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Perspectives on Public Participation in Forest Management Planning

**Case Study:
Forest Management in the Applegate Watershed**

By

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Overview of Research Project

This paper reports on the results from one case study that was performed as part of a larger research project whose goal was to advance knowledge of how best to involve members of the public in decision-making about contentious environmental and public health issues. The project began with the assumption that members of the public, stakeholder interest groups, and professional experts should be involved in decision-making about environmental and risk policies that are contentious. Hence, our focus is on *how* people should be involved, not *if* they should be involved.

The project was designed to shed light on four main questions.

1. Are there views of what is the most appropriate type of public participation process that are similar regardless of the topic being discussed?
1. How do preferences for different types of outcomes affect people's perceptions of what would be the most appropriate form of public participation?
3. How do elements of the context in which a decision-making process is situated affect people's perceptions of what would be the most appropriate form of public participation?
4. Are individuals' ideas of what is the most appropriate decision-making process shaped by their personal experience, their interest group affiliation, or their motivation to participate in the process?

There is an important need to know more about how best to involve interested and affected parties in environmental decision-making. It is true that the field of public participation is well known for its experienced practitioners and excellent handbooks. It is also true that recently the scholarship on theory of public participation has grown. Theories on public participation have emerged out of management sciences, decision theory, political science, philosophy, communication studies, and small group psychology. A recent National Research Council committee report on risk characterization advanced the idea of conceptualizing public participation processes as an iterative, non-linear combination of analysis and deliberation (National Research Council 1996).

Despite these theoretical developments and wise practitioner reflections there is little systematic research on public participation processes for environmental decision-making. There is no theory of public participation that adequately explains how context matters. Certain handbooks for public participation practitioners do give hints as to what context features planners should pay attention to, but the theory of why and how these features matter is undeveloped. While we know that the same participation model may not yield the exact same outcomes in two different social settings, we do not know why.

To address the four questions guiding this research project we conducted a systematic case comparison of public participation processes in three different policy venues: forest

policy making, watershed planning, and radiological contamination clean-up and health effects protection. For each venue we conducted three case studies to inquire into participants' ideas of what matters in a public participation process. A tenth case study was conducted of a National Park Service planning process. In each case study, we asked about a dozen carefully-chosen individuals to express their viewpoints about what would be the best public participation process features for a particular context. To make sense of their different points of view, we used Q methodology. Q methodology is a way of finding commonalities among many independent and different perspectives on a topic. For each case study Q analysis identified three to five perspectives of what would be the most appropriate public participation process in that case.

In addition, we collected three other kinds of data from each person in the case studies. First, we had them order their preferences for twenty possible outcomes of the participation process. This allowed us to examine the possibility that people prefer different process features for strategic reasons: they think the process will produce the kinds of outcomes they like. Second, we used a survey to collect each individual's assessment of the contextual features of the decision-making process. We presume that these may influence an individual's idea of what is the best public participation process. For example, we asked people to assess the level of trust between the relevant regulatory agency and the stakeholder groups. In total, the survey asked about 32 contextual features that we had identified from other literature and studies as being important. Third, we used another survey instrument to inquire about the respondent's affiliation with interest groups, their motivation for participating, and their experience with public participation processes. Our overarching goal has been to investigate whether any of these factors determined how people think about public participation process.

Goals of this Research Project

This research was funded by the National Science Foundation for the purpose of improving theoretical knowledge about public participation in environmental and risk decision-making. Better understandings of what different people want and expect from public participation processes will be beneficial to both activists and regulatory agencies. One of the key assumptions of this research has been that we must tap the knowledge of people who actually take part in public participation processes as well as tapping the theoretical knowledge. There was no intention that this research serve either "side" of a policy conflict more than the other. Instead, we believe that everyone wins when the participatory process is designed to meet the needs of all parties and is made flexible to deal with emergent changes in context and purpose. Revealing different visions for what is a good participation process enables those involved to talk about these differences and to attempt to find common ground and compromise on what kind of process to conduct. Our goal has not been to minimize or eliminate conflict *per se*. Instead, we seek, broadly, to improve democracy. We feel this will happen by constructing better processes where parties with different needs and concerns and objectives can come together and engage in reasoned discussion and careful analysis.

Purpose of this Report

This case report and the other nine just like it describes the case study, reviews the methodologies used to collect data, reports on the data gathered, and summarizes the findings from our analyses of these data. Other publications will be prepared that address the cross case comparisons and the summary findings from the project as a whole.

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Forest Management in the Applegate Watershed

Introduction

This paper reports on the results from one case study that was performed as part of a larger research project whose goal was to advance knowledge of how best to involve members of the public in decision-making about contentious environmental and public health issues. The project began with the assumption that members of the public, stakeholder interest groups, and professional experts should be involved in decision-making about environmental and risk policies that are contentious. Hence, our focus is on *how* people should be involved, not *if* they should be involved.

We addressed four questions in this case study research. First, we inquired into the variety of perspectives held among participants for a process by asking about their preferences for different process features. Second, we asked how important a variety of potential outcomes were to the participants. Third, we asked how perceptions of the context influenced participants' beliefs about what is a good public participation process. Fourth, we gathered information about each of the people participating in the case study to assess how factors, such as interest group affiliation and years of involvement with the issue, influenced perspectives about process. In this report we present findings from our study of efforts to address forest management issues in the Applegate watershed in southern Oregon. During the past ten years much of the opportunity for public participation on this issue occurred as part of the Applegate Partnership. This case study is one of 10 that we completed as part of the full project (see Appendix A for a list of the case studies).

