOCs (SPAC, 1997; Krantzberg, 1999; Renn and Finson, 1990).

Comparative Risk Projects

Comparative risk projects are efforts by government agencies to establish environmental priorities for a given jurisdiction by identifying and ranking environmental

³ One AOC, Collingwood Harbour, located on the south shore of Nottawasaga Bay on Lake Huron, was taken off the list of AOCs in November 1994 after the International Joint Commission determined that the impaired environmental uses in the area had been restored through the RAP process.

⁴ In Canada and the U.S., the program has received support from the respective national governments. Direct federal funding of RAP development and implementation in the U.S. has come through grants from the Coastal Environmental Management program administered by EPA Regions 2,3, and 5. Another EPA program, the Assessment and Remediation of Contaminated Sediments (ARCS) Program has provided federal funding for demonstration projects aimed at sediment cleanup. Federal support has also come from programs, such as Superfund, Army Corps of Engineers dredging activities, and the National Pollution Discharge Elimination System (NPDES), that address contamination problems common to many AOCs. In Canada, the federal government and Ontario (the province in which most Canadian AOCs are located) share budgetary and programmatic responsibility for the RAP process under the Canada Ontario Agreement Respecting Great Lakes Water Quality. The agreement was first signed in 1971 and renewed and renegotiated most recently in 1994 (Krantzberg, 1999).

⁵ See footnote 3.

problems, and then developing strategies for reducing their associated threats. While assessing risk has usually been undertaken by experts in these projects, public input has often been used to inform value-laden decisions, such as identifying which risks are of most public concern and which strategies should be used for addressing them.

In the Great Lakes region, 11 comparative risk projects have been completed. EPA's Region 5 office conducted one at the regional level and cooperated on another to help set environmental priorities for Wisconsin's eleven Native American tribes. Four comparative risk projects were conducted by states (Michigan, Minnesota, Ohio, and Iowa), and five comparative risk projects were undertaken by cities and counties, all in Ohio (Northeast Ohio, Columbus, Hamilton County, Athens County, and Clinton County).

These comparative risk projects usually addressed a larger geographical area than the RAPs and considered environmental issues in a more comprehensive and abstract manner. Yet, they were similar to the RAPs in their focus on identifying and prioritizing environmental problems and, in some, remedial actions. They also typically included the input of a stakeholder advisory group, as well as other forms of public involvement (such as public meetings and surveys).

Innovative Public Participation

"Innovative" public participation reflects a growing movement toward experimentation with creative approaches to public participation, at least in part because of a perceived failure of conventional participatory approaches to effectively involve the public. The Great Lakes region has been a "laboratory of democracy" in this respect and has been home to numerous pilots projects and pioneering efforts to engage citizens in environmental decision-making to address issues ranging from traffic congestion to sustainable agriculture.

We did not follow a strict definition for what qualified as innovative. Rather, we included cases that offered an alternative to the typical approaches used to involve the public (e.g., meetings, hearings, and review and comment procedures). We divided the innovative cases into three categories: (1) procedurally innovative, (2) innovative applications of more conventional kinds of public involvement mechanisms, and (3) cooperative, multi-stakeholder partnerships with potentially useful lessons for more conventional participatory models.

Our labeling of procedures as "innovative" does not necessarily imply that they were new. Some, such as conservation partnerships, have been around for some time. We also do not mean to imply that RAPs and comparative risk projects are *not* innovative. One reason to call out a certain set of cases as "innovative," however, was to distinguish how we approach them in our analysis. Our examination of the innovative cases was more descriptive and qualitative than that of the RAP and comparative risk cases. Rather than evaluating particular cases, we identified what types of processes seemed promising for wider application. These issues are discussed in Section 5. First, however, we turn to the methodology used to examine the RAP and comparative risk cases.

3. METHODOLOGY

This section describes the methodology used to assess how well participatory efforts were working, determine which factors were important for success, and collect the data to support our analysis. It begins with a description and justification of the social goals used to evaluate the success of participation cases. It then presents hypotheses about how a number of contextual and procedural attributes of the cases may relate to success. The section concludes by explaining the "case survey" methodology used to collect data and a description of the quantitative and qualitative data analysis.

Evaluating Public Participation Using Social Goals

There is no single, commonly-accepted approach to evaluating public participation. While most people would agree that citizens in a democracy have the right to influence decisions that affect them, understanding *how* that influence should be exerted often brings up fundamental (and unsettled) issues of power, justice, and representation. While one person may see a citizens advisory committee as a laudable example of Jeffersonian democracy, another may see it as a small group with undue power to trample the rights of others.

One way to evaluate participation programs--and the one used here--is to ask how well they meet a set of goals that represent a shared societal interest in a well-functioning environmental management system. We call these "social goals" (Beierle, 1999). They represent a broader view of the outcomes of a decision-making process than is typical, encompassing not only the substantive aspects of decision-making but the effect that participation has on those who engage in it. We describe five of these goals, used as the basis for evaluation, below.

The goal of *educating and informing the public* addresses the need to increase public understanding of environmental problems. It is important for three reasons. First, information can empower the public to carry out the role envisioned in major environmental legislation of identifying violations, applying community pressure, enforcing laws, and contributing to permitting and rulemaking. Second, an educated public is more aware of its own contributions to environmental problems and more able and willing to control them. Finally, in the context of participatory decision-making, education helps the public build the capacity needed to formulate alternatives and discuss them with government representatives and experts (NRC, 1996). In our analysis, we distinguish between education of participants and the wider public.

Our second goal is *increasing the substantive quality of decisions*. This goal recognizes the public as a legitimate source of knowledge and ideas for making decisions (Raffensperger, 1998; Fiorino, 1990; NRC, 1996). The public may improve the substantive quality of decisions by improving technical quality--by, for example, identifying relevant factual information or discovering mistakes--or by generating alternative solutions that satisfy a wider range of interests.

The third goal of *incorporating public values into decision-making* is based on the insights of the risk perception and communication literature that outlines dramatic differences

between lay and expert perceptions of risk (Slovic, 1992; NRC, 1996). These findings support a normative argument that differences over values, assumptions, and preferences should be deliberated in a process that assigns value to public perceptions of risk. Such a perspective is obviously not monolithic--different members of the public can have widely differing values that affect their views about environmental issues (Bauer and Randolph, 1998). We pay particular attention, then, to who is represented in these deliberations.

Our fourth goal is *resolving conflict among competing interests*. This goal is based on the argument that collaborative, rather than adversarial, decision-making is more likely to result in lasting and more satisfying decisions, potentially averting the litigation and gridlock that characterize much environmental decision-making (Susskind and Cruikshank, 1987). Public participation can be a process for identifying shared norms and values and building the foundation for cooperative rather than confrontational decision-making. Even if parties can not resolve a particular issue, the process can help them understand the goals and perspective of others by fostering communication and building relationships.

In addition to resolving conflict, public involvement provides opportunities for *fostering trust in agencies*. This goal is based on the need to address the dramatic decline in public trust of government over the last thirty years (PRC, 1998; Ruckleshaus, 1996). It recognizes that such loss of trust is a legitimate reaction to government scandals and mismanagement and that a healthy dose of skepticism is important for assuring government accountability. However, when trust in the institutions responsible for solving complex environmental problems falls so dramatically, the ability to resolve those same problems is seriously circumscribed. Research suggests that one of the few ways agencies can try to rebuild trust is through greater public involvement and influence over decision-making (Slovic, 1993; Schneider et al., 1997).

These five goals are certainly not the only "social goals" against which the success of public participation can or should be measured. Many people, for example, are interested in whether participatory processes generate "fair" or "just" outcomes. However, we think that these types of outcomes would be captured, at least in part, by our goals--that fairness, for example, is a pre-requisite for trust formation or conflict resolution.

Others might regard measures of changes in the "real world"--for example, environmental improvement--to be social goals against which the decisions made in a participatory process should be compared. We would argue that the goals we outline above are valuable in and of themselves, regardless of what impact participation has on the environment. That said, there are important questions about how participation affects any concrete actions in the real world at all. It is not unreasonable to assume that processes that reflect our social goals--that is, those that produce high quality plans that respond to local concerns and have the support of informed stakeholder working cooperatively with each other and with government--ought to lead to easier implementation and higher environmental quality. Although information on implementation and its link to participation was difficult to come by in the cases we examined, we do discuss such a connection as an important area for further research in Section 6.

Context and Process Attributes

Once we have identified the goals we seek to achieve with public involvement efforts, the question becomes: "How do we achieve them?" Informed by researchers and practitioners alike, a consensus of sorts has formed in the public participation literature around what features of participatory processes and their contexts may influence program success. While different authors emphasize different features, few would disagree on the overall list of contenders. We began with a list of 37 attributes to examine for each participatory case. In doing so, we drew heavily on the "lessons learned" from a number of analyses of the Remedial Action Plan (RAP) process (Landre and Knuth, 1993; Gurtner-Zimmerman, 1996; Hartig, 1998; Gould, 1991) and the wider public participation literature (Peele, 1996; Arnstein, 1996; Fiorino, 1990; Webler, 1995; Lawrence et al., 1997).⁶

Over the course of our analysis, we winnowed and consolidated the list considerably. We aggregated a number of related individual measures into broader, more conceptual measures. For example, individual measures for (1) the quality of communication within the participatory group, (2) the extent to which consensus was sought, and (3) the fairness of participatory group deliberations became one measure called "deliberative process."

Some attributes were dropped from the list for other reasons. For a few, sufficient data were not available. In other cases, there was too little variation among cases to say anything interesting about the relationship between a particular attribute and success. Finally, some attributes seemed more related to other attributes than to the goals of interest (i.e., their influence on the goals was quite indirect). These latter attributes are discussed where appropriate, but they are not the main focus of analysis. Appendix A describes the aggregation process and the variables examined.

Aggregation and these other considerations reduced our original 37 attributes to 15 for principal analysis. These attributes fell into two principal categories--contextual and procedural. They are summarized in Table 1 and discussed below.

Table 1: Context and Process Attributes

| Context | Process |
|---|---|
| <ul style="list-style-type: none"> • Atmosphere Conducive to Agreement • Attitude Toward Lead Agency • Confidence in Process • Problem to be Addressed • Scientific Understanding of Problem • Shared Jurisdiction • Geographic Complexity | <ul style="list-style-type: none"> • Scope of Tasks • Deliberative process • External Communication • Freedom of Participants • Bottom Up vs. Top Down • Commitment of Lead Agency • Perceived Impact on Decision-making • Leadership |

⁶ In the Fall of 1998, the authors sent the list of attributes for review to a group of researchers and practitioners with a knowledge of the Great Lakes RAP process and added or modified attributes based on their comments.

Context Attributes

Contextual attributes are those that were largely outside of the control of agencies and stakeholders when undertaking a participatory process. Some of them describe the "orientation" of the public--such as the relationships among stakeholder groups and attitudes toward the lead agency. Others describe the particulars of the decision-making setting--such as the complexity of the environmental problem. The contextual attributes we examined were:

Atmosphere Conducive to Agreement: This attribute measured the potential for conflict based on the pre-existing relationships among stakeholders and the degree of tension between environmental and economic goals in a particular area. In studies of the RAP process, Landre and Knuth (1993a) and Gould (1991) conclude that public involvement was more effective in contexts where economic and environmental objectives were not in conflict. Based on a study of other types of public participation, Peelle et al. (1996) suggested that less pre-existing divisiveness and conflict also facilitated success.⁷

Attitude Toward Lead Agency: This attribute measured the pre-existing attitudes toward the lead agency held by participants and the public at large. Landre and Knuth (1993) suggest that an agency's reputation and the credibility of the decision-making process are important factors for success.

Confidence in Process: This attribute measured participants' pre-existing confidence in the participatory process. Gurtner-Zimmerman (1996) notes the importance of local stakeholder support to program success, while Landre and Knuth (1993) suggest that a key input to a successful process is the public's interest in a resource and their willingness to fix the problem.

Problem to be Addressed: This attribute measured the complexity of the environmental issues that needed to be addressed. We measured this attribute for RAPs only and based it on the number of impaired "beneficial uses."⁸ Landre and Knuth (1993) and

⁷ Following Landre and Knuth (1993) and Gould (1991) we measured the degree of potential conflict between environmental and economic goals by looking at the setting in which the participatory process took place. We did not attempt to aggregate economic costs and environmental benefits in any quantitative way. Rather, where one or a few industries were responsible for most pollution and were a large part of the economy of the area, we concluded that economic and environmental goals were likely to be in conflict. If, on the other hand, pollution sources were more diffuse and/or environmental improvement was seen as an economic benefit in an area (through tourism, for example) we determined that these goals were not in conflict.

⁸ In determining the number of problems to be addressed, we used the number of RAP "beneficial use impairments." These are 14 environmental and socioeconomic impairments caused by contamination in the Area of Concern. They are: (1) degradation of fish and wildlife populations, (2) degradation of benthos, (3) degradation of phytoplankton and zooplankton populations, (4) eutrophication or undesirable algae, (5) fish tumors or other deformities (6) bird or animal deformities or reproduction problems, (7) loss of fish and wildlife habitat, (8) restrictions on fish and wildlife consumption, (9) beach closings, (10) tainting of fish and wildlife flavor, (11) restrictions on dredging activities, (12) restrictions on drinking water consumption or taste and odor

Gurtner-Zimmerman (1996) suggest that processes dealing with simpler or more "tractable" problems are more likely to be successful.

Scientific Understanding of Problem: This attribute measured how well-understood the technical aspects of the set of environmental problems were prior to the start of the process. Landre and Knuth (1993) note the importance of good scientific data and understanding about a problem to program success.

Shared Jurisdiction: This attribute measured whether jurisdiction was shared between two countries (U.S. and Canada) or states. We measured this variable for RAPs only. Hartig et al. (1998) notes that RAP processes in which jurisdiction is shared have been difficult because of "political, cultural, and regulatory differences." In a survey of lead agency coordinators, Landre and Knuth (1993) find that they considered jurisdictional complexity "a negative influence on public involvement."

Geographic Complexity: This attribute measured the range of geographical complexity from a small city/rural setting to a large urban area. Hartig et al. (1998) and the International Joint Commission (1998) report that participatory processes have worked better in small cities and rural areas than larger urban areas.

Procedural Attributes

In addition to looking at contextual attributes, we examined the relationship between a number of procedural attributes and overall success. Procedural attributes are those that fall under the control of agencies or stakeholders themselves in designing and executing participatory efforts. The individual and aggregated procedural attributes that we examined were:

Scope of Tasks: This attribute measured the type of tasks a stakeholder committee set out for itself, or that were assigned to it by a lead agency. It distinguished between three rising levels of intensive involvement, from review and comment, to engagement in values-oriented activities such as "visioning," to engagement in technical activities *as well as* values-oriented activities. We included this attribute in order to distinguish between what stakeholders tried to do (and possibly did not) from what they did not set out to do in the first place.

Deliberative Process: This attribute measured the quality of the deliberative process among stakeholders, including the quality of their communication, the extent to which consensus was sought and the fairness of the stakeholder discussions. These are regarded as important for identifying shared values and resolving disputes (Dryzek, 1997; Susskind and Cruikshank, 1987). Including considerations of fairness as part of this attribute assumes that

problems, (13) degradation of aesthetics, and (14) added costs to agriculture and industry. The overall goal of the RAPs is to restore these beneficial uses.

deliberative processes could only be considered good if the "playing field" was level between all stakeholders, including industrial and environmental interests.

External Communication: This attribute measured the quality of two-way communication between the stakeholder group and other actors in the decision-making process, such as agency personnel and technical experts. Fiorino (1990) suggests that good communication, often through face-to-face interaction, breaks down the barriers between government and lay people that hamper participation.

Freedom of Participants: This attribute measured the extent to which stakeholders, rather than agencies, controlled the agenda and activities of the stakeholder group. From the perspectives of democratic theory and critical theory, respectively, Fiorino (1990) and Webler (1995) suggest the importance of citizen independence in setting agendas and procedures in participatory processes.

Bottom Up vs. Top Down: This attribute measured the extent to which the participatory process was initiated and organized by stakeholders (bottom up) or by agencies (top down). In contrasting the approaches taken by different states, Hartig et al. (1998) suggests that the bottom up approach is preferable to one that is top down.

Commitment of Lead Agency: This attribute measured lead agencies' commitment of financial and human resources to the participatory process. Gurtner-Zimmerman (1996) notes the importance of having adequate funding and suggests that it is an indication to participants of political support for the process.

