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Table of Contents

Structured Decision Processes for Environmental Management:
Linking Consultation and Analysis

<u>Working Paper</u>[*]

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Structured Decision Processes for Environmental Management:
Linking Consultation and Analysis
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<u>Introduction</u>

Public involvement in environmental management decisions has increased substantially in recent years. One result is a growing interest on the part of agencies and researchers in the link between the amount and type of public participation and the quality and defensibility of the resulting policy recommendations. The relevant environmental management contexts are diverse, ranging from cleanup plans for estuaries to oil-spill contingency plans for sensitive coastlines and harvest options for old-growth forests. The public involvement contexts are equally diverse, including opinion polls, focus groups, town-hall meetings, open houses, stakeholder advisory committees, citizen juries, and a variety of socio- economic surveys. In many cases, these efforts strive to involve the key interested parties or stakeholders, including both technically-trained experts and community-based members of the public, in some kind of shared decision making process. Often the specific goal is to recommend a preferred environmental management initiative. Underlying this, the more fundamental goal is to improve the long-term welfare or quality of life of the relevant constituency.

Despite this enhanced interest, there remains a widespread dissatisfaction with the quality and meaningfulness of stakeholder input to many environmental and risk-management decisions. One concern is that decision makers often cast a wide net for hearing the views of diverse interests but then close ranks and rely on input from technically-trained experts to balance the conflicting views of participants and to recommend a single, presumably acceptable solution. Dissatisfaction with this closed-door approach, and (more generally) the recognition that extensive public involvement is not synonymous with meaningful public input, led to the 1996 publication of the influential National Research Council (NRC) report entitled <u>Understanding Risk</u>. At the heart of the NRC message is a two-part emphasis on structured deliberation, involving informed consultation with stakeholders, and targeted analysis, involving input from both the physical and social sciences.

Although the NRC report sets out an elegant philosophical argument for making this connection, there is little for the practitioner to build on in terms of descriptions of techniques for dealing with specific environmental management disputes. Some additional guidance is found in several recent publications: Renn (1999), for example, describes a "cooperative discourse" model for conducting analytic-deliberative processes in risk management, and Chess and Purcell (1999) present five useful "rules of thumb" based on their experience in environmental policy disputes. What appears to be missing, however, is an overall structure for organizing the dialogue with diverse stakeholders. The purpose of such a structure is to ensure that, by the time a recommendation or a decision is made, there is a high probability that it will incorporate the best available scientific knowledge, meet with broad-based approval, and be viewed by taxpayers and elected officials as a sensible way to spend scarce funds. These are difficult tasks. But they can be tackled with some success, if we draw on concepts and practice relevant to improving decision processes.

Foundations of a structured decision making process

The foundations of a basic structure for making better environmental management decisions can be drawn from behavioral decision research (BDR) and decision analysis (DA). Over the past several decades, this research has made important contributions to the theory and practice of environmental policy analysis, project evaluation, and the management of environmental risks. One side of this work takes a descriptive focus and investigates why, both in experimental findings and real-life situations, humans have been shown to be "quite bad at making complex, unaided decisions" (Slovic, Fischhoff and Lichtenstein, 1977). These results, largely drawn from the work of psychologists, show that individuals systematically employ cognitive shortcuts and appear to have little instinctive ability to structure decision tasks (Simon, 1990), clarify objectives (March, 1978), incorporate probabilistic information with accuracy (Kahneman, Slovic, and Tversky, 1982), or balance the dual goals of limiting effort and achieving a satisfactory level of judgmental accuracy (Payne, Bettman & Johnson, 1993).

The other side of work on decision making looks at how prescriptive techniques can be used to improve the quality of individual and group decision processes. This research, largely drawn from the work of decision analysts, includes value-structuring approaches drawn from multi-attribute utility theory (Keeney and Raiffa, 1993) that focus on ways to identify and measure stakeholder values, to develop information that characterizes the anticipated consequences of options, to establish tradeoffs across conflicting objectives, and to link these results to

support for specified alternatives. Stakeholder values are the key to this structured decision process because they identify what matters to participants and, in turn, highlight the consequences that require most careful attention and the tradeoffs that matter most.

Although responsiveness to each management context is essential, a structured decision approach to public involvement generally addresses five fundamental tasks:

      1. Framing the decision: What are the key contextual elements of the decision situation and what is a reasonable goal of the consultation process?

      2. Defining key objectives: How do people think they will be affected by the proposed action and what values matter the most to stakeholders?

      3. Establishing alternatives: In light of the relevant constraints, what alternative actions might be undertaken?

      4. Identifying consequences: What are the most important impacts that could affect stated objectives and how certain is their occurrence?

      5. Clarifying tradeoffs: What are the important conflicts across desired objectives and how can this knowledge be used to create new and better alternatives?

These root ideas of a structured decision approach to public involvement reflect common sense and good judgment.(2) It is often worthwhile to quantify important concepts such as the probability of events, the desirability of consequences, or the timing of critical impacts. However, the application of a structured approach typically emphasizes qualitative guidance for how to think clearly and make smarter choices rather than quantitative analysis to make an optimum decision. This more qualitative orientation is particularly relevant in the context of stakeholder consultations, involving experts and community-based representatives, on complex environmental initiatives. The primary goal of such efforts should be to improve thinking and to sharpen communication about critical concerns and tradeoffs, rather than to assign numbers to options or to rely on the results of any summary mathematical analysis.

The importance of a structured approach is often demonstrated by its absence: public participation efforts routinely fail to give sufficient attention to developing the foundation for making a good decision. Once the right problem has been identified, the basis for future consultation is the structure provided by specifying the relevant objectives, agreeing on how they will be measured, and creating an initial set of alternatives for consideration. Informed by the findings of BDR and DA, the analyst or group facilitator needs to pay careful attention to the inappropriate use of cognitive shortcuts and to participants' reliance on

alternative-focused rather than value-focused thinking (Keeney, 1992).(3) When objectives or alternatives are incomplete or vague, the result will be a less well-informed decision. When objectives are clearly stated and the impacts of alternatives are linked to their effects on unambiguous value measures (or attributes), many decisions can be resolved without the need for further analysis because of the obvious merits of a dominant solution. In other cases, the objectives and alternatives will provide the foundation for resource managers or analysts to develop an appropriate quantitative model to provide additional insight that will help to guide the decision.

Consensus versus insight

Underlying many public involvement efforts are three assumptions. One is that community involvement through a collaborative stakeholder process will lead to improved environmental management prescriptions, because participants will have a better understanding of local concerns and conditions (Chess, 1999). A second assumption is that this involvement will increase the probability of reaching an agreement among participants and, with luck, arriving at at consensus solution,
which is considered to be one indicator of the quality of the process (Fiorino, 1990). A third assumption is that care must be taken to ensure that the quality of the underlying science is maintained, rather than eroded, as a result of the participation of diverse public and community-based interests.

The basis for much of this thinking and practice is drawn from "alternative dispute resolution" (ADR), in which negotiated decision processes are seen as an alternative to decisionmaking by the courts. This ADR orientation has resulted in environmental negotiation being widely seen as a process of resolving conflicts, rather than as one focused on fostering more informed and wise policies. For example, Peelle (1988) defines a successful citizen participation process as one that involves the public in a meaningful way and leads to "any outcome which reduces conflict between stakeholders and agency proponents and results in a legitimate and lasting decision."

An extreme version of this viewpoint argues that a stakeholder group should be able to design its own decision process. The Canada National Round Table, for example, recently set forth a set of principles intended to encourage improved decision making to achieve a sustainable future for Canada. The principles call explicitly for "consensus" in "self-designed process" involving "all parties with a significant interest" as the prescription for improved decision making. Such an approach effectively gives every stakeholder participant a veto over the conduct

and content of every step in the planning and decision process as well as a veto over the choice of alternatives. English and her colleagues (1993) take a somewhat different approach to consensus, focusing instead on the need for a process that understands and speaks for the community's (rather than individuals') needs. She advocates "seeking to attain a normative consensus -- one in which stakeholders focus on the greater social good rather than simply on their individual stakes" and in which acknowledgment of the social good is not inconsistent with "divergent, passionately-held points of view."

Within this range of viewpoints there exists widespread endorsement of the notion that consensus is a goal that, while not always attainable, should be strived for and provides an indicator of the overall quality of a policy-oriented decision process. In his review of three influential public participation handbooks, Webler (1997) makes a similar observation, noting that despite many differences in the recommended practices there is universal agreement that "... consensus should be pursued as a matter of principle." This same sentiment is echoed in the National Research Council's extensive review of the Department of Energy's environmental remediation program, which underscores the importance of consensus among stakeholders and presents its conclusions in a publication titled "Building Consensus Through Risk Assessment and Management" (1994).