Background

The Applegate River watershed encompasses an area of about 500,000 acres and includes roughly 12,000 people in southwestern Oregon and northern California. Approximately two-thirds of the land is publicly owned, with the other third held in private ownership (Presiter 1994, Sturtevant and Lange 20xx). The region's major industry is forestry and forestry products. Intensive logging, extensive road building, fire suppression, and extended drought have dramatically changed the composition and structure of the forest in the watershed. These factors have resulted in over-crowded young forests, high levels of insect damage, changed species diversity, and increased risk of catastrophic fire (as exemplified by recent large-scale fires in the area). More recently, "in-migrants" have been moving to the area, leading to social, political, and economic tensions between long-time residents and these newcomers with different needs and values (Sturtevant and Lange 20xx).

During the 1980s and early 1990s the Applegate region shared many of the resource conflicts prevalent in the Pacific northwest. Proposed timber sales were controversial, "jobs vs. owls" rhetoric underscored the public debates about forest management, and there was little effort given to finding common ground among stakeholders. In the summer of 1992 a local environmentalist and logger began discussing with others their idea for a new, collaborative approach for resource management among private landowners and public land management agencies for the Applegate watershed (KenCairn 1996, Moseley and KenCairn 2001, Sturtevant and Lange 20xx). In October of 1992 these two individuals, Jack Shipley

and Jim Neal, set up a meeting inviting stakeholders from all community interests to begin discussions on organizing a collaborative process to forest management.

The Applegate Partnership

The Applegate Partnership evolved rapidly out of this initial meeting. At the second meeting a Board of Directors was selected. A vision statement was agreed-on during the third meeting (and first official meeting of the Partnership):

The Applegate Partnership is a community-based project involving industry, conservation groups, natural resource agencies, and residents cooperating to encourage and facilitate the use of natural resource principles that promote ecosystem health and diversity. Through community involvement and education, this partnership supports management of all land within the watershed in a manner that sustains natural resources and that will, in turn, contribute to economic and community stability within the Applegate Valley. (Applegate Partnership 2000)

Throughout the fall of 1992, the newly created Board met privately twice a week, establishing goals for the Partnership and building relationships among members. During this time the Board of Directors developed three objectives for the Applegate Partnership:

1. to provide leadership in facilitating the use of natural resource principles that promote ecosystem health and natural diversity;
2. to work with the public land managers, private landowners, and community members to promote projects which demonstrate ecologically sound management practices within the watershed; and
3. to seek support for these projects through community involvement.

Few policy-related decisions are made by the Partnership; it provides advice and it supports and networks with other groups in the region. In the mid-1990s the Partnership was also designated as the Watershed Council for the Applegate Region because many of its objectives were those supported by Oregon's watershed council approach, and much of its networking is with other watershed councils (Sturtevant and Lange 20xx). Funding for the Partnership, a non-profit organization, comes from a variety of sources, and is often based on its capacity as a watershed council. Funding has supported the *Applegator* community newspaper, riparian restoration projects, a watershed assessment, educational programs in local schools, and other studies.

One difficulty that the Partnership has had to overcome is the difficulty of bringing diverse organizations together, that are not wholly committed to a collaborative process (Sturtevant and Lange 20xx). While some federal agency managers participated in and supported the Partnership, others felt it was a waste of time. Timber industry groups and environmental organizations were similarly split – while some members of these groups were actively involved in the Partnership, others were filing lawsuits and engaging in heated public arguments. Such problems have been a continuous feature of the Partnership.

In large part because of the history of conflict and inability to bring diverse stakeholders together in a dialogue, an important element of the initial efforts to create the Partnership was participants' intentions to create a collaborative space for discussions (Sturtevant and Lange

20xx). Board members were intended to represent diverse stakeholders; a common question asked was "who else needs to be at the table?" At the same time, people were asked to come as individuals, and not as representatives of organizations and their positions. Group process was considered very important; thus, for example, ground rules for communication were developed by the group. The Partnership emphasized trust, relationship building, respect, and an "us not they" orientation (Moseley and KenCairn 2001, Sturtevant and Lange 20xx). For example, a decision to meet privately in the beginning was made to avoid misinformation being reported which could hinder the collaboration process and the establishment of trust among members. By 1993 the Applegate Partnership was being cited as a model for collaborative planning by the Clinton Administration.

An evolving process

The Applegate Partnership has evolved in many ways during the past ten years. As noted above, it evolved from a group of people in conflict to one with collaborative, respectful relationships, to one that has lost some of its social cohesion more recently. While initially a self-initiated group it became a formal tax-exempt non-profit organization and a state-supported watershed council.

In addition, two other important process-related changes occurred since the Partnership was established in 1992:

- Meeting facilitation moved from self-facilitation to the use of trained facilitators and back to self-facilitation. Around 1993 two local facilitators donated their time to help the Partnership. In early 1995, after two years of work, both facilitators ceased their regular attendance and participation in meetings. They each believed that by then Board members could perform most facilitative functions on their own, which they have done (Sturtevant and Lange 20xx). However, facilitators were used a few times afterward for important meetings and sticky issues. While there has been some desire to return to regular facilitation, there have not been adequate funds or staff.
- The Partnership faced unexpected barriers to the participation of federal land managers that affected the character of dialogue and collaboration that was possible. The Partnership hit a roadblock in 1994 when the US Attorney General issued a statement that federal employees in the Partnership were violating FACA regulations and therefore were forced to leave the Partnership. This loss of important collaborators led to frustration in the group (Moseley and KenCairn 2001, Sturtevant and Lange 20xx). Although felt to be a huge setback, the Partnership survived and found ways to continue working closely with the Bureau of Land Management (BLM) and the US Forest Service (USFS) while remaining in full compliance with FACA.

More recently, the future of the Partnership has become uncertain. For many years of the Partnership, meetings were held almost weekly. Attendance at meetings was frequently high and diverse. During the early part of this decade attendance rates and meeting frequencies slowed and a shared sense of purpose weakened (Sturtevant and Lange 20xx). For example, participation by private landowners decreased during the last few years. Sturtevant and

Lange (20xx) have also described how new members were not “socialized” into the group in the same manner as the early participants; trust and relationships are not as strong as initially developed, for example. By 2003 the future of the Partnership is uncertain, with no formal meetings or activities planned.