Perceived Impact on Decision-making: This attribute measured how much influence over decision-making participants perceived they had. Arnstein (1969) argues that the effectiveness of public involvement should be measured by the degree of citizen control over outcomes. Hartig et al. (1998) states that successful participatory processes have been those that treat the public as "an equal partner" rather than an advisor in decision-making.

Leadership: This attribute measured whether an individual was regarded by participants as a crucial leader of the process. Landre and Knuth (1993), as well as a number of people we interviewed, noted the importance of local leadership to success.

Case Survey Approach

To examine the various participatory cases, we used a "case survey" approach to systematically review case studies on public participation in the RAP process and comparative risk projects and record data related to the goals and attributes of interest (Yin and Heald, 1975; Lucas, 1974; Larrison, 1993; Bullock and Tubbs, 1987). The case survey methodology is analogous to a normal closed-ended survey, except that a "reader-analyst"

"asks" questions of a case study rather than people. It is a formal process for systematically extracting relevant data for quantitative analysis from a large number of qualitative sources. With a case survey methodology, derived data can support data analysis even if the questions addressed are different from those posed in the original case study (GAO, 1991). We should note that throughout the rest of this report, we refer to individual participatory efforts as "cases" and to the written analyses of these efforts as "case studies."

We conducted the case survey in three stages. The first stage involved a comprehensive literature review and collection of case studies. For each of the cases, we collected case studies, project reports, and other materials that would give us a detailed account of the participatory process and its outcomes. As part of the literature search, we interviewed a number of people involved in Great Lakes environmental policy and research to identify case studies. The most useful source of case studies were dissertations focused specifically on public participation in particular cases. The sources used for each case are listed in Appendix B.

The second stage of the case survey involved coding the data from the case studies. Using a database set up in Microsoft Access, we coded each case study for 12 background items relating to the case study itself, the researcher doing the coding, and the event to be coded; 37 contextual and procedural attributes; and 21 items related to our social goals and other outcomes. The complete coding template is included as Appendix C.

For each attribute, researchers assigned a score (usually low, medium, or high), one of four weight of evidence measures (from "best guess" to solid evidence) and a descriptive entry of supporting evidence for why we coded as we did.⁹ The coding strategy was designed to allow quantitative analysis using the scores as well as a qualitative analysis using the descriptive entries. For all variables and aggregates, the scores of "low," "medium" and "high" were set up in such a way that a positive correlation tended to support the hypotheses discussed earlier while no correlation (or a negative correlation) did not support them. To minimize variation in the interpretation of categories, descriptive text outlining criteria for each response was included in the template. Table 2 shows an example of the coding template.

Table 2: Example of Coding Template for the Attribute "Perceived Agency Commitment"

| |
|--|
| <p>Perceived agency commitment</p> <ul style="list-style-type: none"> • low--little responsiveness to input; frequent turnover of personnel; general evidence of little commitment; little dedication of financial resources • medium--moderate responsiveness; moderate turnover of personnel; partial, but insufficient dedication of financial resources • high--high responsiveness; infrequent turnover of personnel; obvious accountability to process; sufficient dedication of financial resources • not applicable--agency not involved in overall process • no evidence in case study |
|--|

⁹ Where data was not found, attributes were either not coded, or coded as "no evidence in case." For some types of processes, certain variables did not apply, and these were simply coded as "not applicable."

Typically, coding one case study took about a day. Each case was coded by one of two researchers, or by both. In order to ensure consistent coding at the outset, we conducted an inter-coder reliability test in which both researchers initially read and coded the same subset of case studies independently. We then calculated the percent agreement among the two researchers' codes, and repeated the process until we had reached greater than two-thirds agreement, the benchmark suggested by published research papers on the case survey method.¹⁰ Once we were confident that the researchers were coding cases in the same way, cases were coded by only one researcher. Appendix D describes the inter-coder reliability test results in more detail.

Stage Three involved data analysis and hypothesis testing. The data analysis was both quantitative and qualitative. The quantitative analysis mainly used summary statistics to describe particular attributes and contingency tables to run bivariate correlations between attributes and goals. Because the data were categorical and non-parametric, we elected to use a Kendalls tau-b correlation coefficient to assess the relationship between variables and a Fisher's exact test to test the significance of relationships.¹¹ For the quantitative analysis we excluded data with our lowest weight of evidence.¹²

In the analysis and interpretation, we hypothesized that our goals represented dependent variables and the contextual and procedural attributes measured independent variables. With respect to the data analysis, the distinction between dependent and independent variables was only conceptual because we measured bivariate, rather than multivariate, relationships. In interpreting the data, however, the distinction does matter. It may well be that the causality we attributed to contextual and procedural variables worked in the other direction (i.e., our goals actually determine various attributes). Also, many of the contextual and procedural variables were likely to influence each other. A more sophisticated

¹⁰ There is no absolute standard that inter-coder reliability tests should meet. In reviewing the case survey literature, Larsson (1993, p. 1523) reports that "two-thirds agreement seems to be viewed as the level of satisfactory reliability." We should note that we conducted the reliability test on the original coded variables, not on the aggregates. Because the aggregates brought different variables together into broader concepts, it is likely that this increased effective reliability. However, one of the reasons for coding unaggregated variables was that the specificity of the measures minimized the coders' discretion, making inter-coder reliability easier to achieve.

¹¹ The Kendall's tau b correlation coefficient is based on the number of concordant and discordant pairs of observations in a contingency table, using a correction for ties. Its calculation is described in STATA (1997, p. 487). It is an appropriate non-parametric measure of correlation for ordinal data (Bullock and Tubbs, 1987, p. 210). The Fisher's exact test measures the probability of observing a contingency table that shows at least as much association between variables as that actually observed. For example, a p-value of 0.05 means that there is only a 5% probability that a result showing as much or more association would result when the null hypothesis is no association. The Fisher's exact test is similar to a chi-squared test, but is more appropriate for the small sample sizes used here. A rule of thumb for using the chi-squared test is that the expected count of each cell should be greater than 5 (and preferably greater than 10) (Stokes et al. 1995). This condition was not met for our data, because for most correlations we had nine cells (i.e., a 3x3 matrix) and generally only 15 to 20 observations. The resulting small expected cell counts justified a Fisher's exact test rather than a chi-squared test. The calculation of the Fisher's exact test is described in STATA (1997, p. 487).

¹² In some cases we did use the lowest quality of data as input to aggregate measurements, but only as a complement to higher quality data which also made up the aggregate. See Appendix A.

multi-variate data analysis could resolve some of these issues. We return to this topic in our discussion of "Areas for Further Research" in Section 6.

The qualitative analysis involved reading through the supporting explanations to understand and clarify the relationships (or lack of relationships) identified in the quantitative analysis. Particularly useful was the use of the qualitative information to understand why certain cases seemed to defy "conventional wisdom" about how context and process issues should influence goals.

The case survey methodology is an appealing approach to research on public participation. Case studies have tended to dominate the public participation research literature, mainly because these processes are such complex social phenomena. While case studies are an excellent approach to understanding the nuances of one or a few cases, they are not a particularly useful method for generalizing to a large population of cases or identifying patterns across a wide variety of cases. The case survey approach can take advantage of the richness of detail in case study research while drawing larger lessons in a systematic (and ideally replicable) manner. Where case studies cover a process over a period of time, the case survey method--unlike a traditional survey--can track changes in processes across time or through different decision-making phases.

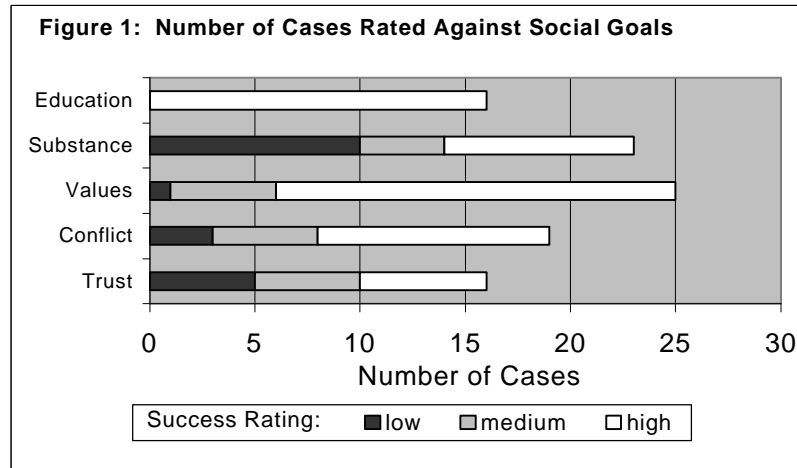
The case survey approach has some shortcomings. The quality of the data used in a case survey is only as good as the quality of the case studies from which the data come. Often cases by different authors and for different purposes will report on different aspects of a process, leaving gaps in the data. Because it is designed to identify general patterns, the methodology may also obscure important unique factors of each case. We took steps to deal with these problems to some extent. When coding data, we kept track of data quality, allowing us to make decisions about which data were of sufficient quality to use. To deal with data gaps, we often sought out other sources of information (such as project reports) to complement the case studies. In order to keep track of unique factors for each case, we included detailed textual explanations for coded material and used these for a qualitative analysis. The following section discusses our results.

4. RESULTS OF CASE ANALYSIS

This section describes the results of the case study analysis. It begins with an overall description of the data and the variation among cases. It then reports how cases measured up against each goal individually and uses the quantitative and qualitative analysis to understand why some cases did well and others did not. The section concludes with an overview of which contextual and procedural attributes are related to success.

Of the 43 Remedial Action Plan (RAP) and 11 comparative risk cases that have been undertaken to date, we were able to code at least one of the principal social goal measures (education, substance, values, conflict, and trust) with moderate to high confidence for 30 cases. Each of the principal goals was coded for between 16 to 25 cases (see Figure 1). Given the variation in data availability for the principal goals, as well as the context and

process attributes, our correlations typically involved around 15 to 20 observations. It is important to remember in the discussion that follows that different correlations may involve different sets of cases.



The 30 cases with moderate to high quality data on at least one principal goal were a diverse group in a number of important ways.¹³ Six were comparative risk cases, and 24 were RAP cases. Of the 24 RAP cases, seven were in Canada, 12 were in the U.S (covering five states), and five were binational. The six comparative risk cases covered three states; three were undertaken at the state level and three at the county level. The contexts in which the participatory efforts were undertaken were quite varied--from small towns to large urban areas, from relatively simple environmental issues to relatively complex ones, and from a set of stakeholders that generally got along to those with a history of conflict. The participatory processes were varied as well--from "bottom up" efforts to "top down" ones, from consensus-based decision-making to majority rule, and from those with noted leadership to those without. As shown in Figure 1, they also had quite different levels of success in achieving the

¹³ The cases on which we rely for the bulk of our analysis typically were the focus of an in-depth case study. This detailed information allowed us to code most of the attributes and goals of interest. We did have at least summary information on all of the other cases, and sometimes a project report, but these sources were too limited to answer many of the questions that we asked. Even though we studied a diverse sample of cases, there is still some risk of sample-selection bias. Specifically, it may be that case study researchers chose to examine cases that exhibited common sets of characteristics (such as a successful participatory process) and that our results are biased by those choices. This is always a possibility. However, there are reasons to think that a sample selection bias may not be much of a problem. First, many of the researchers who wrote the case studies chose their subjects when the processes were relatively young, meaning that they would not have known how the participatory efforts would play out (e.g., would they be successful or not?). Second, different case study authors were often interested in different aspects of the case under study and approached the research with different theoretical frameworks, making it unlikely that a common methodological approach would consistently bias their reporting. Finally, as we coded case studies, we were careful to distinguish, as best we could, the opinions of case study authors from more objective facts reported in the case studies, minimizing the influence of the biases of any given case study author on our results.

social goals. In general, they were a set of cases with a common mission and broadly similar format, but with important differences that can be used to examine how different context and process issues relate to our goals of interest.

In the discussion that follows, we present summary information on the achievement of each goal individually. For most of the goals, we also include a table showing the correlations (and their significance) with contextual and procedural attributes. (The exception is the goal of education, in which all cases scored "high" and no correlations could be calculated.) In discussing these tables, correlations above 0.45 are regarded as "high" and significance at 90% confidence or higher (i.e., p-value ≤ 0.10) is regarded as "significant."

Analysis of Goals

Education

When discussing education, it is important to distinguish between participants and the wider public because the education process and the amount of education one might expect are quite different for the two groups. While participants would be expected to learn a great deal of rather detailed information from ongoing events within the process, the wider public would be expected to learn more general information mostly through outreach efforts.¹⁴

Education of the participants about the environmental problems under study was a success story. All sixteen cases for which there were moderate or high quality data exhibited a high rate of success (see Table 3). This should not be surprising. In all of these cases, participants met regularly, usually over a period of years, and digested large amounts of technical material about which they were expected to make decisions. This educational process was a key component of these cases and one on which significant emphasis was placed.

Table 3: Education of Participants

| | low | medium | high | n= |
|---------------------------|------------|---------------|-------------|-----------|
| Education of Participants | X | X | 16 | 16 |

note: excludes data with the lowest quality of evidence.

low-participants learned little about issue

medium-participants learned about issue, but felt that they did not know enough to contribute to deliberations and decision-making

high-participants learned enough about issue to feel that they could contribute to deliberations and decision-making on equal par with experts.

¹⁴ The types of outreach used were quite varied, and included: educational exhibits, brochures, and fact sheets; promotional videos and slide shows; newsletters; media campaigns; public service announcements; development of school curriculum; speeches; workshops; meetings with various civic groups, politicians, and corporate leaders; questionnaires; opinion polls; notice and comment on reports; public meetings; public hearings; volunteers (often children) for monitoring and cleanup (often a regular cleanup day); contests; festivals; river tours; and construction of an environmental theme park.

The ways in which members became educated varied from case to case. In some cases, participants entered the process with what might be termed "technical capacity"--a relatively high degree of understanding of relevant science and local issues--that facilitated learning. In other cases, participants started with less technical capacity but learned about relevant issues through workshops, reports written by technical advisory committees, or direct deliberation with experts.

Case study authors noted that education was not just an end in itself. In some cases, an increased understanding of issues caused some stakeholders to take more responsibility for problems they caused. In others it empowered participants to take a greater role in decision-making, facilitating, for example, greater contribution to decision making on technical issues. For example, in one case where participants actually went out to help collect data on stream quality, the case study argued that the experience "increased [participants] confidence about their competence and their value as technical contributors" (Kellogg, 1993b, 516).

The success of these efforts in educating the wider public--those outside the small circle of participants--was more mixed. For the twenty-two cases with moderate to high quality data, 8 (36%) were highly successful, 6 (27%) were moderately successful, and 8 (36%) were unsuccessful (see Table 4).¹⁵ We can compare education inside the group (the participants) and outside the group (the wider public) by looking at the thirteen cases for which we have data on both. While all of these cases were highly successful in educating participants, only three were highly successful in educating the wider public.

Table 4: Education of Wider Public

| | low | medium | high | n= |
|---------------------------|------------|---------------|-------------|-----------|
| Education of Wider Public | 8 | 6 | 8 | 22 |

note: excludes data with the lowest quality of evidence.

low- wider public learned little about issue

medium- moderate learning by wider public or learning among only small number of wider public

high- high amount of learning by a large part of the wider public

Why were many cases successful in educating participants but not the wider public? The answer is probably *not* that there is a trade-off between the two. Rather, in the eight cases for which this was true, public outreach efforts were commonly either limited (sometimes due to inadequate financial resources) or conducted only after the process was completed. In some cases, however, significant effort was expended to involve the wider public through a variety of approaches, but with disappointing results. In the Bay of Quinte RAP, for example, the Public Advisory Committee (PAC) put significant effort into its Public Education and Consultation Program, which was a direct effort to inform and educate the wider public about the RAP process. When surveyed, however, PAC members were

¹⁵ These percentages, and others describing subsequent goals, do not sum to 100 because of rounding.

concerned that they had only reached a small percentage of the people in the Area of Concern (Becker, 1996, 323). Overall, educating the wider public appears to be a far greater challenge for these types of processes than educating participants.

Substantive Quality

Measuring whether participants increased the substantive quality of decisions proved to be a challenging task. It would be extremely satisfying to develop an objective measure of quality and use it to compare the outcomes of participatory and non-participatory processes. In this research, we had to be satisfied with information on whether participants became involved in substantive issues. Assuming that any contribution of substance is a positive development, particularly if it brings to the discussions important local knowledge, this served as a proxy for the extent to which participants improved the substantive quality of decisions. In the cases we examined, participants had opportunities to become involved in a variety of substantive issues, such as (1) fact-finding and contribution of information, (2) deliberation over issues with strong technical components, and (3) involvement in decisions based on technical criteria such as feasibility, effectiveness, and cost.