We have adopted a different approach in our own work, advocating the use of insights from behavioral decision research and decision analysis as the basis for guiding consultative processes by helping to achieve a clearer understanding of participants' preferences and their key value tradeoffs. Our central criticism of a consensus-driven process is the lack of explicit attention and thoughtful exploration typically given to the values and objectives of participants. Our concern is that a focus on consensus can shift, subtly or openly, key elements of the group decision making process. Issues may be selected in such a way that they offer a high potential for agreement, which has the result that less tractable issues may be ignored. Participants in focus-group sessions, project management committees, or community stakeholder forums may be selected more on the basis of their ability to get along and work well with others than on criteria relating to their expression of the diverse range of interests. Methodologies for impact analyses may be selected to the extent that they are relatively easy to explain and to document rather than on the basis of their ability to answer participants' questions fully or to lend insight to the decisionmaking process. And minority views within a group may be suppressed rather than explored, with conflict among group members being viewed as a problem to be overcome rather than as an opportunity for providing additional clarity regarding facts and values relevant to the decision at hand.

Overall, we believe that a preoccupation with consensus and dispute resolution in public involvement processes has three fundamental shortcomings for environmental decision making. First, government agencies are charged with making decisions that are in the broad public interest within established institutional structures. Yet achieving consensus based on dispute resolution involves creating a new ad hoc institutional structure, outside an electoral process, that is highly susceptible to the personalities of the participants. It seems at best awkward, and at worst illegitimate, for a resource-management agency to delegate policy responsibilities to a group of concerned, community-based parties who have direct (albeit conflicting) interests in the outcomes. One of our worries in this regard is that for any program or project charged with allocating fixed resources over multiple sites, it becomes difficult or impossible under a consensus-based approach for decisions to be responsive to the expectations of local concerns and, simultaneously, be responsive to programatic regional, state-wide, or national concerns.(4)

Second, the research on decision making shows that preferences for unfamiliar choices do not exist full blown in people's minds but instead are constructed during the decision process. This construction relies heavily on the available cues and the selected method of elicitation (Payne, Johnson & Bettman, 1992; Slovic, 1995). The phenomenon of preference reversals provides one of the best known examples of constructed preferences: Although object A is preferred over object B under one method of measurement, B is clearly preferred under a different, but formally equivalent, measurement procedure. Other evidence for constructed preferences comes from empirical studies demonstrating the striking effects of changes in how a question is framed (Tversky and Kahneman, 1981). The most important implication for community-based decision processes is that value-based information needs to be provided for helping people to construct their preferences and tradeoffs over time. Building this understanding requires an active process of learning about one's own values (and, of course, the values of others), just as factual information needs to be provided to help people think about the impacts of various options (Gregory, Lichtenstein & Slovic, 1993). If insight for decision-makers is the overall goal of the decision process, then creating the capacity for informed judgments by participants is an important means to this end.

In many policy circles, there appears to be a naive assumption that a cure for the shortcomings of unaided individual decision-making processes is to work with competent people as a group, thus ensuring that a wiser choice emerges from the group discussions. There is little support for this idea, however, either in

theory or experience; self-designed or semi-structured consensus decision processes are unlikely to develop responsible, well-informed approaches to clarifying complex policy choices.

Third, a dispute resolution process often involves substantial effort on procedural issues (how the process will be conducted) and relatively less effort on structuring the decision. Because of the lack of emphasis on the quality of the decision-making process, there is little in dispute-resolution approaches to distinguish between premature consensus (in which important technical issues or facts are ignored and important differences in values are suppressed) and the real thing. In addition, key issues related to the anticipated outcomes of a decision may be given only minimum attention; examples include understanding the uncertainty associated with alternative consequences, the sensitivity of impact predictions to specific assumptions, or clarification of the time dimension accompanying the costs and benefits of a choice.

Examples of structured decision processes

To remedy these concerns, we believe that the deliberative process for community based environmental decisions should focus on decision aiding, both for the participants and for the agency empowered to make the decision. By decision aiding, we mean that the process should seek to maximize the quality of the insights that can be gained by directly involving the stakeholders in the following five key steps:

     1) characterize "what matters" to stakeholders in the form of objectives, some of which will be the same across many stakeholders and some of which will be unique to individual stakeholders

     2) create a set of attractive alternatives based on these objectives

     3) employ the best available technical information to characterize impacts of these alternatives, including the key sources of uncertainty

     4) identify the tradeoffs that the alternatives entail, in terms that are familiar to participants and that facilitate the balancing of objectives (e.g., set up tasks that do not exceed the cognitive or affective capabilities of participants)

     5) summarize the areas of agreement, disagreement and reasons for those views among the stakeholders.

Proponents of dispute resolution would perhaps argue that the points above closely resemble elements of a typical dispute-resolution process. We agree that there are some similarities, including a fundamental concern of both decision-aiding and dispute resolution processes with building trust and group cooperation through the open sharing of information, transparency of process, and respect for

participants. However, we believe that the differences in the two approaches are profound; two case study examples illustrate the use of a structured decision approach.

A first example is the case study of the Alouette River near Vancouver, Canada. This example involved changes in water flows at a hydroelectric generating facility (McDaniels, Gregory, and Fields, 1999). The authors' principal responsibilities on this project were to structure and facilitate discussions of a broad-based stakeholder committee. These tasks required providing technical guidance on clarifying members' objectives, using these values to create operating plan alternatives, fostering understanding by committee members of the pros and cons of selected alternatives, and leading the group toward making specific decisions about its recommendations to the provincial Water Comptroller. Five objectives for an operating plan were developed by the committee:
- avoid adverse effects from flooding
- promote recreational activities
- promote the health and biological productivity of the South Alouette River and Alouette Lake (including fisheries,
- avoid cost increases to provincial residents, and
- promote flexibility, learning, and adaptive management

These five objectives were used to create and assess the impacts of alternatives; the basis of comparison generally focused on whether the benefits from non-power objectives justified the potential reduction in power output (and increases in generation costs) associated with adopting the plan. After 15 meetings, the stakeholder committee reached agreement on all the major issues it was asked to address, and a preferred alternative was recommended that effectively met all the objectives established for the decision while allowing for adaptive learning over time to reduce uncertainties.

A second example is the case study of Tillamook Bay, Oregon. This project involved stakeholder input to a community-based plan for cleanup of the Tillamook estuary, under the auspices of the US EPA National Estuary Program (NEP) (Gregory, in press). The stated goal of the Tillamook Bay NEP was to develop a science-based, community-supported management plan for the watershed. Our efforts on this project began by holding a series of meetings with community leaders and members of the broadly-representative TBNEP management committee. These discussions resulted in the identification of six fundamental or ends objectives of the program, ranging from "promote biological health of Tillamook Bay" to "promote long-term management efforts" and

"promote public support of CCMP recommendations", along with mean objectives that were important in terms of helping to satisfy these ends.

Three critical yet highly controversial actions were chosen for in-depth study: limiting livestock access to streams (to decrease pollution and damage to riparian habitat), protect and restore tidal wetlands (to improve spawning and rearing habitat for salmon), and upgrade forest management roads (to reduce sedimentation in streams, thereby improving habitat and reducing flood risks). Coming up with actions to address these three critical areas was difficult for community residents because a cost seemed to offset every benefit. In response, we developed a workbook that presented groups of stakeholders with consequence tables, linking impacts and objectives, for several of the alternatives under consideration for inclusion as part of the TBNEP's Comprehensive Conservation and Management Plan. This workbook presented the pros and cons of alternative plans and allowed respondents an opportunity to "vote" directly for their most preferred alternatives and to explain their thinking, using both their pocketbooks (by stating their willingness to pay for an action) and words (by responding in writing to structured and open-ended questions). Overall, the structured decision process allowed stakeholders to work through these tradeoffs in a way that attempted to balance their competing objectives and interests and to facilitate an informed choice. As in many such cases, making the costs and benefits explicit allowed for adjustments to a proposed action that reduced its negative aspects while maintaining nearly all of the reasons why it was desired in the first place.

Conclusion

The goal of a structured decision approach to public involvement is to provide policy makers with improved insight about the decision at hand. This contrasts with the goal of a conventional economic analysis, to provide numbers for incorporation to a benefit-cost study, or the goal of a conventional public participation process, to achieve consensus. Providing additional insight requires an improved understanding of the concerns of stakeholders, an improved knowledge base for identifying the primary consequences of alternative actions on these objectives, and a transparent mechanism for focusing policy development of the most important tradeoffs. Accomplishing these objectives requires a close alignment of deliberation and analysis, with stakeholder judgments informed not just by factual information but also by an active exploration of their own values and, typically, an increased appreciation for the concerns of others.

Implementation of a structured approach remains challenging. It requires a willingness on the part of policymakers to acknowledge stakeholder expressions of values and tradeoffs explicitly. It also requires a different focus for analysts; in particular, rather than shifting the focus away from the divergent views of participants in favor of consensus, a decision-structured approach looks to differences in the expressed values and objectives of stakeholders as the basis for reaching a broadly-acceptable agreement.