Research Methods

We selected individuals to participate in our study who:

- have been actively involved in the participatory process and
- represented different points of view regarding the participation *process*.

We did not consider -- nor did we care about -- their views on the substantive nature of the policy issue. To help us identify people for our case study research we obtained input from Dr. Vicky Sturtevant, Department of Sociology and Communication at Southern Oregon University, who is familiar with this case (Sturtevant and Lange 20xx).

The identified individuals were approached via telephone and introduced to the project and told how they were selected. We described our data collection procedures and what we wanted them to do. We told people we would visit them at a time and place convenient to them and that the entire process would take about one and one-half hours.

In the Applegate Partnership case study 12 people participated in our case study research. The list of participants in this case is shown in Table 1.

Data were gathered from each person during March 2002. We asked each participant to do four tasks:

- 1) complete a Q sort exercise (described below) to reveal their preferences about process features,
- 2) express their preferences for 20 different statements describing potential outcomes from a process,
- 3) complete a survey in which they assessed on 32 different variables the context in which the process was occurring, and
- 4) complete a short survey about their interest group affiliation, motivation for participating, and experience with similar processes.

We asked them to do these tasks as if they were responsible for designing a new process that would start immediately. We did not ask people to evaluate the process that had occurred. In the following sections we discuss each of these tasks and our findings.

Table 1. Participants in the Applegate Case Study.

- Frank Betlejewski (Bureau of Land Management)
- Chris Bratt (Applegate Partnership member)
- Matt Epstein (Applegate Partnership member)
- Tim Franklin (Applegate River Watershed Center)
- David Hill (Applegate Partnership member)
- Warren Merz (Applegate Partnership member)
- Barbara Mumblo (US Forest Service)
- Ed Reilly (US Forest Service)
- Hans Rilling (Applegate Partnership member)
- J. D. Rogers (Applegate Partnership member)
- Jack Shipley (Chair of Applegate Partnership)
- Connie Young (Applegate Partnership member)

Preferences for Process Features

Our primary interest in this research was to identify the variety of perspectives about what constitutes good process among participants involved in environmental and risk decision-making. To identify and clarify these perspectives we used Q methodology. Q method has a growing history of application in the political and social sciences, and its use in environmental studies is expanding.¹ This method, analysis, and findings are discussed in this section.

Q Method

In Q methodology, the researchers gain access to various perspectives on a subject – what Q practitioners often call “social discourses” – by having a small number of people with different, but well-formed opinions sort a group of statements according to their personal opinions.

Participants in our case study were handed a set of small cards (about the size of a normal business card). Each card had a statement printed upon it that described a single feature that might be included in the design of a public participation process. The full list of “Q statements” is given in Table 2. We asked the participant to imagine the process was going to start over tomorrow and to sort the cards according to how much importance he or she would give to that statement relative to all the others in the design of the new process.

¹ Key resources on Q methodology include Brown 1980, 1986, 1996; McKeown and Thomas 1988; Stephenson 1953. Excellent resources that document the application of the method include: Dryzek 1996; Focht 1995; Kalof 1998, 2000; McGinnis and Woolley 2000; Normand and Salazar 1998; Pelletier, et al. 1999; Woolley and McGinnis 2000; Woolley, McGinnis, and Herms 1998.

Table 2. List of 56 statements used in the Q sort.

- 1) Set up a situation that encourages all participants to listen to what others say and to consider it carefully.
- 2) Use the best available science in the analysis.
- 3) Establish relationships that promote constructive collaboration among participants.
- 4) Acknowledge and explore uncertainties.
- 5) Develop a common language and understanding among participants.
- 6) Reach out in a number of different ways through different mechanisms to different communities on different issue points, throughout the process.
- 7) Work to build trust among the different participants during the process.
- 8) Hold meetings at different times and places so no one is excluded from participating.
- 9) Participants should be courteous and respectful to one another.
- 10) Provide financial resources that enable people to participate effectively (e.g., travel, hire experts).
- 11) Participants should see beyond their individual interests to what is good for the larger community.
- 12) The process cannot be open to just anyone who wants to participate, participation has to be restricted in some way.
- 13) Participants should be accountable for what they say, sincere in their promises, and reliable in carrying them out.
- 14) The process gives recommendations to the US Forest Service and Bureau of Land Management, who then make the final decisions.
- 15) Participants should have reasonable expectations about what the US Forest Service and Bureau of Land Management are able to do.
- 16) All important decisions are made according to consensus (including the agenda).
- 17) Participants should attend meetings regularly and see tasks through to completion.
- 18) It is clear under what conditions the process will end.
- 19) Participants should be able to deal with complex technical issues.
- 20) Every recommendation is justified with evidence.
- 21) Participants should feel comfortable and safe at the meetings.
- 22) Consensus is used to decide what rule is used to make decisions (simple majority vote, 2/3 majority vote, etc.).
- 23) There are clear groundrules that govern how people should interact.
- 24) The US Forest Service and Bureau of Land Management respond in a timely way to all questions, comments, and requests.
- 25) Pay attention to the physical arrangement of tables and chairs at the meetings.
- 26) Opportunity can't be an empty shell; there need not only be opportunities to be heard but there also has to be some way for the public to see that the decision makers are listening.
- 27) Discuss the values underlying people's opinions about the issues.
- 28) There are mechanisms for communicating to the broader public about what decisions are being considered and made.
- 29) Validate all information to make certain it is correct.
- 30) Participants who represent groups check in with their memberships regularly to ensure that they represent their views accurately.

Table 2, continued.