The twenty-three cases with moderate to high quality data were quite polarized as to whether participants got involved in substantive issues or not. In 9 cases (39%) participants had a high level of input, in 4 (17%) the input was moderate, and in ten (43%) it was low (see Table 5).

Table 5: Substantive Quality

| | low | Medium | high | n= |
|---------------------|------------|---------------|-------------|-----------|
| Substantive Quality | 10 | 4 | 9 | 23 |

note: excludes data with the lowest quality of evidence.

low--little substantive input sought or contributed

medium--some substantive contribution (alternative, information, etc.)

high--participants generated new alternatives that made all or most parties better off, contributed important substantive information, or identified mistakes

Examples from some of the moderately and highly successful cases illustrate the kinds of substantive involvement in which participants were engaged. In the Buffalo River RAP, public advisory committee members brought evidence that residents were actually swimming in the Buffalo River, which, in turn, affected the New York Department of Environmental Conservation's water classification scheme (Kellogg, 1993b). In the Rochester Embayment RAP, members of the public advisory committee actually got out and walked the streams to collect data. In the Bay of Quinte RAP, members of the public advisory committee took part in the development of an adaptive environmental assessment and modeling methodology (essentially a computer simulation model of the Bay of Quinte ecosystem) along with experts (Hartig and Zarull, 1992).

Why did participants get involved in substantive issues in some cases and not in others? Where committees were relatively unsuccessful in making substantive contributions to decision-making, it was mainly because such tasks were "out of scope"--they were not something in which the public was expected to be involved. Rather, these committees' focus was on reviewing information provided by technical committees and, often, using it to guide their more value-driven tasks, such as visioning. This situation was common in many of the comparative risk cases. In the Ohio Comparative Risk Project, for instance, the Public Advisory Group was not asked to make a substantive contribution, but rather to review and synthesize information and data provided by technical experts (WCED, 1997).

We coded the "scope of tasks" variable in each case such that "low" meant that the group was mainly involved in review and comment activities, "medium" meant that the group was tasked with mainly values-oriented activities (discussed further in the next subsection), and "high" meant that the group was tasked with substantive issues as well as values-oriented activities. The correlation between the substantive input and "scope of tasks" was high and significant (see Table 6).

Table 6: Relating the Substantive Quality Goal to Context and Process

| | Correlation (p-value) | n= |
|-----------------------------------|----------------------------------|-----------|
| Context Attributes | | |
| Atmosphere Conducive to Agreement | 0.08 (0.94) | 15 |
| Attitude Toward Lead Agency | -0.12 (0.66) | 9 |
| Confidence in Process | 0.20 (0.88) | 12 |
| Problems to be Addressed | 0.15 (0.39) | 18 |
| Scientific Understanding | -0.078 (0.46) | 19 |
| Shared Jurisdiction | 0.13 (0.55) | 23 |
| Geographic Complexity | -0.05 (0.018) | 23 |
| Process Attributes | | |
| Scope of Tasks | 0.60 (0.001) | 22 |
| Deliberative process | -0.18 (0.58) | 17 |
| External Communication | 0.33 (0.77) | 17 |
| Freedom of Participants | 0.50 (0.11) | 13 |
| Bottom Up vs. Top Down | 0.0 (0.95) | 20 |
| Lead Agency Commitment | 0.12 (0.21) | 18 |
| Perceived Impact | 0.56 (0.076) | 13 |
| Leadership | 0.61 (0.073) | 13 |

What determined "scope of tasks" in each case? While the data were not adequate to fully understand how scope was determined, it seemed to be a shared task between government and the participants. Scope of tasks was highly correlated with a measure for "political capacity," suggesting that more politically savvy public advisory committees took on a larger role for themselves.¹⁶ This might also explain why two other issues--the perceived impact of stakeholders on decision-making and the presence of a leader--were highly and significantly correlated with the substantive quality goal. All of these factors suggest a certain amount of ambition and desire for influence on the part of the stakeholder group, which may result in them taking on a broad scope of activities. This question of ambition is an area for further research, and is discussed further in Section 6.

Beyond scope of tasks (and factors that influence it), one might think that participants' comfort level with technical material might influence the degree to which they got involved in substantive issues. We found that in many cases that were highly successful on this goal, participants did have a high level of "technical capacity" entering the process or a high level of access to technical material during the process. However, there were cases where groups with a high level of technical capacity did not get involved in substantive issues. This underlined the importance of "scope of tasks"--i.e., even if participants were technically capable and/or had access to technical information, they did not get involved in substantive issues unless such activities were part of their mandate to begin with.

Values

All of the participatory processes addressed a number of what can be called "values-oriented" decisions--those that, although perhaps guided by scientific understanding, required judgements and trade-offs driven by the opinions, preferences, and assumptions of those participating. Examples of these values-oriented decisions found in our cases included: (1) the development of a shared vision or set of goals for environmental improvement, (2) the generation of recommendations for meeting environmental goals, and (3) prioritizing problems or recommendations. Sometimes values issues influenced the participatory process itself, as when a citizens advisory group set principles (such as an ecosystem or watershed approach) to guide decision-making.

As a group, the cases were quite successful in incorporating public values into decision-making. For the twenty-five cases with moderate to high quality data, 19 (76%) were highly successful in incorporating values, 5 (20%) were moderately successful, and only one (4%) was not successful (see Table 7). In the case of the RAPs, these findings were consistent with one observer's conclusions about how the public has pushed agencies to do more: "In most cases, the PACs have set goals that go beyond what the agencies require. By addressing issues such as land-use planning and waterfront access, the PACs have been instrumental in broadening the perspective about what the RAPs encompass" (SPAC, 1997).

¹⁶ The correlation between "political capacity" and scope of tasks" was 0.53. The Fisher's exact test was 0.049, and n=18.

Table 7: Values

| | low | medium | high | n= |
|--------------------------------|------------|---------------|-------------|-----------|
| Incorporation of Public Values | 1 | 5 | 19 | 25 |

note: excludes data with the lowest quality of evidence.

low--little attention to participant values; participants input had little impact on decisions

medium--moderate attention to participant values; participant input was used to inform or review analyses or decisions, but was not part of final decisions

high--participant input about values, assumptions, and preferences drove or changed decisions

As in the case of substantive quality, that values-oriented issues were included within the "scope of tasks" is important. When we distinguished between cases in which values-oriented issues were in or out of scope, we found that this variable was highly and significantly correlated with the values goal (see Table 8).

Table 8: Relating the Values Goal to Context and Process

| | Correlation (p-value) | n= |
|-----------------------------------|----------------------------------|-----------|
| Context Attributes | | |
| Atmosphere Conducive to Agreement | 0.06 (1.0) | 14 |
| Attitude Toward Lead Agency | 0.55 (0.56) | 9 |
| Confidence in Process | 0.60 (0.067) | 12 |
| Problems to be Addressed | -0.067 (1.0) | 20 |
| Scientific Understanding | 0.23 (0.30) | 19 |
| Shared Jurisdiction | -0.49 (0.032) | 25 |
| Geographic Complexity | -0.26 (0.73) | 25 |
| Process Attributes | | |
| Scope of Tasks ^a | 0.57 (0.022) | 22 |
| Deliberative process | 0.57 (.037) | 17 |
| External Communication | 0.35 (0.21) | 17 |
| Freedom of Participants | 0.33 (0.66) | 13 |
| Bottom Up vs. Top Down | 0.25 (0.18) | 22 |
| Lead Agency Commitment | 0.40 (0.45) | 18 |
| Perceived Impact | 0.18 (1.0) | 14 |
| Leadership | 0.47 (0.20) | 13 |

^a For this goal only, the coding was modified to reflect a "scope of task" that included values issues. This included both "medium" and "high" scores, which were turned into one score for the analysis

The quantitative analysis supports the theory that a strong, deliberative process is important to the goal of incorporating public values into decision-making. As shown in Table 8, the aggregate "deliberative process" variable was highly correlated and significant. This aggregate variable captured three issues: (1) the quality of communication within the stakeholder group, (2) the degree to which consensus was sought, and (3) the fairness of the stakeholder process.

Although not illuminated by the quantitative analysis, the qualitative data suggested that agencies also shared responsibility in making sure that public values were incorporated into project outputs. In cases where public values had only a limited influence on outputs, case study authors noted a number of barriers erected by agencies. For example, actions recommended by participants were out of an agency's scope (land use issues for a pollution control agency, for example), agency resources were too limited to address public concerns, or there was explicit agency disregard for the input of the public advisory group.

The quantitative analysis suggested that two other variables were related to the values goal. First was the participants' confidence in the process--that is, how optimistic they were that it would be a valuable and productive experience. It was unclear why such optimism is important, but it may be a sign that participants were more interested in getting deeply involved in issues and more adamant that their input be heeded. This potential relationship was only suggestive, however, due to limited data. Second, cases appeared to do more poorly on values issues when jurisdiction was shared between states or countries. This refers to the handful of binational and bi-state RAP processes. The poorer performance of these cases was not unique to the values goal, but was characteristic of the conflict resolution and trust formation goals as well. It likely reflected the general challenge--appearing across a number of goals--of managing projects across major jurisdictional boundaries.

In cases where public values did affect decision-making, the question arises: "whose values?" We examined two aspects of this issue: (1) whether all relevant interest groups were represented, and (2) the "representativeness," in terms of socio-economic criteria, of participants. While the data were not of sufficient quality to address the issue of interest group representation in a quantitative way, the qualitative information suggested that important interests were often missing from stakeholder groups. In some cases, participants seemed to think that efforts were made to be inclusive, but there were still noted absences. Summing up this point of view, one participant in the Rochester Embayment RAP stated that the county agency that ran the process, "probably bent over backwards to get good representation. If [the representation is] not, it's not because they didn't try" (Kellogg, 1993b, 472).

The data on the representativeness of participants in terms of education, income, race, and gender were of somewhat higher quality. For the most part, participants did not appear to be representative of the wider public (as reported by case study authors) (see Table 9). In the 14 cases with moderate to high quality data, the participants in 3 (21%) were highly representative of the public, in 4 (29%) were moderately representative, and in 7 (50%) were unrepresentative.

Table 9: Representation

| | low | medium | high | n= |
|------------------------------|------------|---------------|-------------|-----------|
| Socioeconomic Representation | 7 | 4 | 3 | 14 |

note: excludes data with the lowest quality of evidence.

low--not representative

medium--moderately representative

high--good representation of public

In many cases, the reason that participants were not representative was that organizers selected participants based on criteria that would not be expected to draw such a sample. Instead, participants were selected because they had knowledge of relevant issues, political or economic power to play a role in implementation, or they represented a particular interest group. In general, deciding who will participate often requires trade-offs between such equally laudable objectives. For example, in the Minnesota comparative risk project, participants were picked *solely* on the criteria of representativeness. The trade-off was that participants were not necessarily affiliated with the spectrum of relevant interest groups, did not necessarily know anything about the relevant issues, and did not necessarily have the ability to influence implementation.

Conflict

We examined "present conflict" by asking whether most conflict that existed prior to the start of the process or emerged during the process was resolved by the end of it.¹⁷ In order to understand whether gains on conflict resolution might continue into the future, we also examined whether relationships or institutions were built during the process that would help resolve conflict arising in the future.

¹⁷ Because we are interested in conflict resolution--that is, a change in the level of conflict over time--it was important to understand participants' level of conflict before the process started as well as when it ended. Unfortunately, data on pre-existing levels of conflict was quite poor. Accordingly, we changed the categories of our coding scheme somewhat. Originally, we measured the change in conflict on a five point scale:

- low(-)--process increased conflict among participants.
- low--process did not remedy initial conflict among participants, but neither did it become worse; process avoided conflict by avoiding difficult issues.
- medium--process did little to reduce conflict among participants, but conflict not evident at start of process; process avoided conflict by avoiding difficult issues; no *net* change in conflict: both resolved and created conflict on issues of equal importance
- high--process reduced conflict among participants, but conflict was only a minor problem at beginning of process
- high(+)--process greatly reduced conflict among participants, overcoming initial contention and disagreement

Because we could not make fine distinction on the pre-existing level of conflict, but could generally tell when the level of conflict changed, we collapsed these five measures into three for the statistical analysis:

- low: increase in conflict--formerly low (-)
- medium: no net change in conflict--combination of low and medium
- high: decrease in conflict--combination of high and high (+)

The 19 cases with moderate to high quality data indicated that these processes were generally quite good at resolving conflict. In 11 cases (58%) conflict decreased, in 5 cases (26%) the process didn't change the level of conflict, and in 3 cases (16%) conflict increased (see Table 10).

Table 10: Conflict

| | low | medium | high | n= |
|-------------------------|------------|---------------|-------------|-----------|
| Conflict During Process | 3 | 5 | 11 | 19 |

note: excludes data with the lowest quality of evidence.

low--increase in conflict

medium--no net change in conflict

high--decrease in conflict

The contrast between the high and low cases was stark, as illustrated by quotes from examples of each. One participant in the Buffalo River RAP process, which generally did a good job of resolving conflict, stated:

[The relationships were] generally very good....I was very surprised....I didn't know any of the people when I got on the committee. I expected some real zealots....and that was not the case...[Participants] realized that everyone was going to listen to what they had to say, and respect their opinion, even if they disagreed with it. (Kellogg, 1993b)

By contrast, participant comments about the Detroit River RAP process, which did a relatively poor job of resolving conflict, were summarized as follows:

There were references to the 'sides' people took during the meetings; a feeling of 'us' versus 'them' was pervasive. Everyone felt that everyone else had hidden agendas. The level of distrust, uncooperativeness, and divisiveness among the parties escalated. (Carpenter, 1997)

The literature on conflict resolution would suggest two principal influences on conflict resolution. The first is the contextual issue of how much conflict among stakeholders existed going into the process--the "atmosphere conducive to agreement" variable. The second is the procedural issue of how well the actual process could support conflict resolution--the "deliberative process" variable.

Based on the quantitative analysis, process (i.e., "deliberative process") appeared to be more important than context (i.e., "atmosphere conducive to agreement") in resolving conflict, but for both variables there were only limited data (see Table 11). The "deliberative process" variable measured the quality of communication, consensus-building, and fairness

characteristic of the process. This variable was highly and significantly correlated with conflict resolution. For clarity, we refer to higher performers on the "deliberative process" variable as "strong" processes. As one might expect, they provide ample opportunity for raising issues and resolving differences over them.

While a "strong" process appeared to be important, a more subtle relationship between context, process, and conflict resolution probably better explained the data. When the deliberative process was "strong," the process was good at resolving conflict regardless of the pre-existing atmosphere. But when the process was "weaker," its success in resolving conflict was much more dependent on the pre-existing atmosphere. What characterized these weaker processes was often a lack of emphasis on consensus-building. Such processes were less able to transform initial relationships and less able to raise conflictive issues for resolution. One participant's description of the Saginaw Bay process was representative: "The dynamics weren't strong enough to yield conflict. We didn't tramp enough difficult issues to cause problems" (MacKenzie, 1996). Although based on rather fragmentary evidence for some cases, a variable reflecting this distinction between "strong" and "weak" cases was well correlated and significant with the goal of conflict resolution.¹⁸

Table 11: Relating the Conflict Resolution Goal to Context and Process

| | Correlation (p-value) | n= |
|-----------------------------------|------------------------------|-----------|
| Context Attributes | | |
| Atmosphere Conducive to Agreement | 0.12 (0.79) | 12 |
| Attitude Toward Lead Agency | 0.45 (1.0) | 7 |
| Confidence in Process | 0.27 (0.43) | 9 |
| Problems to be Addressed | 0.089 (0.52) | 17 |
| Scientific Understanding | 0.30 (0.12) | 15 |
| Shared Jurisdiction | -0.47 (0.076) | 19 |
| Geographic Complexity | 0.30 (0.19) | 19 |
| Process Attributes | | |
| Scope of Tasks | 0.045 (0.009) | 17 |
| Deliberative process | 0.59 (0.075) | 13 |
| External Communication | 0.35 (0.30) | 12 |
| Freedom of Participants | 0.35 (0.48) | 13 |
| Bottom Up vs. Top Down | 0.31 (0.64) | 15 |
| Lead Agency Commitment | 0.73 (0.013) | 15 |
| Perceived Impact | 0.00 (1.0) | 13 |
| Leadership | 0.30 (0.39) | 12 |

¹⁸ To construct this variable, we used data of all quality of evidence, including the lowest. The results, therefore, are only suggestive. Where "deliberative process" was high (the strong processes), we gave the constructed variable a score of high. Where "deliberative process" was medium or low (the weaker processes), we gave the constructed variable the value of "atmosphere conducive to agreement." The correlation between the constructed variable and the conflict resolution goal was 0.63. The Fisher's exact test was 0.064, and n=15.