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Endnotes

1. Gregory is with Decision Research; McDaniels is with the School of Community and Regional Planning, University of British Columbia. Portions of this paper are based on other papers by these same authors, including McDaniels, Gregory & Fields, 1999; Gregory, in press; and Gregory, McDaniels & Fields, 2000.

2. These same five key steps are described in the excellent book, Smart Choices, written by John Hammond. Ralph Keeney, and Howard Raiffa. These authors refer to these steps using the acronym PrOACT, which stands for defining the Problem, clarifying

Objectives, creating Alternatives, investigating their Consequences, and assessing the relevant value Tradeoffs in light of these impacts.

3. The negotiations literature typically frames this as a battle between rigid positions and more flexible interests.

4. This problem is commonly known as the "taxpayer pays" problem. Only after all local interests have succeeded in defining what they want does the realization come that some body of people, such as the taxpayers or ratepayers within the state or nation, must pay the bill for this series of locally-negotiated decisions.

Factors influencing the participation of local governmental officials in the National Estuary Program

Working Paper[*]

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Abstract

Participation by local governmental officials is not given the same attention in the literature as that of citizens, publics, technical experts, or stakeholders. Yet, local governments are often a keystone to successfully implementing and enforcing environmental policies. Qualitative analysis of open-ended interviews with local government officials from three national estuary program applications in New England revealed factors related to nine themes that shaped decisions to participate or not. Three categories of factors help to clarify the different types of influence agencies have over local government officials' decisions about whether or not to participate: factors associated with the character of individuals, with the context, and with the process. This taxonomy helps to clarify the kinds of opportunities available to project leadership to influence local government officials toward participating. An important finding is that project staff should listen and learn about the concerns of local government officials and then create a process that accommodates and overcomes barriers to their participation.

Keywords

Introduction

Participation by local government officials in environmental policy making and implementation is recognized as essential to successful policy outcomes (Angel et al. 1995, Bacow and Milkey 1982, Berman 1996, Derthick 1987, Herzik and Mushkatel 1992, Julnes and Pindor 1994, Kearney and Smith 1994, Lake 1994, Lake and Disch 1992, Madore and Probst 1990, Plumlee et al. 1985). For example, an EPA official has noted that "It comes down to local government...It is essential that at the local level we all get involved to support the successful implementation of federal policies" (Witt 1988). Moreover, the importance of local government cooperation has been well established in the literature on facility siting and health policy.[1]

The participation of local government officials (LGOs) in national and regional policy processes is important for a number of reasons:

- they ensure that regulations and permitting procedures are implemented at the local level as part of state, regional, or national environmental policy regimes;

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[1] See, for example, Heiman 1990, Herzik and Mushkatel 1992, Kasperson 1986, Kunreuther et al. 1993, Lake and Disch 1992, and Vari et al. 1993.

- they identify local needs, concerns, resources, and constraints that are relevant to the design and implementation of effective policies at the local level, and that may not be readily apparent to state and federal agency staff; and

- they play influential roles in the development or expression of community support *or* opposition to state and federal policies because of their status in the community, ability to forge alliances among local groups, coordinate funding, etc.

Surprisingly, there is little attention given by the academic literature to LGO participation in environmental decision making.[2] The disjunction between the treatment in the literature of local officials and their importance in successful environmental policy making and implementation points to a need for research on this topic. One important issue that we address in this article is: What factors influence the decision of LGOs to participate in regional EPA-sponsored environmental policy making and implementation efforts? Specifically, we explored the factors that shaped or influenced decisions of LGOs to participate in three National Estuary Program policy making processes in New England.

Selecting the Cases for Study

We selected for analysis three projects of the National Estuary Program: the Casco Bay Program in Maine (CBP), the Massachusetts Bays Program (MBP), and the New Hampshire Estuaries Program (NHEP). Casco Bay and Mass Bays were mature projects with vastly different approaches and experiences with involving local governmental officials in the planning process. Both were in their fifth year of the planning process and they had already produced their Comprehensive Conservation Management Plan (CCMP).[3] They were gearing up for the implementation phase. Meanwhile, New Hampshire was in its first year of its process and was just beginning to think about how to involve LGOs.

Local implementations of the NEP have a degree of autonomy and freedom in how they choose to design their participatory process. As a baseline EPA recommends adopting the Management Conference model as laid out in the *Primer* (EPA 1989). The Management Conference is really an assembly of four committees:

- A Management Committee comprised of individuals selected from the Policy Committee, a Citizen Advisory Committee and Technical Advisory Committee. Its membership includes EPA, other relevant federal agencies, state agencies and

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[2]   Key sources that are published include: Herzik and Mushkatel 1992 and Plumlee et al. 1985.

[3]   The Comprehensive Conservation Management Plan (CCMP) is a blueprint for revitalizing an estuary and developing methods for protecting it from future harms. The CCMP documents the condition of the estuary, the cause and effect of point and nonpoint pollution sources, and a strategy for restoring and maintaining the estuary in good health. EPA requires 25% matching funds for a local project to be funded; usually these monies come from state governments. Thus, the specific course of each NEP depends on the direction given to it by the participants.

offices, local and regional governments or boards, as well as major stakeholder groups (e.g., industry, real estate development, environmentalists, natural resource-based occupations). The management committee puts together a workplan (technical analyses, public outreach, education, coalition building) and prepares a Management Plan.

- A Policy Committee made up of leadership from state governments and federal agencies. It sets priorities, ensures that the required matching funds are made available, and serves in an oversight capacity.

- A Citizen Advisory Committee (CAC) which advises the Management Committee on issues of public outreach. It also comments on drafts of the workplan and the CCMP. The CAC may design small programs to educate the public or to collect data. For example, voluntary water quality testing programs have been used in several instances.

- A Technical Advisory Committee which is responsible for undertaking technical analysis and providing technical support to the project. It is comprised of staff from the states' departments and agencies responsible for environmental protection. University scientists and technical staff from business or NGOs are also often included.

All three projects we studied adapted this design to suit their own needs:

Massachusetts Bays Program:

The Massachusetts Bays Program (MBP) retained the Policy and Management Committees as specified in the *Primer*, but it created five Local Government Committees (LGCs), out of an original CAC. While the CAC was supposed to provide a connection to the public, a feeling emerged among staff and other participants that it was not a place where issues specific to towns/municipalities could be addressed and that the CAC was trying to be all things to all people. The newly conceived LGCs' mission was to help develop the CCMP; advise the Management Committee about local issues and needs; facilitate communication and cooperation; generate a cross-fertilization of information and ideas, and; institutionalize the concept of embayment-based or natural resource-based planning to protect mutual resources. Five LGCs were established along the Massachusetts coastline. Intentionally, high level people were not asked to be on LGCs. Programs were tailored around those who were willing to be highly involved in the MBP. Staff felt that elected officials would either be too busy to devote the time and attention needed or would be uninterested in doing work that would not score them political points. At the same time, municipalities were asked to formally appoint their LGC representatives. Project staff wanted formal appointments to stress the importance of the work and the commitment expected of the members. Having representatives with official appointments improved communications, whereby individuals were empowered to speak with authority as an MBP representative in a community and to bring reliable information to the MBP. In fact, individuals appointed were often *not* local elected officials. According to MBP staff, town officials usually went to someone deeply involved with

coastal or fishery issues. LGC staff sometimes suggested names to municipal governments. Occasionally a person volunteered.

New Hampshire Estuaries Program:

The Management Committee of the New Hampshire Estuaries Program (NHEP) was assembled by the project director and several state leaders. While they made an effort to include local officials in the process, unlike the Massachusetts Bay Project no effort was made to obtain participation from all towns and cities directly. With a goal of keeping the Management Committee size limited to twenty-five, they decided not to include representatives from every coastal community. They dealt with the representation issue in two ways. First, they selected five communities to be directly represented, either because they were large population centers, they were very active in policy making, or because they had key interests.[4] Second, they relied on Regional Planning Agencies to represent all the other communities in the study region.[5] NHEP set up its Management Committee before any other committees. The NHEP did not have separate advisory committees for citizens and technical experts. A novel approach adopted by the NHEP for involving people was to structure participation opportunities around specific projects and activities. They created Project Teams on which both citizens and experts served. By appropriate choice of projects and tasks, NHEP leaders hoped to obtain and maintain participation of LGOs on project teams by appealing to local interests. LGO participation was focused on a few individuals committed to the goals of the estuary project**.** NHEP found it difficult to engage LGOs in a regular and reliable manner, although many did participate at key times and several individuals played central roles in drafting the yearly workplans.