- 31) Everyone has an equal chance to put their concerns on the agenda.
- 32) The process improves the participants' skills to participate effectively in processes like this (e.g., problems solving, conflict resolution, communication).
- 33) The process has to be able to limit topics of discussion in order to avoid quagmires.
- 34) The process improves participants' understandings.
- 35) The process requires unbiased and independent facilitation.
- 36) The process ends up enhancing the trust between the community and the US Forest Service and Bureau of Land Management.
- 37) The purposes and goals of the process are clear to all involved.
- 38) The process does not make any pre-existing conflicts worse.
- 39) All participants have equal access to information.
- 40) All important stakeholders are taking part in the process.
- 41) There is full disclosure of information at all times.
- 42) At the end of the process there is a clear plan for how to implement the final decision.
- 43) The staff involved are receptive to questions or requests for information from the public.
- 44) The process makes progress on solving the right problem.
- 45) Get the right information.
- 46) The process produces outcomes that are acceptable to me or my organization.
- 47) The process taps the knowledge and experiences of local people.
- 48) The process produces outcomes that are acceptable to the US Forest Service and Bureau of Land Management.
- 49) The process needs an effective leader.
- 50) One outcome of the process is a plan to ensure that the promises made are actually followed through, that organizations are accountable for their promises.
- 51) There is adequate administrative support (e.g., funding, staffing) for the life of the process.
- 52) The process is well-timed to the US Forest Service's and Bureau of Land Management's window of opportunity to act.
- 53) There is adequate notification of meetings, comment periods, etc.
- 54) Allow time to re-visit issues and decisions, even if it means extending the timetable.
- 55) Participants are involved in deciding *what* studies ought to be done.
- 56) Participants are involved in deciding *how* studies ought to be done.

The statements sorted by the participants were chosen by the research team to represent the fullest possible extent of content relative to the topic.² It was essential that these statements apply to each of the ten case studies in the larger research project. For each case, several of the statements were adapted so that references to the relevant decision-making body were appropriate to each case. For example, a reference to the US Forest Service in one case was changed to the US Department of Energy in another case.

At the start of the Q sort exercise, the researcher read a “condition of instruction.” This specified the context under which the participant should interpret and react to the Q statements. In this case the condition of instruction was:

Imagine that the process of forestry planning in the Applegate region was to begin again. Sort the statements according to what you believe should be the most important to least important factors guiding the design of the process.

This condition of instruction was designed to focus the participant’s thinking on the topic of forest management in the Applegate region specifically. We wanted to draw on the participant’s experience with the decision-making and public participation processes to-date and at the same time get his or her ideas of what would be the best way to design a process right now. We wanted to tap into people’s present experience and understandings, as opposed to asking people to think about what would have been the best process some years ago.

This is how the Q sort happened. We asked each participant to read all the statements through once or twice. Then we asked them to sort the statements into three piles, the left-hand pile being the less important ideas, the right-most pile being the most important ideas, and the middle pile being in between. The Q sort was further constrained by forcing participants to sort the cards into a specific pattern. This pattern is shown in Figure 1.³ Three cards could be placed in the two left-most columns, four in the third column, and so on. The scale was relative, not absolute. In other words, a certain participant may have felt that *all* the statements were important, but he or she still had to differentiate between the *most* and *least* important. Thus, it is important to note that, while the right-most edge contains statements the participant thought were most important, and the left-most edge contained statements considered least important, the middle *does not* contain statements that are viewed as irrelevant or unimportant.

² It is important to note that in a Q study the sample is *not* the people who sort the statements; rather, the sample in a Q study is the set of Q statements, the population is the “concourse” of utterances that have been made on the topic, and the completed Q sorts are the variables. This is just the opposite of standard survey techniques.

³ A question has arisen among researchers using Q methodology about whether the pattern into which people are required to sort the Q statements, such as the normal distribution shown in Figure 1, matters to the results that are obtained. The conclusion among researchers of Q is that the use of a normal distribution makes little or no difference to the results of a study. We elected to use the normal distribution because we find it helps people sort the cards and because it enables us to use software that we prefer.

Participants reported the Q sort was innovative, fun, and that it stimulated their thinking. During the Q sort the researcher asked the participant to talk about the sorting and how he or she interpreted the statements. These comments were recorded and used to help interpret the results.

Figure 1. Layout for Q sort cards.

Least
Important

Most
important

Q Method Data Analysis

Q sort data were entered into a special computer program called MQMethod.⁴ This program computes the statistical analysis.⁵

The analysis that is part of Q method reveals both the content of the social discourses present in the group of participants and the extent to which particular individuals believe or ascribe to the different discourses. The assumption is that these social discourses exist partially in the subjectivity of individuals, but they are also a product of social interaction. Rarely will one find an individual whose subjective beliefs completely match the social discourse. In addition, while perspectives are held subjectively, similarities among individual views make it possible to articulate a small number of social discourses on a topic.

We arrive at the meaning of each of the social discourses that emerges from the analysis by using three approaches. First of all, we relied on the statistical analysis achieved by the MQMethod program. This is explained in detail below. Second, we ran an audiotape during the Q sort exercise and recorded the conversation we had with the participant during the sort. We asked the participant to interpret their sort and to explain how he or she interpreted specific Q statements. We had these tapes transcribed and used them to help interpret the statistical output when composing the perspective narratives. Third, we mailed a narrative description of each social discourse to a participant whose sort was most strongly correlated with it. That is, we endeavored to find the participant who was most representative of the perspective represented by the social discourse and then asked him or her to verify its clarity, content, and emphasis.