One other variable, that of lead agency commitment, was highly and significantly correlated with conflict resolution, although not for any obvious reason. It may be that a higher level of government commitment allowed participants to focus greater attention on procedural issues to reduce conflict. The quantitative analysis did show that "agency commitment" and "deliberative process" were relatively highly and significantly correlated, and we may simply be seeing the results of the inter-correlation.¹⁹

Because conflict resolution can be so contingent, it was important to ask whether gains or losses in resolving conflict carried forward into the future. The case studies often did not cover a long enough time period to measure such future conflict directly, so we asked whether the process led stakeholders to build relationships, institutions, or other mechanisms to help resolve future conflict. Of the 18 cases with medium or high quality data, 13 (72%) were rated high; 4 (22%) were rated medium and only one (6%) was rated low (see Table 12). When comparing these results to those for present conflict (Table 9), it may look like cases in which conflict increased during the process gained some ground on future conflict. It should be noted, however, that the tables describe a slightly different set of cases. In fact, of the three cases in which present conflict increased, only one could be coded with moderate to high confidence on future conflict, and it did poorly there as well.

Table 12: Future Conflict

| | low | medium | high | n= |
|-----------------|------------|---------------|-------------|-----------|
| Future Conflict | 1 | 4 | 13 | 18 |

note: excludes data with the lowest quality of evidence.

low--process worsened relationships among stakeholders; future stakeholder processes likely to be more difficult

medium--process did not change relationships among stakeholders nor lead to development of institutions for resolving conflict

high--process improved relationships among stakeholders or led to development of procedures/institutions for resolving future conflict.

For most of the cases, participants indicated that, even if disagreements or disputes persisted, the process led to an improvement of working relationships among stakeholders, if only from the opportunity to exchange ideas and learn about each other's perspectives. Many participants in the RAP cases, in particular, made significant efforts to institutionalize the good will and cooperative relationships shaped during the process through the creation of new collaborative arrangements. Most of these arrangements were created to continue stakeholder engagement in later phases of the RAP processes, especially in implementation. For example, in the Buffalo River RAP, a number of members of the public advisory committee joined a Remedial Advisory Committee, consisting of government, public interest groups, economic interests, and private citizens to oversee implementation of the RAP (Kellogg 1993b).

¹⁹ Correlation=0.44; Fisher's exact test=.064; n=16.

In discussing conflict resolution, whether present or future, we should note that the absence of conflict did not necessarily signal that all was well. One of the reasons that the cases seemed successful in resolving conflict may have had to do with their focus on planning over implementation. In Hamilton Harbor, for example, the process was quite successful in resolving conflict and building good working relationships. However, one participant noted: "I expect a lot of screaming when it comes to funding and implementing decisions" (MacKenzie, 1996). In other cases, the lack of conflict may have simply reflected an effort to avoid conflictive issues.

More troubling is the question of who participated and who didn't. In a few cases, case study authors or participants noted that those whose views might be expected to clash most with those involved in the process were not involved. In the Metro Toronto case, for example a number of potential members of the RAP public advisory group boycotted it because they perceived it as a government-dominated substitute for an earlier planning process. In the St. Mary's RAP public advisory committee, representatives from industry left the process after they were repeatedly criticized by a "vocal minority" (Clean Sites, 1998). While this departure may have *reduced* the level of conflict on the committee, it certainly did not serve to *resolve* it.

Trust

Of all of the goals analyzed, trust was the most complex. While some cases made explicit reference to trust, others discussed related or component concepts, such as:

- Confidence: an increased confidence in the abilities of the agency and how well it does its job;
- Fiduciary duty: perceptions that the agency would "do what is right" by following through on plans, making decisions consistent with participants' values, or generally sharing the same kind of commitment to solving a particular problem as the participants had; and
- Legitimacy of the process: confidence on the part of participants that government was committed to a more open and transparent decision-making process.

The 16 cases with moderate to high quality data were quite varied with regard to trust. In 6 cases (38%) trust was improved, in 5 cases (31%) the process didn't change the level of trust, and in 5 cases (31%) trust decreased²⁰ (see Table 13).

²⁰ As with the case of conflict, we were interested in trust formation--that is, a change in trust over time--but had relatively poor information on the pre-existing level of trust. As a result, we made a similar modification to the coded data, resulting in three possible results.

- low: decrease in trust--formerly low (-)
- medium: no change in trust--combination of low and medium
- high: increase in trust--combination of high and high (+)

Table 13: Trust

| | low | medium | high | n= |
|--------------------------|------------|---------------|-------------|-----------|
| Trust among Participants | 5 | 5 | 6 | 16 |

note: excludes data with the lowest quality of evidence.

low: decrease in trust

medium: no change in trust

high: increase in trust

A number of variables that addressed the relationship between stakeholders and government would seemingly be related to trust formation. The quality of "external communication" was an aggregate measure of the quality of two-way communication with lead agency personnel and access to technical information. It is important to emphasize the two-way nature of the communication. In the Rochester Embayment RAP, for example, the lead agency was very good at supplying participants with a large amount of technical information, but there was little opportunity for feedback to the agency about participants' concerns (Kellogg, 1993b). The relationship between the external communication variable and trust formation was high and significant (see Table 14). Perhaps the best forum for communication was when lead agency representatives were actually part of the deliberative group, which happened in a number of cases.

Table 14: Relating the Trust Formation Goal to Context and Process

| | Correlation (p-value) | n= |
|-----------------------------------|----------------------------------|-----------|
| Context Attributes | | |
| Atmosphere Conducive to Agreement | 0.73 (0.096) | 11 |
| Attitude Toward Lead Agency | -0.20 (0.49) | 7 |
| Confidence in Process | 0.00 (0.43) | 7 |
| Problems to be Addressed | 0.34 (1.0) | 14 |
| Scientific Understanding | -0.048 (0.078) | 14 |
| Shared Jurisdiction | -0.53 (0.069) | 16 |
| Geographic Complexity | 0.16 (0.18) | 16 |
| Process Attributes | | |
| Scope of Tasks | -0.18 (0.24) | 15 |
| Deliberative process | 0.62 (0.057) | 14 |
| External Communication | 0.49 (0.047) | 14 |
| Freedom of Participants | 0.15 (0.89) | 9 |
| Bottom Up vs. Top Down | 0.35 (0.60) | 15 |
| Lead Agency Commitment | 0.55 (0.036) | 14 |
| Perceived Impact | 0.48 (0.38) | 9 |
| Leadership | 0.40 (0.44) | 10 |

The commitment of the lead agency to the process was also highly and significantly correlated with success. The elements of commitment cited in case studies included adequate funding and staffing, lack of turn-over, and sustained agency interest in the process. Beyond the provision of resources necessary to conduct the business of the participatory group, agency commitment may also have served a legitimizing function by signaling to participants that they had the necessary political support to affect policy (Gurtner-Zimmerman, 1996).

Once again, the "deliberative process" variable was highly and significantly correlated with trust formation. While it may be hard to imagine why the internal stakeholder process should affect trust in agencies, there may be two explanations. First, as discussed above, in some cases government representatives took an active part in the stakeholder group, so, for a subset of cases, communication "outside" and "inside" the stakeholder group became the same thing. Second, we may again be seeing the inter-correlation between "deliberative process" and "commitment" previously discussed.

It is also difficult to explain why the "atmosphere conducive to agreement" variable was highly correlated and significant. A different variable, "attitude toward the lead agency," measured the quality of the pre-existing relationship between the public and the agency. It would be this second variable that one would expect to be correlated with trust formation. However, the limited data for both variables suggests not putting too much confidence in the results.

Surprisingly, those features of the process specifically oriented toward the balance of power between citizens and government did not seem to be obviously correlated with trust formation. These included three aggregate variables measuring 1) the freedom of participants to determine their own agenda, 2) the "bottom up" vs. "top down" nature of the process, and 3) the perceived impact that participants felt they would have on decision-making. While the number of observations for two of these variables (freedom of participants and perceived impact) is probably too low to expect any findings to be significant, an overview of the data is informative. While one case--the Buffalo River RAP--would support the argument that trust is related to citizen power, other cases do not. Buffalo River was a "bottom up" effort in which citizens felt they had a "partnership" role with government in decision-making and had considerable freedom over their agenda. Participants reported that trust and confidence in the lead agency increased over the course of the process. However, in other cases that were "bottom up," where participants had a high degree of freedom, or in which they had a "partnership" role with government, the level of trust either did not change or it decreased. There were also examples of processes that were relatively "top down" and in which participants had little freedom, but in which participants reported an increase in trust in the lead agency. A good understanding of the relationship between trust and citizen power requires an examination of more cases than was possible here. However, the lack of an obvious relationship in our cases suggests that any relationship that does exist is likely to be more subtle than one of simple cause and effect.

As with the goal of education, whatever trust formation (or reduction) did occur within the stakeholder group did not appear to filter out to the wider public, although there were only data on seven cases. For these cases, five resulted in no change in trust among the wider

public (even in two cases where a deficit in trust seemed to be a problem) and two actually reduced it. For the cases that did not affect the level of trust among the wider public, the most relevant issue was lack of public knowledge of the process. In most cases, the public did not know these processes were occurring, so whatever possibility for improving trust that existed was lost. In the cases where trust was destroyed among the wider public, the main cause appeared to be a perception by people outside of the process that they were intentionally being left out or that others were being unfairly let in.

What Makes for a Successful Process?

The preceding analysis examined each goal individually. However, some of the relationships between goals suggests that we can speak of "success" in broader terms. That is, doing well on certain goals seemed to be related to doing well on others. Results for conflict resolution and trust formation were highly and significantly correlated across cases. Although not significant, the correlations between these goals and the public values goal also suggested a relationship. These three goals also appeared to be related to a measure of participants' "satisfaction" with the process (which we coded but did not extensively analyze).²¹ The education and substantive quality goals, on the other hand, seemed to be relatively independent of the others.

The relationship between the values, conflict resolution, trust formation, and satisfaction measures suggests that these social goals may be measuring some sort of overall success that is greater than the sum of its parts. Likewise, they shared many similar relationships with contextual and procedural variables. This allows us to point to a number of issues that are important (and some that are seemingly not important) for the design of a successful participatory effort.

In general, the overall success of a particular case seemed to be more related to features of the participatory process and the attitudes of the participants than with the difficulty or complexity of the issues under discussion. Based on the analysis, our recommendations for what constitutes a successful participatory process generally agree with the "conventional wisdom" of agency guidance on the topic.²² Agencies should:

- Determine a "scope of tasks" consistent with the capabilities and expectations of the public advisory group and government agency;

²¹ The following table displays the correlations (Kendalls tau-b), the Fisher's exact test of significance (p), and number of observations (n) for the bivariate relationships between goals (including the "satisfaction" measure).

| | Values | Trust | Conflict |
|--------------|----------------------|---------------------|----------------------|
| Trust | 0.26 (p=0.34; n=15) | | |
| Conflict | 0.46 (p=0.16; n=16) | 0.73 (p=.058; n=11) | |
| Satisfaction | 0.388 (p=0.16; n=15) | 0.70 (p=.009; n=14) | 0.75 (p=0.005; n=12) |

²² While all of these items are significantly related to some of the goals of interest, we can't say with certainty that they are *collectively* related to the goals of interest. There may be inter-correlation between variables rather than discrete relationships with the social goals.

- Encourage open, fair communication among stakeholders, with an emphasis on deliberation and consensus;
- Ensure good two-way communication between stakeholders and government decision-makers and scientists; and
- Commit sufficient government funds and staff to support the process.

Lead agencies have substantial influence over these issues. The quality of communication between stakeholders and an agency, the commitment of resources, and--to some extent--the scope of tasks, are dependent on agency decisions. But agencies can also affect the quality of the internal stakeholder process, by, for example, hiring effective facilitators.

Other issues, however, are out of agencies' hands. The measure of "atmosphere conducive to agreement" seemed related to success for some goals, but it is largely a pre-existing feature of any process. In the cases we examined, a good "atmosphere" was generally associated with a successful process. As mentioned above, however, particularly "strong" processes seemed to be able to overcome a bad "atmosphere," at least in terms of conflict resolution.

Where jurisdiction was shared, whether between states or countries, cases seemed to be less successful on important goals such as values, conflict reduction, and trust formation. This would include the binational RAPs, but also some that were shared between states (e.g., the Menominee River RAP and the St. Louis River and Bay RAP). A number of analysts of the RAP process have noted the difficulty of managing these processes across political and cultural divides, and our findings are consistent with their conclusions.

It is interesting to ask what contextual and procedural issues did not appear to be related to program success. Three categories stand out: (1) the complexity of the decisions, (2) "balance of power" issues, and (3) leadership. Each is discussed below.

Complexity of Decisions

Surprisingly, success on any of our goals did not appear to be related to the complexity of actual decisions, as defined by: (1) the number of problems to be addressed, (2) the degree of scientific understanding of the particular problems to be addressed, and (3) the geographic context in which the process took place (e.g., urban vs. rural areas). In the quantitative analysis, where relationships were shown to be significant, the correlation coefficient was very small. In the case of RAPs, cases such as Hamilton Harbor, Green Bay, and Buffalo River all represented relatively complex problems and jurisdictions, yet all had quite successful public participation.

Balance of Power

A well-developed strain of thinking in the public participation literature argues that more citizen freedom and power is required for successful public participation (Arnstein,

1969; Webler, 1995; Fiorino, 1990). We looked at a number of what might be called "balance of power" issues: (1) the "freedom" of participants to control the participatory process, (2) the extent to which the process was "bottom up" vs. "top down," and (3) participants' perceived impact on decision-making. While there were a number of interesting cases in which citizens had quite a bit of freedom and power, no consistent relationship emerged between any of these issues and success on the goals. Rather, many cases worked well within a highly structured, relatively "top down," process, as long as there was flexibility and responsiveness on the part of agencies to the changing needs of citizens.

Leadership

The quantitative analysis did not show any obvious relationship between leadership and the social goals. This is a puzzling result, because, in many cases, participants were very enthusiastic about the role good leadership played in making participation effective. The results may be affected by data collection problems. While it was often reported whether a leader was present and made a difference, it was not clear whether lack of information meant that there was no leader or whether leadership did not have an impact. Perhaps the impact of leadership actually showed up more clearly in some of the other variables, as leaders played a role in, for example, facilitating deliberation and/or consensus or acting as a liaison and communication channel with government.

The examination of the cases discussed in this section, revealed a broad range of performance on the social goals, and also some common themes about what seemed to make some cases more successful than others. Obviously, the cases that measured up well in the evaluation provide lessons for those that measured up poorly. But there are a number of other participatory efforts that reveal important lessons for the kinds of cases discussed here. These are the "innovative" cases, discussed in the next Section.

5. INNOVATIVE PARTICIPATORY PROCESSES

Innovative participatory processes have emerged, at least in part, as a response to a perceived failure of decision-making on public issues to effectively involve the public. The Great Lakes region has been a fertile area for generating these processes. To provide a clearer picture of the different ways that citizens throughout the region have become involved in environmental planning and decision-making, we describe some of these innovative processes and discuss how they might suggest ways to improve public participation.

We discuss three types of innovative processes: (1) participatory mechanisms that are procedurally innovative, such as citizens juries, study circles, and National Issues Forums; (2) mechanisms whose application to environmental issues is recent and promising, such as policy dialogues and round tables; and (3) a group of intriguing examples of multi-stakeholder

partnerships in the region that might provide models for wider application, such as collaborative watershed management efforts, sustainable community initiatives, and conservation partnerships. The final part of this section evaluates these different types of public participatory efforts.

Procedurally Innovative Public Participatory Mechanisms

The distinction between procedurally innovative and non-innovative models of public participation is not definitive. In fact, a specific participatory process may at times be considered innovative or not depending on the circumstances of its application. The procedurally innovative processes discussed here are, however, bound together by a common set of attributes. First, they are carefully conceived frameworks with well-founded guiding philosophies. They are not ad hoc participatory experiments, but explicit efforts to broaden and improve public involvement in public policy discourses through specific procedural means. Second, they are typically targeted at the public at-large. They create a deliberative forum for average citizens to voluntarily learn about issues, exchange ideas, and share experiences. Third, in procedurally innovative participatory mechanisms, process is frequently as, or more, important than outcomes. Particular emphasis is often placed on characteristics such as fairness, transparency, information sharing, availability of technical expertise, and the active role of a facilitator. Lastly, these kinds of innovative participatory processes are generally devised to address issues in a pro-active, rather than a re-active manner. They typically occur before a decision has been made or an outcome has been determined.