Casco Bay Program:

The Casco Bay Project (CBP) initially followed the setup directives laid out in the EPA *Primer*, although within a fairly short time it became clear that this was not adequate for local conditions. Three local government staff served on the Management Committee, but the Local Government Committee structure was abandoned because of lack of participation. Instead, the project held special meetings, as scientific studies were completed or policies were being developed. They found this a more effective approach to gathering input from local officials (and staff) and keeping them informed of the project's activities. LGOs were involved at all levels of this project. The Management Committee was chaired by the City Manager for the town of South Portland. It included representatives from local governments, as well as those from businesses, the University of Maine, state government, and the EPA. The Local Government Committee chair was shared by three people, whose individual contributions were substantial throughout the project, including one person who coordinated a group of planners, conservation

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4   New Hampshire has only a handful of communities on its Atlantic seaboard. Although, due to the presence of Great Bay, several other towns have coastlines with brackish water. At the kick-off meeting NHEP decided to focus on twenty municipalities in the portion of the watershed nearest the coast.

5   Communities pay money to support an RPA and in return they receive planning services. Large communities have their own planning department, and so do not buy into a Regional Planning Agency.

commissioners, and other resource commissioners who were engaged at the town level. The Implementation Subcommittee comprised a number of core participants, including representatives of local governments.

Methodology

For each case study we identified the population of all LGOs who had learned about the estuary project and were given the opportunity to become involved in it. These names usually came from the project's mailing list or sign-up lists from kick-off meetings of the projects. Federal and state officials who participated were also interviewed, as were estuary project directors and outreach coordinators. We relied on these interviews to reconstruct the manner in which the projects reached out to LGOs. One of our goals was to get beneath the rhetoric to discover the underlying attitudes these key individuals had toward public and LGO involvement. We supplemented our interview data with planning documents and other written materials associated with the Massachusetts, New Hampshire, and Maine projects.

To identify the factors influencing individuals' decisions to participate in the NEPs we interviewed LGOs in all three projects. Our aim was to interview six participating LGOs and six non-participating LGOs from each project. We met this goal in the NHEP case, but found that in Maine, the total number of LGOs that met our criteria was small and it was impossible to identify more than one non-participant. In Massachusetts, a huge number of LGOs were involved in one way or another and many who did not choose to participate also refused to be interviewed. Therefore, we selected people with a wide range of participation levels.

Table 1 summarizes our interview pool. Participants were not necessarily elected local government officials. For example, the Massachusetts Bays Project preferred to involve individuals who were not serving in elected positions in the communities. Interviewees represented a mix of elected officials, paid employees (e.g., planners), and volunteers who were formally appointed by the town to represent it on the estuary project. We define "local government officials" as any elected or officially appointed person charged to represent a municipality's interests in a local estuary project.

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Interviews followed a semi-standardized structure (Weiss 1994, Berg 1995, Merton et al. 1990) and typically lasted one hour. In most cases they were conducted face-to-face, but a few were done over the telephone. Interviews were designed with two parts. First we asked respondents to describe how they were approached to participate,

which messages they received regarding the project, and how these messages were delivered. In the second part we asked them to deconstruct the decision making process they used to decide whether to participate or not.

To analyze the interview transcripts we used the constant comparison approach (Glaser and Strauss 1967). This is an inductive approach in which important concepts *emerge* during the data analysis rather than in advance of the investigation. Data are categorized with respect to relevant similar characteristics in a process called coding. At first, a relatively large number of categories are developed. Then, through iteration these categories are grouped into more abstract categories according to their meaning and significance. Data and categories are grouped according to their relationships with each other.

Results: Factors motivating participation

Fifty four factors emerged from the interview transcripts with both active participants and non-participants. These are listed in Table 2. In this section we group these factors into descriptive categories that highlight the more salient themes emerging from the interviews.

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Efficacy and Progress

Many paid a great deal of attention to whether their participation would "make a difference," that their effort was needed and would not be wasted:

Do I have insights and skills that are needed here?

"Making of a difference" did not always refer to achieving objectives of the estuary project, however. As these excerpts reveal, for some there was a strategic element:

I was able to steer the LGC agenda so it was serving the purposes of the region and locality as I see it.

We've been wildly successful in using the LGC mechanism to get stuff [money] for our community.

Others mentioned obstacles to feeling one's input ever mattered, especially how the scale of community could overwhelm and discourage people from participating:

> The communities are so large that people don't feel they have a real impact on what's going on. So they are not eager to serve either.

This comment came out of Massachusetts; it was not repeated in New Hampshire or Maine, where communities are much smaller and much less anonymous.

In sum, people who participated were doing so, in part, because they thought their efforts would be effective at bringing about a certain outcome, whether it be the estuary project's objectives or their own. One person aptly summed up the importance of a sense of progress to maintain participation:

> There [needs to be] a continuing sense that we are getting closer, every week, to our goal. People need to see that their work is paying off right now.

Preferences for a Participatory Experience

Another type of factor related to people's preferences and notions about a "good" decision making process. Some said they participated because they liked to learn new things or meet new people. Others were inclined to participate if they could use the setting to bring traditional adversaries together in search of common ground. Still others sought to avoid conflict and would participate only if group solidarity was high and the process was fun. Other factors grouped within this category included those related to the way individuals felt they were received the first time at meetings, the productivity of meetings, and convenience of meeting times and places.

Several people mentioned factors related to the relationships formed between them and the project or EPA staff. A key issue was respect -- people wanted to be informed ahead of time about meetings and other activities, they wanted to feel welcomed when they came, and they wanted to know that the leadership listened to them and valued their input. Several participants explicitly mentioned how they felt respected:

> This may have to do with showing respect -- that the estuary project bothered to really find out what people in the towns care about and then they thought how they could mesh their needs with community needs.

> During the planning phase there was a feeling of sincere respect by the agency staff and technical assistants. They made me feel that they were working with me and not that I was working for them. That is changing with the recent change in the structure of the Management Conference, for the Implementation Phase. I may leave now, its very frustrating.

> Each person contributes, and I think its unique because we're all respected for what we do contribute.

While for others, a lack of respect led to a feeling of being slighted, which resulted in non-participation for some individuals. For example, they asked:

Did they do anything to try and accommodate my needs?

Was I directly invited? Was I called? When I arrived, was I welcomed? Was my input valued? Was I respected?

Extending beyond the notion of respect, people showed that they had a general concern with and attended to the quality of their interactions with others, including how representative, productive, and enjoyable they were:

What you need to know about the LGCs is that they listened.

Face-to-face contact is important so people feel like you care about them, actually want them.

[You are more likely to participate] If you know the individuals ahead of time and you like them.

Is it a diverse group, representing all relevant positions?

Clear Objectives

The objectives of the estuary project arose in our results in two ways. First, people wanted to make sure that the objectives were consistent with their personal or professional agenda. For instance, NHEP has been called a "preventative NEP" because the estuary is not badly polluted as it is in Boston. Predictably, some people who did not see problems with the estuary did not have an objective of addressing estuary related issues. For example, one non-participant from New Hampshire stated during his interview:

No obvious problem [with the estuary]. Why waste my time?

Second, people assessed the clarity of objectives, the strategy of the estuary project to achieve those objectives, and the ability of the project, given its resources, to actually achieve them. Some participants were discouraged by the lack of clarity and focus in the meetings. This was particularly problematic in the early years of the Casco Bay Project:

I mean at the beginning, people said, "What's going on? What are we doing? Where are we going? And why are we doing it? And why are we spending so much time talking?" And it was just getting *grueling*.

Estuary Project Support and Resources

Those we interviewed often expressed concern for the ways that project staff supported the ability of people to participate. These concerns included the adequacy of staff support and the availability of funds.

For example, factors in this category were related to the organization and resources of the estuary project -- how many funds were available for pilot and demonstration projects and what types of technical resources were made available to participants. Statements that illustrate these factors include:

> Is it worth [the town's] time to go and spend seed money and planning time to put in for that grant?...Unless the grant has a minimal amount of administrative time on it and a large enough amount of money, it frankly isn't worth it.

> I think that changed some attitudes on what they could do, 'this was a great [GIS] tool and the estuary project assisted us.' And then you'd have councils attending some of those meetings.

Those we interviewed also cited concerns about the ways that staff provided support to participants to ensure that their participation was meaningful and efficient. In some cases these were reflected in concerns about the ways meetings were organized (e.g., locations, times, agendas) and the ways that enabled or constrained participation:

> Do I have to go through a lot of annoying red tape to participate?

In other cases concerns were expressed in terms of the support provided by project staff to facilitate participation:

> [staffperson] had exceptional communication skills, good staff, highly motivating. She generated a lot of enthusiasm and excitement over project activities and goals. This has been lost because of fight with CZM.

> Knowing how to get involved. Being able to vision the form and nature of one's participation. This was especially relevant to the grants program, where potential applicants had to know ahead of time what kinds of proposals the estuary project wanted to receive and also how to fill out and submit the proposal.