MQMethod is basically a factor analysis program. A factor analysis is a way of identifying a handful of underlying variables that account for changes among a much larger group of measured variables. In this instance, the 12 Q sorts are the measured variables and the factor analysis reduced them to five variables, which are called “factors.” The program produces factors that are represented as a specific Q sort. The factors identified in the analysis represent “ideal types.” Typically, the analysis reveals that each individual’s beliefs strongly shares features represented in one factor (which represents a social discourse), and has only moderate to little agreement with the others. In some cases, however, an individual’s beliefs may share features of multiple perspectives. The degree to which an individual’s beliefs share features with an “ideal” discourse is represented by a score derived as part of the factor analysis. These scores are called “factor loading scores” and a +1.00 would indicate that participant’s sort exactly matched the factor, a 0 would mean there were

⁴ This freeware program is available through <http://www.qmethod.org>. Readers interested in learning more about Q method will find this website informative.

⁵ MQMethod computes a correlation matrix among the Q sorts and performs a factor analysis on the correlation matrix. Any statistical factor analysis requires a certain amount of judgment in determining the factors. We started every analysis using Principle Components Analysis followed by the varimax solution. Theoretically this solution accounts for the most variance in the data. Frequently, we were satisfied with the varimax solution. However, theorists in Q methodology argue that the varimax solution is not necessarily theoretically relevant and that judgmental hand rotation is sometimes needed to find the most appropriate solution. Judgmental hand rotation is extremely time consuming. We employed it only when we felt that the varimax solution missed an important perspective. When we did use judgmental hand rotation, we selected our factors based on three criteria. First, the solution should account for over 50% of the total variance in the data. Second, each factor solution had to account for at least 10% of the total variance. Third, the factor had to be meaningful and theoretically important.

no similarities at all, and a -1.00 would indicate that participant's sort was the exact opposite of the factor sort.

Q Method Results

Five distinct and coherent factors — or what we will continue to call perspectives on public participation process — emerged from the analysis.⁶ Each is characterized by a particular rank ordering of the Q statements into the eleven categories from “least important” (-5) to “most important” ($+5$), as shown in Figure 1, above. A statement ranking $+5$ strongly defines that perspective while a statement ranking -5 is much less associated with the meaning of that perspective. In other words, the perspectives are defined by the rankings of all the statements relative to each other. Table 3 presents the statement rankings for each of the five perspectives. The end product of the Q study is a set of narrative descriptions of each perspective.

Table 4 presents the re-ordered factor matrix showing the loading scores on each perspective for each participant who completed the Q sort. The individuals participating in our research have been given aliases to maintain confidentiality. A loading score greater than 0.4165 is statistically significant at the 0.05 level. This means that there is at most a 5% chance of the person loading on that factor being the result of a random event.

Table 4 shows that there are five different perspectives on what would be the appropriate public participation process.⁷ Table 5, which presents the correlation coefficients among the factors, indicates that these five perspectives are largely independent. The closest correlation is between perspectives D and E, which are 38% alike.

⁶ It is important to note that we cannot claim that these are the only perspectives that exist – there may be perspectives that we did not capture because they were not represented by the people we studied. We sought to overcome this potential problem by selecting a diverse group of people to complete the Q sorts, as described above. In addition, we cannot make any claims about the frequency of the perspectives in the larger population of people involved with this case study; this is an inherent limitation of Q methodology.

⁷ Recall that the condition of instruction was: *Imagine that the process of forestry planning in the Applegate region was to begin again. Sort the statements according to what you believe should be the most important to least important factors guiding the design of the process.* In other words, we are gathering peoples' ideas of what would be the most appropriate process right now.

Table 3. Ranking of each statement for each perspective.

No.	Statement	Perspective				
		A	B	C	D	E
1	Set up a situation that encourages all participants to listen to what others say and to consider it carefully.	2	0	0	0	1
2	Use the best available science in the analysis.	3	-1	4	2	3
3	Establish relationships that promote constructive collaboration among participants.	2	0	-3	5	2
4	Acknowledge and explore uncertainties.	1	0	-1	-4	3
5	Develop a common language and understanding among participants.	2	1	-3	0	0
6	Reach out in a number of different ways through different mechanisms to different communities on different issue points, throughout the process.	-3	2	-3	-1	0
7	Work to build trust among the different participants during the process.	3	2	1	2	2
8	Hold meetings at different times and places so no one is excluded from participating.	-2	4	1	-5	-4
9	Participants should be courteous and respectful to one another.	3	5	-1	3	1
10	Provide financial resources that enable people to participate effectively (e.g., travel, hire experts).	-5	-1	1	-2	-3
11	Participants should see beyond their individual interests to what is good for the larger community.	1	1	0	2	4
12	The process cannot be open to just anyone who wants to participate, participation has to be restricted in some way.	-4	-5	-2	0	-5
13	Participants should be accountable for what they say, sincere in their promises, and reliable in carrying them out.	0	2	1	3	4
14	The process gives recommendations to the US Forest Service and Bureau of Land Management, who then makes the final decisions.	5	-2	-2	1	-5
15	Participants should have reasonable expectations about what the agencies are able to do.	5	-4	-5	3	0
16	All important decisions are made according to consensus (incl agenda).	-5	0	3	-2	-3
17	Participants should attend meetings regularly and see tasks through to completion.	-1	0	2	1	-2
18	It is clear under what conditions the process will end.	-1	-3	-5	-2	-4
19	Participants should be able to deal with complex technical issues.	-4	-5	-3	-5	-2
20	Every recommendation is justified with evidence.	1	-5	0	-1	2
21	Participants should feel comfortable and safe at the meetings.	1	4	-4	3	1
22	Consensus is used to decide what rule is used to make decisions (simple majority vote, 2/3 majority vote, etc.).	-5	3	-4	-3	1
23	There are clear groundrules that govern how people should interact.	2	5	-1	4	1
24	The US Forest Service and Bureau of Land Management respond in a timely way to all questions, comments, and requests.	4	-1	2	-1	-2
25	Pay attention to the physical arrangement of tables and chairs at the meetings.	-2	3	-2	-5	-3
26	Opportunity can't be an empty shell; there need not only be opportunities to be heard but there also has to be some way for the public to see that the decision makers are listening.	0	0	5	0	1
27	Discuss the values underlying people's opinions about the issues.	2	2	-5	-4	5
28	There are mechanisms for communicating to the broader public about what decisions are being considered and made.	0	-1	0	-1	-4
29	Validate all information to make certain it is correct.	0	-1	1	1	-1
30	Participants who represent groups check in with their memberships regularly to ensure that they represent their views accurately.	-1	0	0	-3	-3
31	Everyone has an equal chance to put their concerns on the agenda.	-3	4	3	-2	0
32	The process improves the participants' skills to participate effectively in processes like this (e.g., problems solving, conflict resolution, communication).	-3	-1	0	0	-1
33	The process has to be able to limit topics of discussion in order to avoid quagmires.	-2	-2	-2	4	-1