Three examples of procedurally innovative public participatory processes are discussed below--citizens juries, study circles, and National Issues Forums. All of these processes have been employed in states or communities in the Great Lakes region to address environmental protection or natural resource management issues.

Citizens Juries

Citizens juries are a significant innovation in public participation and have been used in the Great Lakes region, specifically in Minnesota, to address numerous environmentally-related concerns. Sometimes referred to as citizens panels,²³ citizens juries are a U.S. adaptation of the "consensus conference" design pioneered by the Danish Board of Technology (Sclove, 1996). The underlying concept of the citizens jury model is that, if given sufficient time and resources to learn about a topic, average citizens have the ability to understand complicated issues, deliberate on a set of potential responses, and provide well-reasoned decisions. In general, a citizens jury brings together a representative sample of citizens to deliberate on technically complex issues of public policy importance. The citizens

²³ "Citizens jury" and "citizens panel" are often used interchangeably, but there is a subtle distinction between the two. Citizens panels tend to have a freer hand in identifying the options to be considered whereas citizen juries deliberate on a specific "charge" that generally includes a given set of options.

jury model is a strictly choreographed process guided by the following procedural steps (Crosby, 1995; Armour, 1995; NRC, 1996):

- A neutral facilitator selects the jury members from a "jury pool" obtained through a quota sampling procedure designed to ensure that the sample matches the demographic and/or attitudinal characteristics of the population at large;
- The project sponsor and/or the neutral facilitator gives the citizens jury its "charge" that includes a statement of the problems to be addressed;
- The neutral facilitator and/or citizens jury decide who to call as witnesses with the aim being to ensure that different points of view on the problem are presented to the jurors;
- A neutral moderator facilitates all discussions, with the possible exception of final deliberations by the jury (which may be in private);
- Jurors generally attempt to reach a consensus on final recommendations, with majority vote used to resolve conflicts;
- At the end of their deliberation, jurors are often given the opportunity to evaluate the process and make public their views.

The citizens jury model has been primarily shaped in the United States over the past 25 years by the Jefferson Center, a non-governmental organization based in Minneapolis, Minnesota.²⁴ To date, the Jefferson Center has conducted 26 citizens jury projects throughout the United States at all levels--national, state, and municipal--though most of the juries have been convened at the state level in Minnesota. Citizens juries have deliberated on a wide range of topics including national health care reform, budget priorities, elections, and education. In the last few years, the citizens jury model has been frequently utilized to engage the citizens of Minnesota on environmentally-related topics such as land use, electricity, and comparing environmental risks. One case, the Citizens Jury on Dakota County Comprehensive Land Use Plan, is detailed in Appendix E.

Study Circles

Grounded in the tradition of the U.S. town meeting, study circles are another innovative participatory process in use throughout the Great Lakes region, though not yet widely used to deliberate on environmental issues. They typically share the following defining characteristics (Study Circles Resource Center, 1999):

²⁴ Known also as the Jefferson Center for New Democratic Processes, it was established in 1974. The mission of the Jefferson Center "is to strengthen the democratic process by providing decision-makers with tools to assess more effectively and comprehensively citizen opinion on issues of public significance" (Jefferson Center 1999).

- Participation by 8 to 12 people, meeting regularly over a period of weeks or months to address a critical public issue;
- Voluntary membership and open access to interested individuals;
- Background reading material that exposes participants to a range of views;
- Facilitation by an impartial person;
- A search for common ground through considering an issue from many points of view; and
- A progression from a session on personal experience ("how does the issue affect me?") to sessions providing a broader perspective ("what are others saying about the issue?") to a session on action ("what can we do about the issue here?").

Agreement or consensus is not the intended outcome of study circles. They typically are not intended to decide on a specific issue nor develop a set of recommendations or policy prescriptions. Rather, the process provides the average citizen with an outlet for democratic exploration of community issues. The hope is that such involvement will lead to future collaboration and action since participants emerge from study circles with an increased understanding of community concerns and assets, and with a new network of community contacts (McCoy et al., 1996).

Community-wide study circles are large-scale, broad-based discussion programs that involve dozens of individual study circles. This model was used, for example, as a key strategy for public input in the Maine Environmental Priorities Project, a state-sponsored comparative risk project. In total, 40 study circles were held in eight population centers throughout the state. In groups of 10 to 12 people, citizens considered the risks posed by a set of environmental problems and voted for which should be priority targets for management programs (Campbell, 1999).

The study circle model dates back to the 1870s when they were first sponsored by the Chautauqua Literary and Scientific Circle of New York. At their peak in 1915, a total of approximately 700,000 people were participating in 15,000 study circles in the United States. At the turn of the century, adult educators in Sweden brought the process to their country, and since that time the process has seen wider acceptance in Europe (Oliver, 1987; Dale and Cavanaugh-Grant, 1998; Nelkin, 1977; Nichols, 1979). Study circles were brought back to the United States in the mid-1980s and were formalized in 1990 with the establishment of the Study Circles Resource Center (SCRC)²⁵ in Pomfret, Connecticut. SCRC has been instrumental in the burgeoning growth of community-wide study circles that engage larger numbers of citizens--in some cases thousands--to discuss issues of local salience.

Communities in the Great Lakes region have started to adopt the study circle model to address environmental concerns, especially within the context of agricultural issues and

²⁵ The Study Circle Resource Center, a project of the Topsfield Foundation, facilitates study circle organizing, creates discussion materials, and provides technical assistance to local organizers.

practices. Since 1992, study circles have been used by citizens in Illinois, Indiana, Minnesota, and Wisconsin to discuss sustainable agriculture, community-supported agriculture, and other similar topics. Two examples, the Illinois Sustainable Agriculture Study Circles and the Community Shared Agriculture Study Circle, are discussed in Appendix E.

National Issues Forums

Based largely on the study circle model, National Issues Forums are locally-sponsored discussion groups that convene members of the public to consider and deliberate on public policy issues. Their structured discussions provide an open forum for citizens to learn about, deliberate on, and contribute their input to resolutions of societal problems. The end objective of National Issues Forums is not to achieve consensus about a certain solution but to work through a deliberative process in which participants look for a shared sense of purpose and direction that will enable them to act together as a united public. They generally adhere to a uniform procedure (NIFR, not dated):

- Convenors provide participants with nonpartisan discussion guides for background information;
- Participants deliberate on the issues in a facilitated discussion and weigh several potential ways to address a problem;
- Participants determine which choice among the resolutions is in the best interest of the community.
- Pre- and post-ballots record changes in the participant's choices as a result of the process.

Moderators encourage participants to think not only as individuals, but as members of a community. The results of National Issues Forums are typically shared with national and local leaders as a source of public expression (NIF, 1999).

The Domestic Policy Association (DPA), a non-governmental organization based in Dayton, Ohio, launched National Issues Forums in the United States. DPA based the initiative on the premise that informed citizens can affect the way that the public considers and acts on salient public policy issues (Oliver, 1987). The DPA, now known as National Issues Forums, provides issue-based background materials that can be used by local process organizers and facilitators.²⁶ Additionally, the organization sponsors a set of workshops, called Public Policy Institutes (PPIs), throughout the United States, to help organize NIFs. In 1999, PPIs are scheduled to be held across the country, including at 5 locations in the Great

²⁶ To date, NIF has produced three issue books on environmentally-related topics: "Environmental Protection: A Challenge Bigger Than All Outdoors" (1996-1997), "Energy Options: Finding a Solution to the Power Predicament" (1991-1992), and "The Environment at Risk: Responding to Growing Dangers" (1989-1990). Other materials recently developed by NIF include issue books on governance in America, children, gambling, illegal drugs, internet and protection of rights, and economic growth (NIF, 1999).

Lakes region--College of DuPage (Chicago, Illinois), Michigan State University/Lansing Community College (East Lansing, Michigan), Purdue Law Enforcement (Kokomo, Indiana), Purdue University (West Lafayette, Indiana), and Minnesota Humanities Commission (St. Paul, Minnesota).

Innovative Applications of Public Participatory Mechanisms

Another set of interesting processes are a loosely defined group of participatory mechanisms that do not represent procedural innovations, but "tried and true" participatory processes whose application to environmental issues is relatively recent and promising. The discussion focuses on two such processes--round tables and policy dialogues--that have been utilized in the Great Lakes region to address environmental issues.

Round Tables

Round tables are deliberative forums that provide opportunities for stakeholders concerned about specific issues to convene as equals and propose policy initiatives to government decision-makers. Generally acting as an advisory body to their government or municipality, a round table provides a non-hierarchical setting for open discussion. In many ways they are similar in structure and operation to the public advisory committees created as part of the Remedial Action Plan process. The objective of a round table is to build a multi-sectoral consensus and to create a partnership among interests with traditionally dissimilar viewpoints (Lesh and Lowrie, 1995). Each round table establishes its specific procedural operations and substantive scope, but they typically share a number of common attributes (Howlett, 1990; Lesh and Lowrie, 1995):

- Small group, generally consisting of 12-24 people;
- Voluntary, multi-stakeholder approach that includes some combination of government, interest group, and public at-large representation;
- Procedures and substantive products generally determined by participants; and
- Consensus-based decision-making.

Round tables have historically been used in Canada to bring public officials and private citizens together to discuss ongoing policy issues. Beginning in the late 1980s, with a series of round tables held in response to the United Nation's World Commission on Environment and Development, they have seen increasing use for environmental issues. The mechanism has evolved to become a central component of the consultation process in Canadian environmental policy. By 1991, round tables had been formally established for the federal government and all 12 provinces and territories (Howlett, 1990). In 1993, the provincial round tables adopted a set of ten guiding principles for using the consensus process in sustainable development planning (see Figure 2).

Figure 2: Building Consensus for a Sustainable Future: Guiding Principles

Principle 1: Purpose Driven--People need a reason to participate in the process.

Principle 2: Inclusive, not exclusive--All parties with a significant interest in the issue should be involved in the consensus process.

Principle 3: Voluntary Participation--The parties who are affected or interested participate voluntarily.

Principle 4: Self Design--The parties design the consensus process.

Principle 5: Flexibility--Flexibility should be designed into the process.

Principle 6: Equal opportunity--All parties must have equal access to relevant information and the opportunity to participate effectively throughout the process.

Principle 7: Respect for Diverse Interests--Acceptance of the diverse values, interests, and knowledge of the parties involved in the consensus process is essential.

Principle 8: Accountability--The parties are accountable both to their constituencies and to the process that they have agreed to establish.

Principle 9: Time Limits--Realistic deadlines are necessary throughout the process.

Principle 10: Implementation--Commitment to implementation and effective monitoring are essential parts of any agreement.

(text from: National Round Table on Environment and Economy, 1993)

The success of the federal and provincial round tables led to the transplantation of the process to the local level. Similar to their larger-scale counterparts, local round tables have attempted to build consensus among different groups and promote government action. They generally have shared the common objective of exploring options and determining ways that individual communities can become more sustainable, and pursue the objective through visioning, goal-setting, and community outreach (Lesh and Lowrie, 1993).

Governments in the United States have also gradually adopted round tables as a public participatory model to deal with sustainability issues.²⁷ The most coordinated and fully-established round table in the United States in the region is the Minnesota Round Table on Sustainable Development, which is described in Appendix E.

²⁷ Among the examples are the Governor's Commission for a Sustainable South Florida, the Kentucky Round Table on Environment and Economy, the Regional Round Table on the Environment and Economy serving New York State and the Tri-State Metropolitan Region, and the Virginia Task Force of Sustainable Development and Regional Sustainability Council for the Thomas Jefferson Planning District.

Policy Dialogues

Policy dialogues provide a forum for stakeholders, often with opposing positions, to address issues outside the circumstances of a particular legislative or regulatory process in a voluntary, consensus-based way. They are commonly thought of as a form of alternative dispute resolution (NRC, 1996). Policy dialogues are usually sponsored by government agencies or by private groups to address politically contentious and scientifically complicated issues that have proven too difficult to resolve within conventional decision-making processes (Keystone Center, 1999).

Policy dialogues ordinarily are not aimed at developing formal agreements. Rather than reach a binding outcome, the objective typically is to establish common ground that may then serve as a foundation for policy development, regulation, or further interactions among the parties (NRC, 1996). The general purpose of policy dialogues is to open up discussion among parties, to identify and promote increased understanding of the issues subject to debate, and to assess the extent of controversy that exists (Gray, 1989). Unlike most innovative participatory mechanisms, policy dialogues are not targeted at average citizens representing the views and interests of the public at-large. Rather, they are intended to involve those with a palpable stake in the outcome of the process (Keystone Center, 1999).

The process itself is less prescribed than the other processes discussed in this section. Though policy dialogues are usually moderated by an outside facilitator, they do not follow a step-by-step procedural framework. By design, the process is necessarily flexible to take into account the motivations of the parties and the circumstances in which the parties are coming to the process.

Since the mid-1970s, policy dialogues have been utilized in the United States to address a wide range of environmental issues, mostly at the national level. A couple of organizations in particular have been instrumental in sponsoring policy dialogues in the United States to address environmental issues: the Conservation Foundation in Washington, DC (and more recently its spin-off organization Resolve) and the Keystone Center in Keystone, Colorado.²⁸ In the Great Lakes region, perhaps the most notable policy dialogue was the Illinois Common Ground Consensus Project, which was initiated in 1982 and is described in Appendix E.

Other Notable Participatory Processes in the Great Lakes Region

A recent trend in environmental policy is the increased involvement of local communities in planning and decision-making. It is sometimes referred to as community-

²⁸ Beginning in 1977, the Conservation Foundation sponsored a policy dialogue between representatives of chemical manufacturers and environmental groups in response to the complex issues surrounding the implementation of the then recently enacted Toxic Substances Control Act (Bingham, 1986). The Conservation Foundation merged with the World Wildlife Fund in 1993. In the 1980s, the Keystone Center organized a number of policy dialogues on issues ranging from groundwater contamination to biotechnology regulations (Gray, 1989). More recently, the Keystone Center facilitated a high profile policy dialogue known as "The Enterprise for the Environment (E4E)," which considered the general future of environmental protection.

based environmental protection (EPA, 1997) or civic environmentalism (John 1994). The basic premise underlying increased local involvement is that environmental protection and conservation efforts work best when designed, initiated, and implemented by local people (Zeller, 1997).

This trend has taken hold in the Great Lakes area. The examples enumerated below--collaborative watershed management, sustainable community initiatives, and conservation partnerships--are selected to showcase the breadth of participatory processes currently underway in the Great Lakes. These cases are not necessarily defined by a common set of characteristics, but they represent successful examples of locally-based efforts to improve environmental management.

Collaborative Watershed Management

Collaborative watershed management represents the nexus of community-based management and the recognition that environmental protection and natural resource management should follow an ecosystem approach that emphasizes an integrative and holistic view of how ecosystems function (Michaels, 1999). Often, multi-stakeholder partnership arrangements have developed in which planning, decision-making, and implementation of action programs are a collective effort of government, interest groups, and members of the public at-large. Collectively, these watershed-based groups work cooperatively to protect the quality of the entire watershed, an approach encouraged by EPA since the early 1990s (EPA, 1991). Collaborative watershed management has been increasingly embraced throughout the United States, and there are numerous examples in the Great Lakes region of successful efforts, including the Grand Traverse Bay Watershed Initiative, which is described in Appendix E.

Sustainable Community Initiatives

Communities in recent years have increasingly incorporated concepts of sustainability into their development efforts. Following successful models, such as the local initiative in Chattanooga, Tennessee (Swanson, 1997), sustainable community initiatives have spread across the nation, now numbering in the hundreds (PCSD, 1999). These initiatives are characterized by highly participatory decision-making processes in which partnerships of local government, environmental and business interests, community development organizations, and citizens collaborate to make decisions about their community's future. Among the issues addressed in community sustainability initiatives are economic growth, improved environmental quality, transportation, and land use patterns.

There is an increasingly extensive network of governmental agencies and non-governmental organizations working to support community sustainability initiatives. On the national level, the Clinton Administration created the President's Council on Sustainable Development, which has actively supported local initiatives and developed strategic frameworks to assist local communities in their efforts. States have also begun to set up

programs to support sustainability initiatives. Additionally, there are scores of non-governmental organizations that have been established to help communities think about their future development. Among the notable organizations are the Sustainable Communities Network, which is a partnership of fifteen nonprofit organizations created to connect citizens across the country with the resources they need to implement local sustainable development programs and approaches, and the Joint Center for Sustainable Communities, a collaborative effort of the National Association of Counties and the U.S. Conference of Mayors (PCSD, 1997). Numerous organizations are working with communities in the Great Lakes region, including the Northeast-Midwest Institute (Washington, DC), the Center for Neighborhood Technology (Chicago), and the Green Institute (Minneapolis). Two successful community sustainability initiatives--Rural Action and Sustainable Racine--are detailed in Appendix E.