Personal Values

A variety of factors were related to expressed values of the participants and non-participants. Civic duty, environmental stewardship ethics, and the moral obligation represented by "If I don't do it, who will?" (factor #4 in Table 2) were frequently mentioned. For example:

I have a longtime personal commitment to the environment and love for nature. I have feelings of personal responsibility that makes me participate.

Other values more closely tied to individuals' interests were reported:

Are they just looking for free labor, or will I get something from this?

This was soon after I entered the aquaculture business...I put in a citizen's interest form and was appointed an alternate.

Individuals also revealed their consideration for non-human entities, including ecosystems, as this person expressed:

The other thing which always made sense to me was you know we all live on this little mudball. And if the frogs and the bugs begin to die, our turn is somewhere's in that train of where we go.

Past Experiences

People's experiences played an important role in influencing their decision. Many had done something like this before, for better or worse:

Did something like this before and it was hell.

Past experiences also came into play when the personalities of other participants or the reputation of the governmental agencies were taken into account. In NHEP, for example, a major incentive for one LGO was that he liked the way the Director of the State Office of Planning ran meetings. Another cited negative stigma of collaborating with the EPA as a disincentive, although this factor was irrelevant for most other interviewees:

I was pretty motivated to work in this area and to participate, because [EPA] has been so helpful to us [on a prior grant]. I thought that if that was an indication of the quality of the work, that it would be a benefit to the town.

Time

Often priorities were defined in terms of available time in one's professional or personal life. People have a limited budget of time that is, for many, already committed. Time by itself is an external constraint that we all have to live under. After all, there are only so many hours in a day. Although there may be external forces constraining the availability of time (e.g., family obligations, illness, other volunteer activities), when it comes to establishing priorities that is something determined by an individual's own values and preferences. Making room for something new meant something else had to be cut:

He eventually petered out, because there were a few other things in his work that he had to deal with. But in the beginning he was extremely active and I was amazed that he was able to take that much time in this project.

If I do this, it means something else doesn't get done. [...] Is the payback going to justify the [low] ranking of the other things [on my desk]?

I think it's time for me to put my energy into something else that the town appears to need more right now. So it's a decision about serving the town in a slightly different capacity and I am sufficiently busy with my other duties that I cannot take on a new duty without giving up an old one.

Concerns about time arose from both individuals who were appointed by their towns to serve especially as representatives to their local NEP (e.g., in Massachusetts) and individuals who were serving on town boards or working as town employees. In the latter case, the requirements of participation could not necessarily be fit into time reserved for paid work or as a member of a volunteer board (e.g., Conservation Commission); reviewing documents, attending meetings, and the like could also require additional time outside of those that were part of "work."

In addition to factors relating to the amount of time committed, there were factors associated with timing.

If the CAC meetings had been in the day time, it would have helped, Its a little tricky when you have to impose on your friends to stay over night every month...and it didn't help at all when the first coordinator changed the meeting from Wednesday when there was a 10 o'clock boat to Thursday when there's only a 9 o'clock boat...And I screamed about that, but it didn't do any good.

Often those we interviewed revealed a relationship between the two themes of time and estuary project support and resources. For example, a person in New Hampshire suggested that his concerns about time arose because of the ways that meetings were scheduled and publicized:

Participation opportunities are presented with adequate notice -- not 2-3 days!

Municipal Support and Resources

We encountered several factors related to the resources and support available from the institutional, political, or social context within the town which the LGO represented. This category includes a commitment of a town to support one's participation as an aspect of doing one's job. For example, a paid employee in Maine was supported by his town to participate because:

We're a supporter of going regional. We would like to see more municipalities working together in marine management, because we don't think the state's doing a good job.

Others had to work much harder to gain the support of municipal authorities to participate:

When you point out that it's an important economic resource, then what we're talking about began to turn some heads and had wider acceptance among city councils. Because I did need their level of support to spend a bunch of time out of the office.

In other communities there were people who wanted to participate, but could not get the town's blessing. One interviewee raised this point in this way:

Basically those governments put walls around their town. They're very suspicious of outsiders, especially outside governments. They are just basically closed communities. And they're very suspicious of outsiders and they said, "No." [...] But there are citizens in the towns that have these desires [to participate], but we couldn't get official representation.

Frequently we found that this lack of support for participation was related to issues of homerule:

Interviewee: [Town] was one that never was involved up until six months ago.

Interviewer: Why was that?

Interviewee: Ask the head of their little fiefdom there. A guy by the name of XXX. XXX is someone [who] it sounds like anything that goes on in this town has to be individually blessed by this person. It's an absolute control within that town. And XXX said he didn't want to have anything to do with any state or community organization because he didn't want to be obligated or accountable for anything.

Obviously, a big consideration was the degree to which participation was part of a town employee's work. This concern reveals the relationship between the support a town (and its elected officials) gave to the estuary project and the time that a potential participant felt that she had for working on activities related to the project (i.e., "professional time"):

I participate because it is helpful to my work and comes under my work tasks. I need to keep up to date about what is happening.

Part of my job, my boss told me to go.

Socio-Political Context

A variety of factors were linked to larger socio-politico-economic factors that lie outside of a person's immediate town. For example, the length of LGO terms is set by law and is merely a feature of the political landscape in which an estuary project occurs. The duration of MBP and CBP was five years. This did not conveniently match the typical three year office terms of the elected LGOs. For example, the mayor of Portland, Maine was briefly involved and then sent a paid staffperson to take his place. The mayor felt that the upper level staffers would be better choices than himself, because the continuity of their positions were more dependable than the shorter term length of the Mayor.

Some local officials felt their communities were coerced by the EPA to participate in the estuary project:

> [person] did it...[town] had a lot of vested interests, because of their combined sewer overflow problems. So they were really interested in this...Those were the two communities that were under the EPA gun to do something.

> We had just been served with this consent agreement and at that point we hadn't finished negotiating. Neither city had finished negotiating how we were going to respond to this violation of the Clean Water Act. But everyone is like, "what else are they going to do? We'd better go find out." So we went to the table out of self defense.

In some instances, pre-established groups were re-directed in ways that led to collaboration with the estuary project. For example, in Massachusetts a unique characteristic of the socio-political setting was the existence of already established advisory boards and organizations that merged with the MBP by being transformed into Local Government Committees. These provided the project staff with an opportunity to gain the participation of local officials by gaining the support and participation of an existing group, rather than having to gain the participation one individual at a time. Staff took advantage of an existing institutional arrangement to facilitate participation:

> Interviewer: How did you get involved in the Massachusetts Bays Project?

> Interviewee: The easy answer is as a member of the Coastal Resources Committee. So I sort of smoked into the role. It became part of the Coastal Resources Committee commitment...Everyone became part of the LGC.

> Interviewer: Who made that happen? Staff?

> Interviewee: I believe it was the Massachusetts Bays Project who suggested it. [The Coastal Resources Committee] seemed to be a local group in place dealing with all those issues. A logical place to go...it just became another

part of our charge...there was some discussion about it. The group voted to sign on.

Discussion

Making Decisions

How do LGOs invoke these factors when making a decision about whether or not to participate in an estuary project? Individuals may not consider each and every factor that is relevant, but only those that are most relevant. And, they may not integrate into their decision process every bit of relevant information, but only what is readily accessible and seems most important to making the decision at hand. For instance, rather than consider every factor in Table 2, LGOs may base their decision on only a handful of factors. One person described his decision process in this way:

> [I] go through this sort of subconscious checklist. Is this something that I am interested in? Is this something that's important to the community? Is this something that will impact the community? How much time does it involve? Is it useful to either me or the community? And if those all sort of come up positive, then you seriously think about participating. If those for some reason don't come up positive -- of great [benefit] to you or the community government -- then you say, "No." Because you are paid to do a job, you don't get paid to go and do interesting things.

In fact, it is clear from our study that there was not complete agreement about the importance of any particular factor in initiating or maintaining participation among those we interviewed. What factors were included in the "package" for specific individuals, and how they weighed the relative importance of the various factors in the "package," differed. We identified two forms these differences took. First, there were occasions of outright differences of opinion about the relevance of a factor. Some individuals considered the opportunity to learn about coastal management issues as an incentive. Others did not see the ability to learn more as a benefit, because they were enticed to participate only by the opportunity to obtain financial benefits for their town.

Second, disagreements appeared when people agreed on the general relevance of factors, but interpreted or weighed them differently. This occurred when people differed on how large a grant needed to be to be worthwhile, or if the availability of grants were a benefit to a town or a liability by, for example, making them obligated to a federal agency. In addition, in Maine we found that some people interviewed thought that timing and location of meetings was a critical factor in their decision to participate, because of the time required to attend meetings. On the other hand, one individual from Maine thought that meeting locations were not that important a factor in influencing decisions to participate or not.