Table 3, continued.

34	The process improves participants' understandings.	-2	0	-1	0	0
35	The process requires unbiased and independent facilitation.	0	1	-1	4	4
36	The process ends up enhancing the trust between the community and the US Forest Service and Bureau of Land Management.	5	1	2	2	0
37	The purposes and goals of the process are clear to all involved.	0	1	-1	2	4
38	The process does not make any pre-existing conflicts worse.	-1	-2	0	-1	-5
39	All participants have equal access to information.	-2	3	4	1	2
40	All important stakeholders are taking part in the process.	1	-3	5	-1	1
41	There is full disclosure of information at all times.	1	0	3	2	2
42	At the end of the process there is a clear plan for how to implement the final decision.	0	-2	5	0	0
43	The staff involved are receptive to questions or requests for information from the public.	2	0	3	-1	-1
44	The process makes progress on solving the right problem.	-1	-1	-1	0	3
45	Get the right information.	1	-3	1	0	5
46	The process produces outcomes that are acceptable to me or my organization.	0	-4	2	-3	-2
47	The process taps the knowledge and experiences of local people.	0	2	4	1	3
48	The process produces outcomes that are acceptable to the US Forest Service and Bureau of Land Management.	4	2	-4	-4	-1
49	The process needs an effective leader.	-2	-4	-2	5	0
50	One outcome of the process is a plan to ensure that the promises made are actually followed through, that organizations are accountable for their promises.	0	1	0	1	0
51	There is adequate administrative support (e.g., funding, staffing) for the life of the process.	3	3	0	5	-1
52	The process is well-timed to the agencies window of opportunity to act.	4	-2	-2	-3	0
53	There is adequate notification of meetings, comment periods, etc.	-1	5	1	-2	-2
54	Allow time to re-visit issues and decisions, even if it means extending the timetable.	-1	1	0	-2	-1
55	Participants are involved in deciding <i>what</i> studies ought to be done.	-4	-2	2	1	1
56	Participants are involved in deciding <i>how</i> studies ought to be done.	-3	-3	2	0	-2

What is particularly important is that all but three people loaded significantly on only one perspective. The exceptions are Beckley, Chavez, and Oakes⁸, who loaded significantly on two factors each. Oakes is a significant *positive* loader on Perspective D and a significant *negative* loader on Perspective A. This result suggests that these individuals expressed points of view that are unique and not captured by any of the five “ideal types” emerging from this solution. It suggests there is another factor solution that might be appropriate.⁹ However, when we investigated this possibility, through additional judgmental hand rotation of factors, we discovered all new solutions that were produced had many more participants confounded on more than one factor, higher inter-factor correlations, and/or less variance explained. Thus, these alternative solutions were not as informative about the differences in preferences among the participants in our study.

⁸ To maintain confidentiality we have used aliases for each of the people who participated in our study.

⁹ There are, in principle, an infinite number of possible factor solutions. None is “more right” than another in any objective sense. Researchers justify their solution on various grounds. One solution, called the “varimax” solution, is popular for mathematical reasons. It is the solution that explains more of the variation in the data than does any other solution. This does not necessarily mean the varimax solution is more meaningful or “correct” than any other solution. We relied on varimax because of its elegance and simplicity, but we used judgmental rotation when we felt a more meaningful solution could be arrived at.

Table 4 reveals that the first perspective is strongly defined by one person in our study (Johnson). Perspective A accounts for 10% of all the variance. It defines a viewpoint opposed in some aspects by Oakes, which is indicated by his/her significant *negative* loading score on this factor. The fact that some of these perspectives are unique or based on one or two participants is not unexpected, since we intentionally selected people who would have very different points of view. Sims has a positive, but not significant, loading score (+0.34, n.s.)¹⁰ on this perspective, which means s/he agrees in part with this view.

Perspective B is shared by two individuals. Beckley also loads significantly on Perspective E. There are two reasons why an individual might load on more than one perspective. First, he/she might have a unique point of view that is not captured in the perspectives offered by this solution to the factor analysis. Second, they may be very open minded, not have formed a strong opinion, or be willing to believe that there are several valid perspectives and, in the absence of being forced to choose among them, they endorse more than one. This perspective is opposed by Chavez, who had a significant negative loading score (-0.70). Sanderson also seems to believe in portions of Perspectives A (+0.26 n.s.), C (+0.30 n.s.), and D (+0.36 n.s.), but none of these loading values were statistically significant. Ferris appears to agree with some aspects of Perspective B, with a positive loading score of 0.38 (n.s.).

Perspective C is defined by Roy and Chavez, but Roy's correlation (+0.90) suggests s/he is largely responsible for this viewpoint. This appears to be the most independent factor, having nearly zero inter-factor correlations with all other factors (see Table 5).