Conservation Partnerships

Conservation partnerships are not clearly defined but generally entail public-private arrangements among federal, state, regional, and municipal government agencies, environmental groups, agricultural associations, and local citizens. The number of partnerships has been increasing recently as government agencies, facing reduced budgets and expanded mandates, attempt to find partners that can financially assist them in meeting their objectives (MIEB, 1993). One non-governmental organization in particular, the National Association of Conservation Districts (NACD),²⁹ has been striving to formulate these types of partnerships, working through its local soil and water conservation districts to facilitate programs addressing a wide-range of issues including water quality, soil erosion, farming and grazing, and forestry issues. Numerous individual soil and water conservation districts throughout the Great Lakes region have successfully participated in conservation partnerships (NACD, 1999). Additionally, many state agencies in the Great Lakes region, often working with United States Department of Agriculture Cooperative Extension Service offices, have been instrumental in establishing conservation partnerships to bring together the resources and expertise of various government agencies and non-governmental organizations. Examples of active conservation partnerships in the Great Lakes region, one organized by the Lenawee Soil Conservation District in Michigan and the other by a group of organizations in Iowa, are discussed in Appendix E.

Evaluation of Innovative Participatory Processes

Each of the innovative processes discussed has strengths and weaknesses from which lessons can be learned. Many of them provide potentially useful insights into ways to correct some of the problems with conventional public participation programs.

²⁹ The NACD is the association that binds together the nearly 3000 soil and water conservation districts located throughout the United States, almost one in every county, that work to help local people to conserve land, water, forests, wildlife and related natural resources.

A key strength of most of these innovative efforts is their focus on deliberative processes. Most emphasize issues such as communication, fairness, and often consensus. In particular these processes are most useful for values-oriented activities such as visioning or priority-setting among a diverse group of people. Depending on who participates, they may also be good for addressing conflict. Policy dialogues and round tables, for example, often bring together stakeholders with a history of contentious relationships.

An additional strength of the innovative processes is their focus on education and on providing opportunities for citizens to share with each other their opinions and experience. Citizens juries, study circles, and National Issues Forums are exemplary in terms of educating participants. Whether through the provision of expert testimony, access to scientific research, or detailed issue-briefs and background materials, these processes strive to arm participants with sufficient knowledge with which to make informed decisions.

Innovative processes may also provide lessons about reaching out to members of the wider public. By design, the procedurally innovative processes described in this section aim to involve people who do not typically participate in the policy process. As supplements to more conventional approaches, they may provide an avenue for reaching members of the wider public, either through forming a representative group of average citizens--the citizens jury approach--or through gathering people in large numbers--the community-wide study circle approach.

There are some weaknesses, however, to the innovative approaches. Because the intensive deliberative processes necessitate a small group, they share some of the problems with the Remedial Action Plans and comparative risk projects in trying to represent the public, and possibly excluding important groups. This effect may be exacerbated in some types of innovative cases, in which members are selected based on particular attributes. Citizen juries, for example, seek a representative sample of citizens but probably exclude the perspective of important interest groups. Policy dialogues, on the other hand seek to include representatives of interest groups, but exclude the wider public. One solution would be to open up these processes to everyone, but there would be inevitable sacrifices in the quality of deliberation.

For the most part, these innovative cases have not been directly linked to government decision-making and may lack legitimacy from the perspective of government agencies. Most have addressed issues outside the context of an actual policy decision. There is a real issue, then, of how effective these non-governmental efforts can be. This is less important with processes such as policy dialogues and round tables, since policymakers are typically also acting as participants. Yet, the ability of these processes to impact policy or change the way citizens feel about their government is limited without such direct connections.

Overall, as stand-alone exercises, these innovative processes do not provide viable substitutes for more formal, government-oriented participatory processes. They may, however, represent particularly useful components of a larger participatory effort, for example, convening a citizen jury to generate a common view on issues with a significant technical component. Or, community-wide study circles may be used as a way of educating

the wider public or determining public preferences. If conducted in this way, and if encouraged by government agencies, these innovative processes have the advantage of also helping to build the overall civic capacity for participation in environmental planning and decision-making.

6. CONCLUSIONS, LESSONS LEARNED AND AREAS FOR FURTHER RESEARCH

Public participation is far too complicated to come to easy conclusions about what works and why. This report begins to address these questions through the evaluation of five goals (as well as a number of qualifiers to each goal), a long list of contextual and procedural attributes, and a range of innovative processes. The analysis allows us to come to some conclusions, described below, about a particular set of public participation cases. It also allows us to develop lessons that may apply in a more general sense. We follow the discussion of conclusions and lessons learned by identifying areas for further research.

Conclusions

The conclusions summarize the findings of the report. They rely heavily on the analysis of the RAP and comparative risk cases presented in Section 4. They do however mention areas where the innovative cases may or may not improve results.

The *education* of participants about relevant environmental issues was the clear success story. In all of the cases with good data, stakeholders learned a great deal through workshops, reports written by technical advisory committees, and direct discussions with experts. Perhaps more importantly, education also seemed to be a motivating factor--to prompt various interests to own up to their contribution to pollution or to get participants more involved in decision-making. The innovative cases we examined were exemplary in their approaches for educating participants, and they should serve as a model for how to approach education in participatory processes in general.

In contrast, in many of the RAP and comparative risk cases, education of the wider public was poor--even when emphasis was placed on public outreach. Reaching the wider public is a difficult challenge, but the innovative cases may provide some guidance in this regard. Community-wide study circles, for example, could reach many members of a community, while a well-publicized citizens jury might attract media attention and community notice.

The cases were mixed in the degree to which stakeholders improved the *substantive quality* of decisions. Not surprisingly, the biggest determinant of whether stakeholders got involved in substantive issues was the degree to which it was within their "scope of tasks" as defined at the beginning of the process. If a substantive role was out of scope, stakeholders typically did not contribute substantive input, even if the group had a high level of "technical capacity." This finding suggests that these scope issues need to be agreed on by agencies and participants early in a process, based on the goals and expectations of each.

The cases were quite good at incorporating *public values* into decision-making. In over three quarters of the cases with good data, stakeholders were highly successful in shaping the final product of the process with values-oriented items such as their future "vision" for the resource of interest, goals for restoration, and priorities for action. Some innovative cases, with their emphasis on fair, deliberative, and consensus-based processes show particular promise as techniques for eliciting and seeking a common vision on values-related issues. However, all of these cases raise concern about whose values are being represented. In general, there seemed to be a trade-off between socio-economic representativeness and other laudable objectives, such as interest group representation and including those who could influence implementation.

The extent to which *conflict* was resolved varied among the cases. Not surprisingly, the most important factor in resolving conflict appeared to be having what we have called a "strong" process. Such processes even reduced conflict in situations where pre-existing relationships among stakeholders were poor. Having a "weaker" deliberative process (for example, one that did not emphasize consensus) didn't doom a process to failure, but the degree to which conflict could be resolved was much more context-dependent. The innovative cases showed promise as far as procedures for a "strong" process, although only some kinds typically involved the sort of stakeholder representation one might want in resolving conflict.

The cases had mixed success in increasing stakeholders' *trust* in the lead agency. Related to trust was the quality of communication between agencies and stakeholders and the commitment of adequate money and staff to run the participatory process. Interestingly, the degree to which agencies "shared power" with stakeholders by allowing them to have a more direct decision-making role didn't seem to make much of a difference in terms of trust. As with education, trust formation (and perhaps destruction) did not seem to filter out to the wider public, mainly because few people in the wider public knew these processes were going on. The procedurally innovative cases, at least as applied to date, seemed to do little in terms of trust formation because most had no formal link to government agencies. Like the RAP and comparative risk cases, trust formation in the innovative cases is also likely a function of agency communication and commitment.

Lessons Learned

While our research looked at more cases than is typical, it was limited to only certain kinds of cases in one geographic region. This limits the ability to generalize about how our conclusions apply to public participation writ large. However, there were some broad lessons that, although not definitive, may apply in a general sense. They may, more appropriately, be thought of as hypotheses to be examined through further investigation.

1. When done well, public participation can achieve a number of social goals

A number of our cases measured up quite favorably against the social goals, suggesting that public participation can, in fact, meet some of the expectations that have driven its recent growth. There also seemed to be more going on than simply achieving the goals. In some cases, education led people to become more involved in issues. The participatory process sometimes appeared to avert impending conflict, and often resulted in new institutions for resolving problems cooperatively. Participants often commented about having a better understanding of each other's interests as well as the challenges confronted by agencies. Progress on conflict resolution and trust formation also seemed to be related to participants' overall satisfaction with the process.

2. Aspects of the participatory process are key ingredients to success

In general, successful participation was highly related to features of the participatory process, including:

- Undertaking tasks consistent with the capabilities and expectations of the public and government agency;
- Having open, fair communication among participants, with an emphasis on deliberation and consensus;
- Ensuring good two-way communication between participants and government decision-makers and scientists; and
- Committing sufficient government funds and staff to support the process.

3. Agencies play a large role in fostering a successful process

Many of the features of successful processes mentioned above are highly influenced by sponsoring agencies. The quality of communication between stakeholders and an agency, the scope of tasks, the commitment of resources, and even the quality of the internal stakeholder process are all influenced by agency decisions and support. They all emphasize the importance of agency commitment to legitimate public involvement.

4. Turning over substantial amount of power to stakeholders may not be required for processes to be successful

Some of the most interesting and successful cases were "bottom up," gave participants a high degree of freedom over the process and agenda, and granted the public advisory committee a more "partnership" than advisory role. However, cases could also be highly successful when the public had less overt power over the process. As long as agencies were flexible and responsive, even tightly managed and strictly advisory processes could be successful.

5. Participatory processes can be successful in a wide range of decision-making contexts

The success of a particular program appeared to be unrelated to a number of issues that might be thought to describe the complexity of a particular issue, such as the number of problems to be addressed, the degree of scientific uncertainty, and the geographical setting. This suggests that programs can be successful in a variety of contexts. One area where differences may be found in these kinds of cases is in implementation, and we discuss this later as an area for further research.

6. There are a number of "outside the group" problems that raise larger questions about the legitimacy and significance of public involvement

On the legitimacy side, we noted that advisory committees were often unrepresentative (in terms of socioeconomic criteria), were often missing important interests and sometimes excluded the most conflictive stakeholders. On the significance side, we noted that, for the most part, the wider public was unaware of the processes, limiting opportunities for education and trust formation to the participants themselves. While everyone might benefit from substantively improved decisions, many of the other benefits of these participatory processes accrued only to participants in the planning process. This is a significant qualification about how successful these processes have been. It may also begin to explain why implementation was stalled in some areas. Implementation activities require the attention and action of a whole range of actors outside of the small group of active participants--not least of which is the voting (and tax-paying) wider public who, in most cases, remained mostly uninformed about these processes.

7. A "modular" approach to public participation may help resolve some of its problems

Some of the "outside the group" problems arose because the right people were participating from the perspective of one set of goals, but that same group was wrong for another set of goals. For example, a group of socioeconomically representative participants might be the most appropriate to deliberate on a "vision" for a particular area (a values-related issue) but this group may be the wrong one to resolve conflict over how implementation of such a vision would take place. One could imagine a modular approach, whereby a cross-section of the public establishes a vision, but decisions about implementation are made by a group representing all relevant interest groups, local government, and probably some representatives of the visioning group itself. The innovative cases may be very helpful in this regard. While they may not be substitutes for more "tried and true" participatory methods, they could be incorporated as components of a larger modular process, particularly for the values-related aspects of decision-making.

Areas for Further Research

Expanding the Scope

The conclusions we can draw from these cases are limited by their number and the fairly narrow scope that they represent. We are, however, undertaking a larger study of public participation informed by the substantive and methodological lessons learned from this project. Funded by the National Science Foundation (NSF), the project will address whether there are significant differences in how participation functions across a number of different decision-making settings and at different stages of decision-making processes. It will apply a similar evaluation framework and case survey method to a broader set of participatory cases.

The broader study will open up new opportunities for more sophisticated data analysis. At many points in our analysis, it would have been helpful to use multivariate methods. In this way, we could control for the influence of the complexity of a problem or its geographical setting, for example, while we examined the effects of the deliberative process on outcomes. However, our set of cases was too small for such methods. In the NSF study we plan to use an ordered probit model to do multivariate analysis, and may supplement it with techniques such as factor and principal component analyses.

Beyond Planning: The Question of Implementation

One of the critical issues for public participation is how it relates to implementation. One of the principal arguments for public involvement in the Remedial Action Plan (RAP) process, for example, was to build momentum for implementation (Hartig and Law, 1994). While we did not do a thorough examination of implementation, we did find the relationship with participation to be complex. Some observers felt that the momentum from participation in the RAPs had had very little impact on cleaning up the Areas of Concerns. Others attributed cleanup directly to the RAPs. There were certainly cases where RAPs with good participation were having trouble with implementation and vice versa. There may be important differences between the U.S. and Canada, and among different states.

How participation influences implementation is a very important area for further research. How do participatory processes, which are frequently discretionary, interact and influence formal regulatory programs? To what extent is influencing the "wider public" a requirement for implementation? To what extent can participatory efforts spawn institutions (formal or informal) with the resources and capacity to undertake complex environmental restoration activities? The research would seek to understand the changing role and institutional structure of public advisory committees over time as they progress from planning to real implementation decisions. Of particular interest would be the incentives of various actors to work through the participatory mechanism rather than exert influence in alternative ways.

"Outside the Group" Question

A consistent theme in our analysis has been the persistence of "outside the group" problems. Participants are educated, the wider public is not. Participant values are reflected in

decision-making, others values are not. Conflict is sometimes reduced because conflictive actors do not participate. By necessity, when some people are being included in a process, others are being excluded. This has large implications for the legitimacy of the process in the eyes of the public and the significance of the process in terms of a reflection of the public will.

There are a number of important questions to ask. What are the incentives for inclusion (i.e., to participate) or exclusion (i.e., to keep others from participating)? What are the implications if individuals or groups choose not to participate rather than get excluded by others? Are there defensible criteria for exclusion? The research would extend the typical scope of analysis from the participatory groups themselves to those who voluntarily or involuntarily, knowingly or unknowingly, did not participate.

The Question of Ambition

Although we did not measure it in any direct way, it became clear that in particularly successful cases, participants appeared to have a high level of what might be called "ambition." That is, they were excited about a process, took on a high degree of responsibility, and were highly satisfied with the process. What is the relationship between ambition and success? If there is a link, how can agencies encourage and sustain ambitious processes?

Differences Between Countries and Among States

A number of observers have suggested that differences between Canadian and U.S. governance have led to differences in how public participation in the RAP process has worked. There are importance differences between the two systems. Canadian agencies have more discretionary authority than do U.S. agencies. The U.S. system provides more legal and procedural channels (such as citizen suits and formal comment procedures) for the public to impact decision-making as an alternative to participation in, for example, a RAP public advisory committee. Canadians tend to have greater trust and confidence in government (SPAC, 1997). All of these suggest that participatory processes will function differently in the United States and Canada. However, based on simple observation of data on the Canadian and U.S. cohorts of cases, there doesn't seem to be an obvious difference in how well they measured up against the social goals. More comparative work--among states as well as between countries--needs to be done to understand how governance structures and shorter-term political cycles affect the success of public participation efforts.

Public participation in environmental decision-making is clearly an important topic that will continue to be relevant as environmental policy-making evolves. Understanding the implications of increased involvement and how it can be made to work better requires taking a look back at processes that have already been completed and a look forward to what kinds of

innovations may be needed. This report is a first step in doing both. It brings together a large body of case study material in a systematic way to evaluate past public participation programs. It also looks qualitatively at a number of innovative processes that might hold promise for the future.

Such an approach helps fulfill two sets of needs in the theory and practice of public involvement. The first is the need to improve the process by which public participation is carried out. This was the primary motivation for the present research, and we give several pieces of advice on how that can be done. We also raise a number of questions that can be addressed with further analysis.

Our understanding of the second set of needs has emerged over the course of this project. It encompasses the need to understand and improve the linkage of participatory processes to what is going on "outside the group." The reasons for doing so are not just normative. Rather, the quality of these connections will determine how effective participatory processes can be in influencing decision-making and creating real changes in policy, and, ultimately, in environmental quality. Addressing this need is more difficult than the first. It requires a much more extensive knowledge of particular circumstances--not least of which are other decision-making processes underway. However, the issues may be amenable to general recommendations.