A taxonomy of factors to guide project design and implementation

What can be done to engage LGOs more readily in collaborative watershed planning? The diversity of themes emerging from our analysis suggests that a sponsoring organization can influence the decisions of LGOs to participate in many ways.[6] As well, there will be some factors that will be beyond the capacity of a sponsoring organization to influence in meaningful ways. Three categories of factors help to clarify the different types of influence agencies have over LGOs' decisions about whether or not to participate. These are shown in Table 3.

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Individual level factors are tied to people's dispositional or motivational orientations. For example, the meanings and saliency which an individual attaches to past experiences and feelings of obligation and interest are intimately associated with the individual him/herself. This category includes personal interests and values that motivate participation; personal priorities; whether an individual feels that his/her participation will make a difference; and perceptions of professional responsibilities and priorities. Characteristics of the individual are not usually something that EPA or state agency staff can affect directly. Generally, people "arrive" to the scene with an already developed environmental or civic ethic, for example. This highlights constraints on EPA's ability to exert direct influence over the decisions of specific individuals. It cannot change a person's need to feel part of a group. It cannot change a person's past experiences or present skills. It cannot alter an individual's environmental ethic.

On the other hand, the sponsoring organization, such as EPA, can understand and accommodate characteristics of the individuals they wish to have as participants in a process. It can "frame" invitations to participate to appeal to individuals' sense of civic duty and environmental stewardship, for example. Letters (or other messages of invitation) can be framed to appeal to potential participants' environmental ethic or civic duty.[7] Or, prospective participants can be shown a list of names of people already

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[6]   In National Estuary Program projects the sponsoring organization is the EPA, with the assistance of state agencies (Coastal Zone Management Office in MA, the State Office of Planning in NH, and the Department of Environmental Protection in ME).

[7]   We caution that there is a danger of coming across as moralizing, which may produce just the opposite of the effect intended. There is no research that we know of into how letters of invitation are

participating as a way to take advantage of the personal familiarity factor. Moreover, it is important to recognize that participation in a process may influence a person. There are factors that influence decisions to continue participation over a longer term. For example, participation may help to develop skills that were not present, alter perceptions of the EPA, or lay the seeds for and create an environmental ethic. On the other hand, participation may cause the emergence of reasons to not participate further. In fact, we found such factors to play an important role in the decisions of some LGOs we interviewed about how long to stay involved in their local estuary projects.

A second category of factors are largely outside the immediate control of the individual or the estuary project, but are associated with its social, political, historical, institutional, or economic context. As in the case of characteristics of the individual, there may be little or nothing that the agency can do regarding characteristics of the institutional, political, or social context of the town which a (potential) participant represents. EPA cannot directly influence, for example, election cycles, terms of office in towns, and local political cultures that resent federal intrusions into local affairs. In Massachusetts, a unique characteristics of the socio-cultural setting was the existence of already established advisory boards and organizations that merged with the Massachusetts Bays Project, by being transformed into Local Government Committees.

This category includes the commitment of a town to support the participation of LGOs, especially where paid staff and elected officials are involved.[8] Many of the LGOs interviewed talked of being overworked, having inadequate time for all interesting and important tasks, and inadequate resources to address all the issues under their jurisdiction. Thus, gaining support from a town was often related to the degree to which participation was viewed as part of a town employee's work. For instance, one town employee in Massachusetts said her decision to not participate was related to "triage": with only two people in her department, there were too few resources and people were "stretched to thin" to make the project a priority. "Time" became a characteristic of the socio-cultural setting when it was related to how a person's superiors or constituencies influenced one's perceptions of whether or not participation in an NEP was a priority. This quote illustrates how some LGOs worked to point out to their superiors how protecting estuaries was in the municipality's interest:

> When you point out that it's an important economic resource, then what we're talking about began to turn some heads and had wider acceptance among city councils. Because I did need their level of support to spend a bunch of time out of the office.

interpreted by potential participants, although there is a substantial literature about the different ways that people can interpet texts and utterances.

[8]   This was true for paid town employees and elected officials, including, for example, Conservation Commission, Board of Health, Planning Board, and Selectboard members. This was not a concern for those who were appointed especially to represent a town in their local LGC or NEP. This form of appointment only occured in Massachusetts.

For some people it was the lack of support from town officials that discouraged participation. One interviewee spoke of being approached by her selectboard to be a representative of the town in the process, but that the selectboard, ultimately, was only giving her and the project "lip service" and was not really committed. Other LGOs were prevented from participating:

> Basically those governments put walls around their town, they're very suspicious of outsiders, especially outside governments. They are just basically closed communities. And they're very suspicious of outsiders and they said no...But there are citizens in the towns that have these desires [to participate], but we couldn't get official representation.

As the case with individual characteristics, here too some of the factors will be beyond the capacity of a sponsoring organization, such as EPA, to influence. But, there will also be opportunities for a sponsoring organization to encourage the participation of LGOs by better understanding and accommodating contextual factors. For example, EPA could provide financial support to a town in order to "buy" the time of a town employee or board member. It can also provide other types of resources; the Casco Bay Project provided personal computers, GIS software, and training to towns as an incentive to participate. The Casco Bay Project also hired an outreach coordinator who personally traveled to the communities and engaged LGOs in watershed issues specifically of interest to their town. She also trained local planning staff in the use of the GIS software and made presentations to town boards, which helped to excite local officials,. In the view of one of the local officials involved, "The technology forced the discussion and promoted some understanding among local officials of land use planning and its impact on water quality.". This strategy functioned, as hoped, as an incentive to draw in towns and LGOs that might not have participated on committees.

A third group of factors relate to the watershed planning process itself. Control over these factors lies entirely with the sponsoring organization. For example, are the objectives clearly laid out? Is the process designed to be efficacious? What kinds of work did the project offer people to participate in doing? Other features of the participation opportunity can be used to motivate individuals by, for example, making attendance at meetings easier. It is the characteristics of the participation opportunity that provides the EPA with great influence in shifting the balance of an individual's weighing of the decision to participate or not. They provide managers with an opportunity to increase and maintain participation of local government officials in these processes.

In fact, estuary projects were creative about inventing ways to involve LGOs as this participant in Maine recalled:

> We got to a point where we wanted to get public input as to what the organizational structure would be in the implementation phase...And in those [public hearing] sessions elected officials would come. They were given a dinner out. So, they'd come, one shot deal, they were giving one night and go away. Taking their comments and going away, not signing on for another committee and

meeting every month. So, we found it more effective to hit them when we needed some advice and let staff work on it.

Project staff also tried to ensure that people's time would be well spent during meetings. Providing written materials to participants prior to meetings for review was one way that projects made efficient use of time:

They gave us plenty of notice and forwarded any material that they may have that they wanted us to review for discussion...And you know it was such that if you had any questions, you could pick up the phone and call the [project] office and say 'hey, I've got this in the mail. What does it mean? What are we going to discuss at the meeting?

Conclusions

Participation of local government officials in regional environmental planning efforts is critical. This is especially true when it comes to policy implementation, particularly in New England, where home rule places many land-use regulatory decisions under the domain of cities and towns. This study provides an important contribution to the understanding of factors influencing participation of an under-studied, but important group by shedding light on the kinds of factors LGOs from Maine, Massachusetts, and New Hampshire considered when deciding to participate in a collaborative environmental planning process. We speculate that similar considerations will be made by LGOs outside of New England. For example, some of our interviewees in Massachusetts were concerned about how the scale of community could overwhelm and discourage people from participating; this may be even more relevant in other parts of the country where county governments play more important roles in regional planning efforts. A successful regional approach to watershed protection requires extensive collaboration among many independent communities.

EPA and estuary project management can benefit from considering what motivates LGOs to participate. Our data show that LGOs consider a number of factors in their decision about whether or not to become involved in the watershed planning process. Just because an LGO's work included coastal zone management did not guarantee that he or she would participate. Many other factors also came into play. While many of the factors are similar to those that motivate stakeholders generally, some appear to be more unique to this particular population.

For example, several of the themes that emerged from the interviews are related to principles that have been used to define "good" policy making processes and that motivate stakeholder participation (Tuler and Webler 1999, Moore 1996, Renn et al. 1995, Carnes et al. 1996, Smith et al. 1999). How they are related, however, is not completely clear. For example, we found that factors influencing the personal decisions of the LGOs were related to the quality of their (expected) interactions. Quality of interactions and relationships have emerged as an important element in definitions of

"good" process in prior studies (Moore 1996, Tuler and Webler 1999). On the other hand, the LGOs rarely mentioned power as a motivating factor in their decisions, although concerns about efficacy were related. In contrast we found that power to influence a process and its outcomes was an important component to the definition of a "good" process for participants in a forest policy process. Concerns about municipal resources and availability of "professional" time are factors that seem to be more unique to this population; frequently, LGOs we interviewed were concerned about tensions between their various roles as town employees or representatives.