Perspective D accounts for most of the variance, which means, among our small group of participants it is the most widely held view. Five people loaded significantly on it. This perspective is weakly correlated with Perspective E (inter-factor correlation is 0.38, in Table 5). Sanderson and Ferris have positive loading scores on Perspective D as well (0.36 n.s. and 0.39 n.s., respectively), suggesting some agreement with aspects of it.

Perspective E is defined by Aldin, Beckley, and Ferris. Beckley loaded more strongly on Perspective B, which is why s/he is listed under that line in Table 4. Oakes and Sims have positive loading scores on Perspective E as well (0.36 n.s. and 0.33 n.s., respectively), suggesting agreement with aspects of it.

In each of the following sections we present the perspective narratives. These describe views the participants in our study have about the most appropriate process they would create if they were responsible for designing a new effort to plan for forest management in the Applegate region. Since the narratives are constructed from the Q statements, references to important Q statements are included in the descriptions below.

¹⁰ n.s. means "not statistically significant at the 0.05 level or better."

Table 4.
Re-ordered factor matrix of loading scores for participants (aliases used).

	Loading scores on perspectives				
	A	B	C	D	E
<i>Perspective A</i>					
Johnson	0.83	0.00	-0.07	0.23	0.24
<i>Perspective B</i>					
Beckley	-0.01	0.67	0.12	-0.06	0.54
Sanderson	0.26	0.66	0.30	0.36	-0.16
<i>Perspective C</i>					
Roy	-0.09	0.04	0.90	-0.11	0.09
Chavez	0.14	-0.70	0.43	0.11	0.01
<i>Perspective D</i>					
McNeil	0.04	0.11	0.18	0.85	-0.08
Thomas	0.10	-0.17	0.27	0.74	0.13
Lewis	0.09	-0.09	-0.24	0.59	0.25
Oakes	-0.53	0.05	0.06	0.58	0.36
Sims	0.34	0.11	0.09	0.55	0.33
<i>Perspective E</i>					
Aldin	0.04	-0.08	0.15	0.21	0.82
Ferris	0.12	0.38	-0.09	0.39	0.57
Variance explained	10%	13%	11%	22%	14%

Table 5.
Correlations Between Perspectives.

Perspective	A	B	C	D	E
A	1.0	0.10	-0.08	0.30	0.27
B		1.0	0.02	0.11	0.23
C			1.0	0.05	0.07
D				1.0	0.38
E					1.0

Perspective A

Perspective A is dominated by those with a strong concern for the agency's needs. The most highly ranked statements in this perspective all center around the needs of the US Forest Service and the Bureau of Land Management. The most significant statement is that the primary goal of the process is to give recommendations to the agency (14). The next four most definitive statements have to do with these agencies' ability to act on the recommendations. First, the participants should have reasonable expectations about what the agency is able to do (15). This indicates some desire to protect the agencies from public demands that lie outside the agencies' mandates or which expand the dialogue beyond the scope of the agencies' definition of the problem. Second, the process should end up enhancing trust between the communities and the agencies (36). Agencies frequently seek community trust because it enables them to act without having to justify everything they do to an acrimonious public. Third, the process should produce recommendations that are acceptable to the agencies (48). The fourth statement is that the process be well-timed to the agencies' opportunity to act (52).

There is also an understanding in this perspective that the agencies have certain responsibilities to fulfill in a process. The agencies must respond in a timely way to all questions, comments, and requests (24), must provide adequate administrative support (51), and agency staff should be receptive to questions or requests for information from the public (43).

This perspective depicts a process that centers around establishing good relationships among those participating. This means setting up a process that builds trust among participants (7), encouraging participants to be courteous and respectful (9), and setting up a situation that encourages listening (1). A difference with other factors has to do with lower rankings assigned to process features related to enhancing participants' access to the process and sharing power. Assuring access by a wide body of the public to this process was not a priority. Ranked low were statements about providing financial resources to enable people to participate (10), reaching out to different people and places to maximize participation (6), and holding meetings in different times and places (8). There is a reluctance in this perspective to share power because ranked low were statements related to using consensus in decision-making (16, 22), the degree of participants' involvement in deciding what kinds of studies to do and how to do them (55, 56), everyone having an equal chance to putting things on the agenda (31), and giving participants equal access to information (39). Support for tapping the knowledge and experience of local people (47) is weaker in this perspective than the others.

Perspective B

In this perspective, attendance is primary. Meetings need to be adequately advertised and announced well ahead of time (53) and they need to be held at different times and places so that all sorts of people have an opportunity to attend (8). It is also important that the organizers of the process reach out to different people in different ways, through different means, throughout the course of the process (6). Among the least supported statements was the one that proposed restricting who can participate (12).

Once people are in attendance, they have certain responsibilities to fulfill. They need to participate in a respectful manner (9) and be accountable for what they say, sincere in their promises and reliable about carrying them out (13). Along with these responsibilities come certain liberties. First of all was the lack of support for the statement about participants having reasonable expectations of what the agencies are able to do (15), which was ranked very high in Perspective A. This implies participants should have freedom to define the problem in whatever way they see fit. Participants must be able to get their concerns onto the agenda (31) and have access to all available information (39). Both of these latter points are linked to the issue of power, the second major aspect of this perspective. Many of these features are also important because it is important for people's time to be used wisely.

People who loaded on this perspective were sensitive to mitigating power imbalances among participants. One example is the strong support for having clear ground rules that govern interaction (23). There was not strong support for having an effective leader (49), because of the possibility that a strong leader could infringe upon the participants. There was also weak support for the assertion that all important stakeholders participate (40), because the process should not be held hostage to the actions of any one group. The strong support for statements about the participants being courteous and respectful (9) and feeling comfortable and safe (21) address an important attribute of a power-balanced discourse. If people are going to be able to speak frankly, openly, and to challenge others' assertions, they need to do so in a polite and respectful way. Likewise, those challenged need to feel that they are not being personally attacked, but that they are merely being asked to supply justification for their claims. Finally, giving everyone equal access to setting the agenda is one way to ensure that the concerns of weaker groups are not ignored (31). Using consensus to decide how major decisions will be made gives participants another way to protect their interests (22). This perspective also recognized the importance of the physical arrangement of chairs and tables at the meeting space (25).