Noting the need to look outside of a particular participatory process brings us back to the general theme of how discrete participatory efforts fit into a larger framework of democratic decision-making about the environment. Just as the innovative cases we examined would most appropriately be used as complements to the more formal RAP and comparative risk projects, direct participatory processes should be thought of as important complements to the normal processes of representative democracy. Decision-making by elected executives and legislatures, as well as the administrative agencies that carry out their laws and policies, has not been wholly adequate to deal with the complexity of modern environmental policy-making. Endless court battles, local opposition to agency decisions, and a general decline in trust in authoritative institutions have suggested the need for new strategies. Participatory processes have emerged as one of those strategies. As we have seen, when done well, these processes can provide a new approach for improving decisions, dealing with conflict, and building trust. But the various "outside the group" problems that we note, as well as the important questions surrounding implementation, are reminders that these more direct forms of democracy should be complements to, not substitutes for, the institutions of representative democracy. Executives and legislatures need to allocate money for cleanup, agencies have to take action, and decision-makers ultimately need to be subject to the will of the many over the will of a few.

APPENDICES

Appendices to this document can be found at the following address:

http://www.rff.org/disc_papers/summaries/9950_app.pdf

REFERENCES

- Armour, Audrey. 1995. "The Citizens' Jury Model of Public Participation: A Critical Evaluation," in Ortwin Renn, Thomas Webler, and Peter Wiedemann, eds., *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse* (Dordrecht: Kluwer Academic Publishers).
- Arnstein, Sherry R. 1969. "Ladder of Citizen Participation," *Journal of the American Institution of Planners*, 35, pp. 216-224.
- Barko, Naomi. 1998. "Where Talk About Prejudice is Candid," *The New York Times*, August 18, 14CN, 7.
- Bauer, Michael R., and John Randolph. 1998. "Improving Environmental Decision-making through Collaborative Methods," paper prepared for the National Conference on Environmental Decision Making, Knoxville, Tennessee (May 4-6).
- Beach, David. 1993. "Environmental Priorities: What problems do we tackle first? How do we decide?" *Ecocity Cleveland*, vol. 1, no. 6.
- Becker, Mimi. 1996. *Implementing a Binational Ecosystem Management Strategy in the Great Lakes Basin: Will the Remedial Action Policy Process Succeed in Restoring the Areas of Concern?* Doctoral Dissertation, Department of Environmental Studies, Duke University.
- Becker, John, Greg Studen, and Lester Stumpe. 1991. "The Cuyahoga Remedial Action Plan Coordinating Committee: A Model for Building Community Ownership of a Watershed Restoration Plan," in A. A. Jennings and N. E. Spangenberg, eds., *Surface and Ground Water Quality: Pollution Prevention, Remediation and the Great Lakes* (Bethesda, Md.: American Water Resources Association).
- Beierle, Thomas C. 1998. *Framework for Evaluating Public Participation Programs*, Discussion Paper 99-06, Resources for the Future, Washington, D.C. (November 1998).
- Bingham, Gail. 1986. *Resolving Environmental Disputes: A Decade of Experience* (Washington, D.C.: The Conservation Foundation).
- Blahna, Dale J., and Susan Yonts-Shepard. 1989. "Public Involvement in Resource Planning: Toward Bridging the Gap Between Policy and Implementation," *Society and Natural Resources*, vol. 2, no. 3, pp. 209-227.
- Botts, Lee, and Paul Muldoon. 1997. "Great Lakes Water Quality Agreement: Its Past Successes and Uncertain Future," unpublished manuscript, Institute on International Environmental Governance, Dartmouth College (March).
- Brown, Matthew Hay. 1999. "New Britain Embracing Study Circles," *The Hartford Courant* (January 31).

- Bruton, Jim, and Michael Howlett. 1992. "Differences of Opinion: Round Tables, Policy Networks, and the Failure of Canadian Environmental Strategy," *Alternatives*, vol. 19, no. 1, pp. 25-33.
- Bullock, R. J., and Mark E. Tubbs. 1987. "The Case Meta-Analysis Method for OD," *Research in Organizational Change and Development*, 1, pp. 171-228.
- Campbell, Sally. 1999. Study Circle Resource Center, personal communication with David Konisky (January 14).
- Carpenter, Ellen. 1997. *Assessment of the Concerns Related to the Detroit River Binational Public Advisory Committee* (Chicago: Clean Sites).
- Cavanaugh-Grant, Deborah. 1999. University of Illinois Cooperative Extension Service, personal communication with David Konisky (January 14).
- Citizens Advisory for the Remediation of the Environment (CARE). 1997. *Remedial Action Plan Stage II*, Grand Calumet Area of Concern (December).
- Clean Sites. 1998. "St. Mary's River Binational Public Advisory Council: Assessment of Issues and Concerns," Clean Sites Report (January).
- Clinton, William J. 1995. White House Memorandum for Heads of Departments and Agencies. Subject: Regulatory Reinvention Initiative 3 (March 4).
- Clinton County Regional Planning Commission. 1995. "State of the Environment: Environmental Planning for our Future Generations, A Summary Report" (August).
- Cole, David. 1998. "Community and Government Are Partners in Sustainable Racine, Revitalizing Neighborhoods and Changing Attitudes Among Organization's Goals," *Milwaukee Journal Sentinel* (December 6).
- Cole-Misch, Sally, and Bruce Kirschner. 1995. "Evaluating Successful Strategies for Great Lakes Remedial Action Plans," A Roundtable Discussion, Wingspread, Racine, Wisconsin (July 25-27).
- Crosby, Ned. 1995. "Citizen Juries: One Solution for Difficult Environmental Questions," in Ortwin Renn, Thomas Webler, and Peter Wiedemann, eds., *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse* (Dordrecht, Netherlands: Kluwer Academic Publishers).
- Crosby, Ned, Janet M. Kelly, and Paul Schaefer. 1986. "Citizen Panels: A New Approach to Citizen Participation," *Public Management Forum*, (March/April), pp.170-178.
- Crowfoot, James E., and Julia M. Wondolleck. 1990. *Environmental Disputes: Community Involvement in Conflict Resolution* (Washington, D.C.: Island Press).
- Dale, Duane, and Deborah Cavanaugh-Grant. 1998. "Advancing Sustainable Agriculture Through Small Discussion Groups: a Guide for Group Leaders and Members," Illinois Department of Agriculture and the University of Illinois Agroecology/Sustainable Agriculture Program.

- Davies, J. Clarence, ed. 1996. *Comparing Environmental Risks: Tools for Setting Government Priorities* (Washington, D.C.: Resources for the Future).
- Davies, J. Clarence, and Jan Mazurek. 1998. *Pollution Control in the United States: Evaluating the System* (Washington, D.C.: Resources for the Future).
- Delhagen, Ed, Patricia Dewey, Chris Patterson, Sabrina Seal, and Sue Thomas. 1995. *Thinking About Risk Management: An Introduction With Case Studies to Policy Tools, Analytic Criteria and Institutional Arrangements* (Montpelier, Vermont : Northeast Center for Comparative Risk).
- Department of Energy (DOE). 1993. *Earning Public Trust and Confidence: Requisites for Managing Radioactive Wastes*, Final Report of the Secretary of Energy Advisory Board Task Force on Radioactive Waste Management (Washington, D.C.: Department of Energy).
- Dowie, Mark. 1995. *Losing Ground: American Environmentalism at the Close of the Twentieth Century* (Cambridge, Massachusetts: The MIT Press).
- Dryzek, John S. 1997. *The Politics of the Earth: Environmental Discourses* (Oxford, England: Oxford University Press).
- Esty, Daniel C., and Marian R. Chertow. 1997. "Thinking Ecologically: An Introduction," in Marian R. Chertow and Daniel C. Esty, eds., *Thinking Ecologically: The Next Generation of Environmental Policy* (New Haven, Conn.: Yale University Press).
- Fiorino, Daniel J. 1990. "Citizen Participation and Environmental Risk: A Survey of Institutional Mechanisms," *Science, Technology and Human Values*, vol. 15, no. 2, pp. 226-243.
- Fox, J. Charles. 1998. "A Real Public Role," *The Environmental Forum* (November/December).
- Francis, Charles. 1996. "What is Community Supported Agriculture?" *Center for Sustainable Agricultural Systems Newsletter*, Institute of Agriculture and Natural Resources at the University of Nebraska-Lincoln (July-August).
- Gagstetter, Amy, and Jen Augustson. 1997. *Citizens Jury on Dakota County's Comprehensive Land Use Plan* (Minneapolis, Minn.: Jefferson Center).
- General Accounting Office (GAO). 1991. *Designing Evaluations* (Washington, D.C.: General Accounting Office).
- Gould, Kenneth A. 1991. "The Sweet Smell of Money: Economic Dependency and Local Environmental Political Mobilization," *Society and Natural Resources*, 4, pp. 133-150.
- Gould, Kenneth A., Allan Schnaiberg, and Adam S. Weinberg. 1996. *Local Environmental Struggles: Citizen Activism in the Treadmill of Production* (Cambridge: Cambridge University Press).
- Grand Traverse Bay Watershed Initiative. 1999. *The Grand Traverse Bay Watershed Initiative* (last modified January, 1999)
Available at: <http://www.traverse.com/nonprof/gtbwi>

- Gray, Barbara. 1989. *Collaborating: Finding Common Ground for Multiparty Problems* (San Francisco, Calif.: Jossey-Bass Publishers).
- Grima, A. P. 1983. "Analyzing Public Inputs to Environmental Planning: A Summary and Discussion of Public Involvement in Great Lakes Management," in Gregory A. Daneke, Margot W. Garcia, and Jerome Delli Priscoli, eds., *Public Involvement and Social Impact Assessment* (Boulder, Colorado: Westview Press).
- Gurtner-Zimmermann, Arnold. 1994. *Ecosystem Approach to Planning in the Great Lakes: A Mid-Term Review of Remedial Action Plans*, PhD Dissertation, University of Toronto.
- Gurtner-Zimmermann, Arnold. 1995. "A Mid-term Review of Remedial Action Plans: Difficulties with Translating Comprehensive Planning into Comprehensive Action," *Journal of Great Lakes Research*, vol. 21, no. 2, pp. 234-247.
- Gurtner-Zimmermann, Arnold. 1996. "Analysis of Lower Green Bay and Fox River, Collingwood Harbour, Spanish Harbour, and the Metro Toronto and Region Remedial Action Plan (RAP) Process," *Environmental Management*, vol. 20, no. 4, pp. 449-459.
- Hamilton County Environmental Priorities Project. 1998a. "Issues Assessment Summary" (January).
- Hamilton County Environmental Priorities Project. 1998b. "Public Involvement Report" (May).
- Hartig, John H., and David M. Dolan. 1995. "Successful Application of an Ecosystem Approach--the Restoration of Collingwood Harbour," *Journal of Great Lakes Research*, vol. 21, no. 3, pp. 285-286.
- Hartig, John H., and Neely L. Law. 1993. *Institutional Frameworks to Direct the Development and Implementation of Remedial Action Plans*, based on a March 1993 Roundtable co-sponsored by Environment Canada and U.S. Environmental Protection Agency, in cooperation with Wayne State University, Detroit, Michigan (Chicago, Ill.).
- Hartig, John H., and Neely L. Law. 1994. *Progress in Great Lakes Remedial Action Plans: Implementing the Ecosystem Approach in Great Lakes Areas of Concern* (Detroit, Michigan: Wayne State University Department of Civil and Environmental Engineering).
- Hartig, John, Richard L. Thomas, and Edward Iwachewski. 1996. "Lessons from Practical Application of an Ecosystem Approach in Management of the Laurentian Great Lakes," *Lakes and Reservoirs: Research and Management*, 2, pp. 137-145.
- Hartig, J. H., and M. A. Zarull, eds. 1992. *Under RAPs: Towards Grassroots Ecological Democracy in the Great Lakes Basin* (Ann Arbor, Mich.: University of Michigan Press).
- Hartig, John H., Michael A. Zarull, Thomas M. Heidtke, and Hemang Shah. 1998. "Implementing Ecosystem-based Management: Lessons from the Great Lakes," *Journal of Environmental Planning and Management*, vol. 41, no. 1, pp. 45-75.
- Hastings Star Gazette*. 1997. "Citizens Jury Will Consider Dakota County's Growth," November 6.

- Holowaty, Michael O., Mark Reshkin, Michael J. Mikulka, and Robert D. Tolpa. 1992. "Working Toward a Remedial Action Plan for the Grand Calumet River and Indiana Harbor Ship Canal," in John H. Hartig and Michael A. Zarull, eds., *Under RAPs: Toward Grassroots Ecological Democracy in the Great Lakes Basin* (Ann Arbor, Mich.: The University of Michigan Press), pp. 121-138.
- Howlett, Michael. 1990. "The Round Table Experience: Representation and Legitimacy in Canadian Environmental Policy," *Queen's Quarterly*, vol. 97, no. 4, pp. 580-601.
- Illinois Environmental Council (IEC). 1982. "Common Ground: A Special Issue on IEC's Agricultural/Environmental Consensus Project," *Illinois Environment*, (November).
- International Joint Commission (IJC). 1995. *Evaluating Successful Strategies for Great Lakes Remedial Action Plans*.
- International Joint Commission (IJC). 1996. *Great Lakes Water Quality Board Position Statement on the Future of Great Lakes Remedial Action Plans* (September). Available at: <http://www.ijc.org/boards/wqb/wqbrap.html>
- International Joint Commission (IJC). 1998a. *Beacons of Light: Special Report on Successful Strategies Toward Restoration in Areas of Concern under the Great Lakes Water Quality Agreement*. Available at: <http://www.ijc.org/boards/annex2/beacon/cover.html>
- International Joint Commission (IJC). 1998b. *If You Don't Measure It, You Won't Manage It: Measuring and Celebrating Incremental Progress in Restoring and Maintaining the Great Lakes*, based on a Public Meeting on October 22, 1997 in Thunder Bay, Ontario.
- International Joint Commission (IJC). 1998c. *St. Mary's River Area of Concern Status Assessment* (December).
- Jefferson Center. 1996. *Citizens Jury on Comparing Environmental Risks: Final Report* (Minneapolis, Minn.: Jefferson Center).
- Jefferson Center. 1999. *Citizens Jury Projects Descriptive List* (visited June 18, 1999). Available at: <http://www.jefferson-center.org/detailed.htm>
- John, DeWitt. 1994. *Civic Environmentalism: Alternatives to Regulation in States and Communities* (Washington, D.C.: CQ Press).
- Kaemmerer, Dan, Audrey O'Brien, Tom Sheffy, and Steve Skravroneck. 1992. "The Quest for Clean Water: The Milwaukee Estuary Remedial Action Plan," in John H. Hartig and Michael A. Zarull, eds., *Under RAPs: Toward Grassroots Ecological Democracy in the Great Lakes Basin* (Ann Arbor, Mich.: The University of Michigan Press), pp. 139-160.
- Kalamazoo River Watershed Public Advisory Council. 1998. *The Kalamazoo River: Beauty and Beast*.
- Kaufman, Ben L. 1998. "Environmentalists Pick Top 3," *Cincinnati Enquirer* (Sunday, June 7).