Our taxonomy of three types of factors helps to clarify the kinds of opportunities available to project leadership to influence LGOs toward participating. Factors associated with the character of individuals cannot always be affected. However, projects can take note of them and accommodate them. Factors associated with the social-political context of the project are also largely outside the realm of influence by EPA and estuary projects. However EPA may use its regulatory carrots and sticks to persuade communities to participate. Of course, any agency should carefully consider the use of "sticks" because they raise the possibility that more conflict ad resistance will be created. A more positive strategy when establishing a partnership with a community might be, for example, to use "carrots," such as the mini grants that were used so successfully by all three of the NEPs we studied.

EPA and estuary project management have great latitude in shaping the factors related to the watershed management planning process. Shaping goals and objectives is probably among the most important that projects can do to directly affect participation by LGOs. Project staff should take time to meet with communities to listen and learn what the local concerns are and then attempt to construct a shared definition of the problem that defines the estuary project in terms of local officials' needs and concerns.

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DISCLAIMER

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Table 1. Interviewee pool from the three case studies

	Maine	**Massachusetts**	**New Hampshire**
Directors	2	1	1
Other Project Staff	1	3[i]	1
Participating LGOs	9	10[ii]	6
Non-participating LGOs	1	2	6
EPA Staff	0	1	1
Total	13	17	15

Table notes:

i)   In addition to staff working with the project at the time of the interviews, we also interviewed two others who had played key roles in establishing the MBP and the LGC, but were no longer active. They are not included in the totals listed in the Table.

ii)   three of these ten participants in the Massachusetts Bays Project were, at the time of our interviews, considering to cease their participation. Within a year, two of them had stopped participating in the MBP.

Table 2. Factors that influenced LGOs' decisions

1. Acting on my environmental ethics
2. Being acquainted with the other participants
3. Being part of a group that works closely together
4. Benefits to my town from information sharing
5. Bringing traditional adversaries together to talk face to face
6. Clarity of participants' roles and responsibilities
7. Clear need for participation
8. Community support for my involvement
9. Dealing with conflict
10. Existence of water supply or quality problems in my town
11. Feeling that, when I speak, others are listening to what I say.
12. Fiscal benefits to my town
13. Fulfilling my sense of civic duty
14. How I will appear to others if I participate
15. If I don't who will?
16. Impacts on my town's influence in regional policy
17. Learning new things
18. Meeting new people
19. My ability to make a strong contribution
20. My earlier experiences with similar processes
21. My earlier experiences with these state and federal agencies
22. My interest in working on regional issues as opposed to purely local ones
23. My personal interests (Is this something I care about?)
24. Other voluntary activities I would have to give up to do this
25. Our ability to start to solve watershed problems right away
26. Participants are trained in consensus-building skills
27. Placement of the project in state government
28. Pre-existing tradition of (regional) cooperation
29. Producing tangible results
30. Productivity of meetings
31. Professional interests and responsibilities (Is this part of my job?)
32. Professional priorities (Is this something I can fit into my work life?)
33. Quality of the discussions with others
34. Receiving a personal invitation
35. Relevance and clarity of the project's objectives
36. Respectfulness of the invitation
37. Scope of the project
38. Support by my boss
39. The age and gender of the other participants
40. The capability of the project to accomplish its goals
41. The competence of the project leadership
42. The convenience of meeting times and places
43. The decision making power of the participants
44. The helpfulness and friendliness of the project staff

45. The kinds of interests represented
46. The need for participation
47. The process is fun and enjoyable
48. The stigma of working on an EPA sponsored project
49. The time that would come out of my personal life
50. The time that would come out of my professional life
51. The timing between my term of office and the process
52. The way I am received on my first visit
53. The way the group makes decisions.
54. There are ways to participate other than going to meetings

Table 3. Taxonomy of factors

1.   Factors associated with the character of individuals

2.   Factors associated with the context

3.   Factors associated with the process

Policy Discussion for Session II by Claudia Walters, US EPA Office of Science Policy -- <u>Summarization</u>

Claudia Walters began her discussion by focusing on the relevance of Gregory's and Webler's papers to EPA's interests. She said that at EPA, CBEP(community based environmental protection) has a specific definition: it is a community driven process where the community makes decisions and EPA serves a support role. She stressed that the notion of public participation can mean a broad range of involvement. At one end of the spectrum is the use of a public education program, where education is provided to the community, but the community is not directly involved in the decision making process. At the other end is some form of community empowerment and collaborative decision making process, or CBEP. The two papers in this session represent different models within this spectrum. Walters emphasized that stakeholder input is extremely important to the decision making process and is crucial to a successful operation.

Next, Walters moved to discussing the individual papers. Gregory's paper focused on identifying stakeholder values and preferences to inform decision makers. Within the spectrum she layed out above, Gregory's is a specific type of model: an informative process that emphasizes stakeholder involvement. She commended Gregory for taking the step of using a theoretical idea (the importance of stakeholder involvement) and putting it to practice. She thought it was very helpful that he showed how you can extract community values and prioritizations from this process. Gregory contrasted his approach of consensus building with the approach of dispute resolution. Both approaches, Walters suggested, are good for certain situations. Dispute resolution is useful when you need to get agreement from different parties. Consensus building, however, often ends up at the lowest common denominator that everyone in the room can agree to.

Walters emphasized that stakeholders should not be left with the impression that they are the decision makers. Management must play a role. Stakeholders should be informed as to exactly what their role is. Are they making the decision or providing input to the decision making process?

A final point Walters made is about scale. Although Gregory's process identifies local, community issues, these issues must ultimately be integrated with larger, regional issues. She thought this would be an important area for future research.

Turning to the Webler paper, Walters expressed interest in learning about the factors that bring stakeholders to the table. She said that people at EPA are always scratching their heads, saying, "but I invited them, why didn't they come?" Many people at EPA are trained as scientists and don't fully understand that they have to worry about logistics and making involvement attractive to stakeholders. Walters challenged Webler to look further at his data, specifically, to look at the differences between the various watershed programs and how and why involvement differed. She also emphasized that we need to learn more about who the stakeholders are and whether they adequately represent the community.

Finally, Walters suggested that the onus falls on agencies to design a system that works for stakeholder participation. Webler's paper will help them understand which factors are most important for their specific programs.

Policy Discussion for Session II:

Shooting at Different Targets: Better Decisions, Conflict Resolution, and Implementation in Participatory Environmental Decisionmaking"
Tom Beierle, Resources for the Future

Discussant Comments for panel on:
"Stakeholder Participation and Decision Making"
Community Based Environmental Decision Making Workshops
Environmental Protection Agency, May 9 2000

The two papers discussed in this panel provide two interesting, and quite different, perspectives on the subject of stakeholder participation and decision-making. I will briefly summarize my reading of the two papers and suggest some of the common themes they raise. The themes, I hope, resonate with some of the larger issues in play in the field of participatory decision-making.

The article by Gregory and McDaniels describes their recommendations for a structured stakeholder decision-making process that emphasizes analysis and problem-solving. It is aimed at developing recommendations that are both responsive to participants' values and of high technical quality—what elsewhere have been called "wise" decisions. The authors contrast this approach with consensus-based processes, which, they argue, threaten to sacrifice quality for acceptability.

The article by Webler and all focuses on a much more specific issue: how to get local government officials involved in stakeholder processes, specifically in the National Estuary Program. The article focuses on the critical issue of incentives, highlighting what motivates local government officials to participate or not.

The two papers are quite different. One deals with the decision-making process and its outcomes, and the other deals more with questions of who participates and how decisions get implemented. One presents us with a framework for decision-making while the other reminds us of the day-to-day rewards, frustrations, and trade-offs that being involved in this kind of decision-making entails.

There are commonalities in the papers as well. The decision-making approach suggested by Gregory and McDaniels is quite consistent with, and in fact has been used in, the National Estuary Program on which Webler focuses. In fact, one of the arguments for encouraging the involvement of local government officials is that they have the kind of experience and knowledge that may make them effective problem-solvers in the kind of process suggested by Gregory and McDaniels.

One thing I'd like to do with this discussion is to look for further areas of commonality, if not in substance of the papers, at least in the issues they raise. Public involvement has

received a lot of attention of late and there are a number of unresolved issues that these papers may get us thinking about.

It is useful to describe where I am coming from here. Over the last three years we at Resources for the Future have been examining the role of public participation in environmental decision-making, most recently with a review of around 250 case studies of participation in various contexts—hazardous waste cleanup, resource management, etc. From the start, our research has been motivated by the question: "What is the purpose of public involvement?" Or, put another way, "If public participation is the solution, what is the problem?"

The papers suggest three answers to that question.

First, is the answer supported by Gregory and McDaniels that the purpose is to make better decisions through a problem-solving approach. That is, decisions that are both of high technical quality but also responsive to public values. They describe these as decisions that take the form of perhaps competing recommendations to public agencies, who retain ultimate decision-making power.

Second, is the answer suggested and criticized by the same paper, that participation should be seen as a way of resolving conflict by seeking consensus solutions to tough problems.