- Kellogg, Wendy, ed. 1993a. *Connecting Channel Areas of Concern: Strategies for Implementing Remedial Action Plans*, Monograph No. 5 (Buffalo, N.Y.: State University of New York).
- Kellogg, Wendy. 1993b. *Ecology and Community in the Great Lakes Basin: The Role of Stakeholders and Advisory Committees in the Environmental Planning Process*, Doctoral dissertation, Cornell University.
- Kellogg, Wendy A. 1998. "Adopting an Ecosystem Approach: Local Variability in Remedial Action Planning," *Society and Natural Resources*, vol. 11, no. 5, pp. 465-484.
- Keystone Center. 1999. *Program Services* (visited June 18, 1999). Available at: <http://www.keystone.org/spp/services.html>
- Kraft, Michael E., and Bruce N. Johnson. 1998. "Clean Water and the Promise of Collaborative Decisionmaking: The Case of the Fox-Wolf Basin in Wisconsin," prepared for Daniel A. Mazmanian and Michael E. Kraft, eds., *Toward Sustainable Communities: Transition and Transformations in Environmental Policy*, under review, MIT Press.
- Krantzberg, Gail, and E. Houghton. 1996. "The Remedial Action Plan That Led to the Cleanup and Delisting of Collingwood Harbour as an Area of Concern," *Journal of Great Lakes Research*, vol. 22, no. 2, pp. 469-483.
- Krantzberg, Judith. 1999. Personal communication with authors (August 6).
- Lake Michigan Forum. 1998. *Lake Michigan Areas of Concern Updates* (Fall).
- Landre, Betsy Kiernan. 1991. *Evaluating Public Involvement in Remedial Action Planning for Great Lakes Areas of Concern*, Master's Thesis, Cornell University.
- Landre, Betsy Kiernan, and Barbara A. Knuth. 1990. *Public Participation in Great Lakes Remedial Action Planning*, New York Sea Grant Extension, Project No. 88-004.
- Landre, Betsy Kiernan, and Barbara A. Knuth. 1993a. "The Role of Agency Goals and Local Context in Great Lakes Water Resources Public Involvement Programs," *Environmental Management*, vol. 17, no. 2, pp. 153-165.
- Landre, Betsy, K., and Barbara A. Knuth. 1993b. "Success of Citizen Advisory Committees in Consensus-Based Water Resources Planning in the Great Lakes Basin," *Society and Natural Resources*, 6, pp. 229-257.
- Larrson, Rikard A. 1993. "Case Survey Methodology: Quantitative Analysis of Patterns Across Case Studies," *Academy of Management Journal*, vol. 36, no. 6, pp. 1515-1546.
- Lawrence, Rick L., Steven E. Daniels, and George H. Stankey. 1997. "Procedural Justice and Public Involvement in Natural Resource Decision Making," *Society & Natural Resources*, 10, pp. 577-589.
- Leighninger, Matt. 1996. "Measuring the Outcomes of Community-Wide Study Circle Programs," *Public Management*, vol. 78, no. 9, pp. 39-41.
- Lesh, Donald R., and Diane G. Lowrie. 1995. *Sustainable Development Tool Kit* (Washington, D.C.: Global Tomorrow Coalition).

- Letterhos, Julie A. 1992. "Dredging up the Past: The Challenge of the Ashtabula River Remedial Action Plan," in John H. Hartig and Michael A. Zarull, eds., *Under RAPs: Toward Grassroots Ecological Democracy in the Great Lakes Basin* (Ann Arbor, Mich.: The University of Michigan Press), pp. 121-138
- Lucas, William A. 1974. "The Case Survey Method: Aggregating Case Experience," Rand Report No. R-1515-RC (October).
- MacKenzie, Susan Hill. 1996. *Integrated Resource Planning and Management: The Ecosystem Approach in the Great Lakes Basin* (Island Press).
- Management Institute for Environment and Business (MIEB). 1993. *Conservation Partnerships: A Field Guide to Public-Private Partnering for Natural Resource Conservation* (Washington, D.C.: National Fish and Wildlife Foundation).
- Manno, Jack. 1999. Personal communication with authors, July 13.
- McCoy, Martha, Phyllis Emigh, Matt Leighninger, and Molly Barrett. 1996. *Planning Community-wide Study Circle Programs: A Step-by-Step Guide* (Topsfield Foundation, Inc).
- Michaels, Sarah. 1999. "Configuring who does what in watershed management: The Massachusetts Watershed Initiative," *Policy Studies Journal* (forthcoming).
- Michaud, Greg R. 1998. *Economic Benefits from Sediment Cleanup: The Case in Waukegan Harbor*, Illinois Environmental Protection Agency (July 8).
- Michigan Area of Concern News*. (Various issues). Southeast Michigan Council of Governments.
- Michigan Department of Natural Resources. 1994. *Rouge River Remedial Action Plan Update*.
- Michigan Relative Risk Analysis Project (RRAP). 1992. *Michigan's Environment and Relative Risk*, Michigan Department of Environmental Quality.
- Minard, Richard, Ken Jones, and Christopher Paterson. 1993. *State Comparative Risk Projects: A Force for Change*, Green Mountain Institute (March 15).
- Minnesota Environmental Quality Board. 1998. *Investing in Minnesota's Future: An Agenda for Sustaining our Quality of Life* (St. Paul, Minnesota: Minnesota Planning).
- National Academy of Public Administration (NAPA). 1997. *Resolving the Paradox of Environmental Protection* (Washington, D.C.: NAPA).
- National Association of Conservation Districts (NACD). 1999. *Locally Led Success Stories* (visited June 18, 1999).
Available at: <http://nacdnet.org/locallyled/success.htm>
- National Environmental Education and Training Foundation (NEETF). 1997. *The National Report Card on Environmental Knowledge, Attitudes, and Behaviors* (Washington, D.C.: NEETF).

- National Issues Forum Research (NIFR). No date. *For Convenors and Moderators: Organizing for Public Deliberation and Moderating a Forum/Study Circle* (Dayton, Ohio: National Issues Forums Research).
- National Issues Forums (NIF). 1999. "Frequently Asked Questions," (visited June 18, 1999). Available at: <http://www.nifi.org/faq.html>
- National Research Council (NRC). 1996. *Understanding Risk: Informing Decisions in a Democratic Society* (Washington, D.C.: National Academy Press).
- National Round Table on Environment and Economy. 1993. *Building Consensus for a Sustainable Future: Guiding Principles*.
- Nelkin, Dorothy. 1977. *Technological Decisions and Democracy: European Experiments in Public Participation* (Beverly Hills, California: Sage Publications, Inc.).
- Nichols, K. Guild. 1979. *Technology on Trial: Public Participation in Decision-Making Related to Science and Technology*, (Paris, France: Organization for Economic Cooperation and Development).
- Northeast Center for Comparative Risk. 1995. "A Provisional Ranking for Northeast Ohio," *The Comparative Risk Bulletin*, vol. 5, nos. 3&4 (March/April).
- Northeast Center for Comparative Risk (NCCR1). 1996a. "Columbus Means Business," *The Comparative Risk Bulletin*, vol. 6, nos. 3&4 (March/April), p. 4.
- Northeast Center for Comparative Risk (NCCR2). 1996b. "Life After Ranking: Columbus Presses On," *The Comparative Risk Bulletin*, vol. 6, nos. 1&2 (January/February), pp. 4-5.
- Ohio Comparative Risk Project. 1995a. *A Guide to Comparative Risk*, Ohio Environmental Protection Agency.
- Ohio Comparative Risk Project. 1995b. *Ohio State of the Environment Report*, Ohio Environmental Protection Agency (December).
- Ohio Comparative Risk Project. 1997. *Recommendations to Reduce Environmental Risk in Ohio*, Ohio Environmental Protection Agency.
- Ohio Environmental Protection Agency. 1991. *Ashtabula River Remedial Action Plan, Stage 1 Report, Background Investigation* (December).
- Oliver, Leonard P. 1987. *Study Circles: Coming Together for Personal Growth and Social Change* (Washington, D.C.: Seven Locks Press).
- Peelle, Elizabeth, Martin Schweitzer, John Munro, Sam Carnes, and Amy Wolfe. 1996. "Factors Favorable to Public Participation Success," *Proceedings: National Association of Environmental Professionals, Houston, Texas, June 2-5, 1996* (Oak Ridge, Tenn.: Oak Ridge National Laboratory).
- Peet, Margaret E., Richard Burton, Richard Elliott, Philip Steinfeldt, John Davis, Sean Murphy, and Andrew Wheatcraft. 1992. "Rochester Embayment's Water Quality Management Process and Progress, 1887-1990," in John H. Hartig and Michael A. Zarull,

- eds., *Under RAPs: Toward Grassroots Ecological Democracy in the Great Lakes Basin* (Ann Arbor, Mich.: The University of Michigan Press), pp. 185-210.
- Pew Research Center (PRC). 1998. *Deconstructing Trust: How Americans View Government*.
Available at: <http://www.people-press.org/trustrpt.html>
- Presidential/Congressional Commission on Risk Assessment and Risk Management (PCRARM). 1997. *Framework for Environmental Health Risk Management Final Report*, Volume 1.
- President's Council on Sustainable Development (PCSD). 1997. *The Road to Sustainable Development: A Snapshot of Activities in the United States* (Washington, D.C.: President's Council on Sustainable Development).
- President's Council on Sustainable Development (PCSD). 1999. *Towards a Sustainable America: Advancing Prosperity, Opportunity, and a Healthy Environment for the 21st Century* (Washington, D.C.: President's Council on Sustainable Development).
- Priorities '95 Steering Committee. 1995. *Priorities '95 Final Report and Strategic Recommendations* (December).
- Putnam, Robert D. 1995. "Bowling Alone: America's Declining Social Capital," *Journal of Democracy*, vol. 6, no. 1 (Jan.), pp. 65-78.
- Raffensperger, Carolyn. 1998. "Guess Who's Coming for Dinner: The Scientist and the Public Making Good Environmental Decisions," *Human Ecology Review*, vol. 5, no.1.
- Renn, Ortwin, and Rachel Finson. 1990. *The Great Lakes Clean-up Program: A Role Model for International Cooperation?* Final Report, Center for Technology, Environment, and Development, Clear University, Worcester, Mass.
- Resolve. 1999. *Resolve-Concepts and Definitions* (last modified April 21, 1999).
Available at: <http://www.resolve.org/Consensus/concepts.htm>
- Rosener, Judy B. 1983. "User-Oriented Evaluation: A New Way to View Citizen Participation," in Gregory A. Daneke, Margot W. Garcia, and Jerome Delli Priscoli, eds., *Public Involvement and Social Impact Assessment* (Boulder, Colorado: Westview Press), pp. 45-60.
- Ross, Phillippe, LouAnn Burnett, and Cameron Davis. 1992. "Remediating Contamination in the Waukegan, Illinois, Area of Concern," in John H. Hartig and Michael A. Zarull, eds., *Under RAPs: Toward Grassroots Ecological Democracy in the Great Lakes Basin* (Ann Arbor, Mich.: The University of Michigan Press), pp. 235-250.
- Ruckleshaus, William D. 1996. "Trust in Government: A Prescription for Restoration," Webb Lecture, National Academy of Public Administration, Washington, D.C., November 15.
- Runoff Report* 1997. "Making Growth Work," (September/October), p. 3.
- Rural Action. 1999. *Rural Action* (visited June 18, 1999).
Available at: <http://www.frognets.net/~rural/Home.html#anchor1140777>

- Schmiechen, Paul, Lynne Kolze, and Judy Melander. 1997. *Risk-Based Environmental Priorities Project: Final Report*, Minnesota Pollution Control Agency, Environmental Planning Unit.
- Schneider, Mark, Paul Teske, and Melissa Marschall. 1997. "Institutional Arrangements and the Creation of Social Capital: The Effects of Public School Choice," *American Political Science Review*, vol. 91, no. 1, pp. 82-93.
- Schrameck, Roy, Margaret Fields, and Margaret Synk. 1992. "Restoring the Rouge," in John H. Hartig and Michael A. Zarull, eds., *Under RAPs: Toward Grassroots Ecological Democracy in the Great Lakes Basin* (Ann Arbor, Mich.: The University of Michigan Press), pp. 73-91.
- Sclove, Richard E. 1996. "Town Meetings on Technology," *Technology Review*, vol. 99, no. 5, pp. 24-31.
- Scolaro, Joseph A. 1998. "Sustainable Group Plans for the Future," *Journal Times*, July 15.
- Sediment Priority Action Committee (SPAC). 1997. *Overcoming Obstacles to Sediment Remediation in the Great Lakes Basin*, White Paper, Great Lakes Water Quality Board, International Joint Commission (November 19 version).
Available at: <http://www.ijc.org/boards/wqb/sedrem.html#obstacles>
- Slovic, Paul. 1992. "Perceptions of Risk: Reflections on the Psychometric Paradigm," in Sheldon Krimsky and Dominic Golding, eds., *Social Theories of Risk* (Westport, Conn.: Praeger).
- Slovic, Paul. 1993. "Perceived Risk, Trust, and Democracy," *Risk Analysis*, vol. 13, no. 6, pp. 675-682.
- STATA. 1997. *STATA Reference Manual*, Release 5, Volume 3, P-Z (College Station, Texas: Stata Press).
- Statewide Public Advisory Council (SPAC). 1997. "Keys to Successful PAC Operations and Examples of Successful RAP Activities," Meeting Minutes, Houghton Michigan (August 16).
- Stokes, Maura E., Charles S. Davis, and Gary G. Koch. 1995. *Categorical Data Analysis Using the SAS System* (North Carolina: SAS Institute, Inc.).
- Stride, Frederick, Murray German, Donald Hurley, Scott Millard, Kenneth Minns, Kenneth Nicholls, Glenn Own, Donald Poulton, and Nellie de Geus. 1992. "An Overview of the Modeling and Public Consultation Processes Used to Develop the Bay of Quinte Remedial Action Plan," in John H. Hartig and Michael A. Zarull, eds., *Under RAPs: Toward Grassroots Ecological Democracy in the Great Lakes Basin* (Ann Arbor, Mich.: The University of Michigan Press), pp. 161-183.
- Study Circle Resource Center. 1999. *Study Circles Resource Center* (visited June 18, 1999).
Available at: <http://www.cpn.org/SCRC/>
- Susskind, Lawrence, and Jeffrey Cruikshank. 1987. *Breaking the Impasse: Consensual Approaches to Resolving Public Disputes* (Basic Books).

- Sustainable Racine. 1999. *Environment* (visited June 18, 1999).
Available at: <http://www.sustainable-racine.org/vision/environment.html>
- Swanson, Stevenson. 1997. "Chattanooga's Cleanup Takes Symbiotic Approach," *Chicago Tribune*, October 27.
- Tunkieicz, Jennie. 1999. "County Officials Outline Goals for New Year," *Milwaukee Journal Sentinel*, January 3.
- United States Department of Agriculture. Natural Resources Conservation Service. 1998. *Programs and Services to Protect Natural Resources in Iowa* (Des Moines, Iowa).
- United States Department of Energy. 1999. *Center of Excellence for Sustainable Development: Overview Success Stories* (visited June 18, 1999).
Available at: http://www.sustainable.doe.gov/success/rural_renewal.htm
- United States Environmental Protection Agency (U.S.E.P.A.). 1991. *Top 10 Watershed Lessons Learned*, Office of Water, Office of Wetlands, Oceans, and Watersheds (Washington, D.C.: Environmental Protection Agency).
- United States Environmental Protection Agency (U.S.E.P.A.). 1997. *Community-Based Environmental Protection: A Resource Book for Protecting Ecosystems and Communities*, Office of Policy, Planning, and Evaluation (Washington, DC: Environmental Protection Agency).
- United States Environmental Protection Agency (U.S.E.P.A.), Urban and Economic Policy Division, CONCERN Inc, and Community Sustainability Resource Institute. 1998. *Sustainability in Action: Profiles of Community Initiatives Across the United States*. Revised/Updated Edition.
- University of Illinois Cooperative Extension Service. 1999a. *Regional Study Circles* (visited June 18, 1999).
Available at: <http://www.aces.uiuc.edu/~asap/circles/whatis.html>
- University of Illinois Cooperative Extension Service. 1999b. *More on Study Circles* (visited June 18, 1999).
Available at: <http://www.aces.uiuc.edu/~asap/circles/facilitator.html>
- University of Illinois Cooperative Extension Service. 1999c. *ASAP--Study Circle Reports* (visited June 18, 1999).
Available at: <http://www.aces.uiuc.edu/~asap/circles/reports.html>
- Waggoner, Chris, and William Creal. 1992. "Remediating Polychlorinated Biphenyl Contamination in Kalamazoo River/Portage Creek Water, Sediment, and Biota," in John H. Hartig and Michael A. Zarull, eds., *Under RAPs: Toward Grassroots Ecological Democracy in the Great Lakes Basin* (Ann Arbor, Mich.: The University of Michigan Press), pp. 235-250.
- Waukegan Harbour Community Advisory Group. 1994. *Final Stage I and II Report, Waukegan Harbor Remedial Action Plan* (December).

- Webler, Thomas. 1995. "Right Discourse in Citizen Participation: An Evaluative Yardstick," in Ortwin Renn, Thomas Webler, and Peter Wiedemann, eds., *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse* (Dordrecht, Germany: Kluwer Academic Publishers).
- Western Center for Environmental Decision-Making (WCED). 1997. *Public Involvement in Comparative Risk Projects* (January).
- Williams, Bruce A., and Albert R. Matheney. 1995. *Democracy, Dialogue, and Environmental Disputes: The Contested Languages of Social Regulation* (New Haven, Conn.: Yale University Press).
- Yin, R. K., and K. A. Heald. 1975. "Using the Case Survey Method to Analyze Policy Studies," *Administrative Science Quarterly*, 20, pp. 371-381.
- Zeller, Marty. 1997. *Common Ground: Community-Based Conservation of Natural Resources* (Denver, Colorado: Conservation Partners, Inc.).