Third is the answer implicit in the paper by Webler and others, that participation should be a way to build motivation and capacity for implementation. The authors mention a number of justifications for including local government officials in NEP decision-making processes, but primary among these is that local governments, usually by their power over land-use decision-making, hold the key to implementing plans for restoring and maintaining the environmental quality of estuaries.

Ideally, we would be quite happy if public participation programs could do all of these things: produce high quality decisions to which all agree and which marshal the collective will and ability of stakeholders to implement. However, aiming at these various targets generally will involve some trade-offs in the three areas that I see as important themes of public involvement.

The first theme is representation—who should be involved in the decision-making? If what we want to do is reduce conflict, we should invite in those who are conflicting. If we want to make higher quality, more responsive decisions, we should involve those with the will and capacity to engage in analysis and problem-solving and make sure that all of the relevant value-orientations are adequately and fairly represented. If we are interested in implementation, we should invite in all of those who have the power to influence how money gets spent, programs are run, or priorities are set.

Generally, these are not going to be the same people. In the context of the Webler paper, for example, it is easy to justify extra effort to encourage the involvement of local

officials if we are interested in implementation. It is far less compelling to argue that their involvement will be critical to resolving typical economy vs. environment conflicts or that they embody a unique set of values that should be represented in decision-making.

The second theme is incentives—who is going to take the time to participate in decision-making? What struck me in reading the Webler and all paper was the complex mix of what might be called self-oriented and other-oriented motivations to participate. That is, local government officials were asking themselves both how they could contribute to the public interest in cleaning up the environment but also what they could get out of participating on a personal or institutional level.

This forces us to ask the question—what would participants get out of being involved in decision-making processes oriented toward the other two outcomes under consideration: conflict resolution and problem-solving? To me, a conflict resolution setting appeals more to the mix of self- and other-directed incentives discussed by Webler. Such processes can make progress on a gridlocked environmental issue, which appeals to the public interest, but also has the potential for various actors to get sought-after concessions, which appeals to their private interests.

It is not obvious to me that the problem-solving orientation suggested by the Gregory and McDaniels piece similarly appeals to the more selfish interests of potential participants. Indeed the authors suggest that one of the challenges of their approach is to encourage participants to focus on values, not on their more narrow interests ("alternatives-focused thinking"). What self-interested motivations, then, do they have to participate?

The last theme is one of evaluation—how do we know if these processes have accomplished what they were intended to do? Here lies one of the virtues of focusing on conflict resolution. It is quite easy to determine whether consensus has been reach—simply ask those involved. It is not terribly more difficult to look at whether conflict has been resolved over a longer term by looking at, for example, subsequent records of litigation as has been done for regulatory negotiations.

Evaluating programs based on the other two criteria is more challenging. While it is not terribly difficult to judge whether a program has been implemented, it is quite a bit more difficult to attribute implementation back to the participatory process that sought it. How do we know, for example, if the cleanup of an estuary was due to a stakeholder process or instead to the lucky alignment of political factors, matching, for example, local electoral politics with a windfall Congressional appropriation?

Evaluating the substantive quality of a decision produced out of the model suggested by Gregory and McDaniels may be even more challenging. What yardstick can we use to measure quality that is itself not based on the values of the evaluator? No common yardstick—such as risk reduction, cost-effectiveness or efficiency—is likely to meet this test. Even asking whether an outcome is scientifically justified is likely to be contested, except perhaps at the tails of the distribution. Rather than looking at the substantive quality of the decision, we are probably forced to look at the quality of the process that

produced it. This we will just have to take on faith, because without the ability to measure the quality of outcomes there is no independent corroboration that the process suggested is the best way to go.

To resolve some of these issues, I would not suggest that we seek a universal approach to stakeholder decision-making that can handle all of the tasks of problem-solving, conflict resolution, and implementation. Rather, we should recognize that different kinds of contexts and different kinds of decisions require different kinds of processes—or combinations of processes. The problem-solving model suggested by Gregory and McDaniels may be the most appropriate model for decisions about remedy selection at a relatively non-controversial Superfund site, for example. The conflict resolution model may be the most appropriate for a regulatory negotiation setting where the public interest is not in particular jeopardy from the outcomes. Finally, a process geared toward implementation may be most appropriate in settings where there is general agreement on a policy alternative but not on how to get there.

The question for researchers and practitioners alike, then, is to develop a framework for thinking through what the most appropriate approach to participation is for the particular problem under discussion. Such a framework needs to consider, among other things, the three themes discussed here--who should be represented, what motivations they have to participate, and what the measures of success are going to be.

Question and Answer Period for Session II

Deanna Donovan from the East-West Center expressed concern about the "cultural baggage" that researchers might be taking into the processes they describe. She wondered whether and how researchers prepare to understand the cultural-political dynamic of a community and its demographic profile before bringing people to the table.

Robin Gregory said that he has worked frequently with First Nations and foresters and has found it to be useful to know the demographics, but that he learns most when he goes in and talks directly to the people, especially in informal settings. He is often surprised to hear what their concerns are. They do not always match expectations. Gregory emphasized that cultural sensitivity is essential throughout these processes.

Anne Sergeant from EPA asked Gregory about his comment that facts come from experts and values come from stakeholders. She suggested that science is based in a set of values and wondered how to separate out these values when being presented with scientific "facts."

Gregory responded that residents often feel uncomfortable with the uncertainty inherent in these processes and are generally anxious to get through them quickly and go on with their lives. Scientists, on the other hand, are more comfortable with uncertainty and generally support the idea of doing more studies. It is often difficult to get these two sides to meet in the middle. Scientists often look at data as "truth." Gregory sees data as input to the decision making process. He sees utility in doing more studies only if it will inform the decision making process.

Thomas Webler suggested that values are woven into the social science process and that we need to find ways to accommodate that by, at times, breaking apart discourse into more value-oriented discourse and more fact-based discourse. The same people are involved in both sets of discussions, however, and we cannot break apart their own approaches.

Gregory followed up by saying that problems can be identified based on values, but once problems are identified, it is important to obtain the best information that is available.

Claudia Walters said that her office is trying to bridge the different values, languages and expectations that scientists, social scientists and communities have. They have been holding community assessment workshops to learn about community expectations and to inform communities about what science can and cannot do.

Mike Nechodom of the Forest Service expressed concern about public accountability for the costs of these processes.

Tom Beierle responded that it is a cost-benefit issue. Are the costs of the participatory process worth the benefits? What are you trying to achieve? Resources for the Future is conducting research to learn about the benefits side of this question.

Webler suggested that the "Cadillac" model, represented by the in-depth approaches that he and other presenters discussed at this workshop, is only for nonroutine, special situations. He stressed that the process allows learning so that adjustments can be made mid-way through, potentially saving both time and money.

Gregory responded that social science research is less expensive than natural science research. He felt that consensus-based processes are not worth the expense, since the agreements that often come out of such processes represent lowest common denominators. However, he suggested that if the problem is structured and defined properly upfront, so much money will be saved that the expense of public consultations will seem trivial.

Nicholson followed up by agreeing that problems need to be better structured. In his work, he felt that many problems given to him pre-defined.

Walters reminded the audience that EPA is a regulatory agency and can have trouble presenting themselves to communities as collaborators.

Steve Smutko from North Carolina State University asked whether stakeholder motivation might be different when stakeholders are get involved in a second, different process.

Webler responded that it would be nice to have some replication in his study. He also discussed a study of participants that looked at what they thought would be a good process and found that environmental groups, for example, expected a values-based process, timber harvesters expected a facts-based process and property rights groups thought the process was about power.

Hank Topper from EPA commented that EPA needs to mobilize people at the local level to get involved and asked how to do that.

Gregory gave an example of a process he is involved with in Tillamook Bay where two stakeholder groups are the dairy farmers and private foresters. He said that, initially, dairy farmers were totally against the process, but over time, became very supportive as they saw EPA staff incorporate the farmers' concerns in their studies. He said that these local people informally became spokespeople for the process and this was a necessary component of the project's success.

Barbara Kanninen of the University of Minnesota asked who stakeholders represent when they attend these processes. Do they represent extreme opinions or do they represent mainstream opinion? She also asked how these processes compare to survey-based approaches such as contingent valuation.

Gregory responded that, according to the literature, his process generally obtains values that are less than half the values obtained by CV studies. He cautioned against total

reliance on survey-based approaches where people do not necessarily fully understand what they are responding to. He felt it was better to allow a few people to learn about the problem in depth and make decisions based on their more informed positions.

Webler said that private citizens who are not alligned with the interest groups play a moderating role in the process.

Toddi Steelman from the University of Colorado at Denver asked about the use of Q methodology.

Webler responded that Q analysis is very useful for interpreting social science data and he uses it frequently.

Gregory said that we need a mix of methods and that there is no one cookbook approach for the structured decision making process.