In contrast to the following perspectives, those holding this view do not place a premium on the role of information in the process. A number of statements about information were ranked low. There was no support for the idea that all recommendations should be supported with evidence (20). There was not strong support for getting the right information (45), using the best available science (2), or validating all information (29). Neither was there support for having participants involved in what studies should be done (55) or how studies should be done (56).

Perspective C

Perspective C combines a concern for ensuring that important stakeholders have meaningful involvement with good information. It is important that all of the important stakeholders are involved (40). In addition, they should feel that they are listened to (26) and the process leads to a plan for implementation (42). In this way the process can lead to meaningful outcomes.

To ensure that participation is meaningful, those holding this perspective are also concerned with issues of power. Information should be accessible (39) and fully disclosed (41); information is power. All important decisions should be made by consensus (16) and

each party should be able to place issues on the agenda (31). Interestingly, the need for consensus to determine which decision rule should be used (22) was ranked low on this perspective. Similarly, there was very little concern within this perspective for the quality of discussions (e.g., facilitation (35), collaborative relationships (3), trust (7), and respect (9)).

The availability of good information is very important to those holding this perspective. The best available science should be used (2). The process should tap the knowledge and experiences of local people (47). Ranked higher on this perspective than the others is the need for the responsible agencies to be receptive to questions (43) and to respond in a timely way to all questions, comments, and requests (24). In addition, the statements about the need to have participants involved in deciding what studies to do and how to do them (55, 56) are ranked more highly in this perspective than the others.

This perspective is not about meeting the needs of the responsible agencies. The process does not need a clear end (18) and it is unimportant for the process to produce outcomes acceptable to the agencies (48). It is not important that participants have reasonable expectations about what the agencies are capable of doing (15).

Perspective D

This perspective describes a process where leadership is competent, participants are reasonable, and conflict is managed. Most important to those subscribing to this perspective is the presence of an effective leader (49), who is supported by adequate administrative resources (51) and unbiased independent facilitation (35). A central task for leadership is to establish relationships that promote constructive collaboration among participants (3). This means, participants are courteous and respectful (9), accountable for what they say (13), they have reasonable expectations for what the agency can do (15), they feel comfortable and safe at the meetings (21), and they see beyond their self-interests to the common good (11, 46).

According to this view, the process should run smoothly. This means managing conflict so that it does not derail the process. One of the main roles for the facilitation is to limit topics of discussion in order to avoid quagmires (33). Having clear ground rules that govern interaction (23) is also essential to managing conflict. Three topics that can engender conflict were all ranked low in this perspective: discuss the values underlying peoples' opinions (27), acknowledge and explore uncertainties (4), and allow time to revisit issues and decisions (54). The statement about not making pre-existing conflicts worse was not ranked as high as we might have expected, but the weight of evidence does support the idea that managing conflict is important to this perspective. Conflict is also lessened in a discussion space where the participants feel comfortable and safe (21).

In this view, the desired outcome is not a clearly implementable plan (42), or even progress on solving a problem (44). It is not about producing outcomes acceptable to any one group (46) or to the regulatory agency (48). Instead, the process should establish a constructive, collaborative relationship among all involved (3) and enhanced trust between the responsible agencies and the community (36).

Perspective E

Those subscribing to this perspective place a premium on informed discussion of all important issues, including facts and values. This was the only perspective that thought it was important to discuss *both* facts (45) and values (27). Both of these items were given the highest ranking by this perspective.

In order to have a competent discussion of the facts, it is important that the process tap the knowledge and experiences of local people (47), use the best available science in the analysis (2), and acknowledge and explore uncertainties (4). This perspective is not concerned with the process making existing conflicts worse (38). Information should inform discussions (39, 41) and every recommendation should be justified with evidence (20). Better information can be obtained when participants are involved in deciding what studies ought to be done (55) but it is less important that participants be involved in deciding how the studies should be done (56).

To accommodate discussions of values, there should be unbiased and independent facilitation (35). Participants should focus on the common good rather than narrow self interests (11) and they should be accountable for what they say (13). The discussion is likely to be better when trust is established among the participants (7) and there are clear ground rules that govern interactions (23).

Unlike perspective D, this perspective contains a pragmatic interest in making sure that progress is made on the right problem (44). This is more likely to happen if all participants are aware of the purposes and goals of the process (37).

Unlike Perspective A, this perspective is not oriented to the needs of the agencies involved. The second lowest ranked item was that the process should give recommendations to the responsible agencies (14).

While this perspective emphasizes access to discussions of facts and values, procedural features that would promote access and ensure accountability and legitimacy were not ranked highly. Ranked low in this perspective are statements about holding meetings at different times and places (8), mechanisms for communicating with the broader public (28), having participants check in with the group's membership (30), providing financial resources to enable participation (10), and adequate notification of meetings (53). According to Aldin, the highest loader on this perspective, we learned that these features are not felt to be very important because of the characteristics of a rural community where word travels fast and financial support has not been a useful incentive for promoting involvement.

Comparison of Perspectives

There are many similarities and differences among these perspectives. Here we will highlight several.

One area of agreement across all five perspectives is a general lack of concern about whether the process improves participants' understandings (34) or skills (32). Statements about each of these qualities received relatively little emphasis, despite the fact that they were emphasized in other case studies. This may be because Applegate Partnership participants feel they already have good understandings and good participation skills.

Another area of consensus was the lack of support for the idea of restricting participation to people without adequate technical knowledge (19) or any other reasons (12). A third item of consent was the very moderate support for the process producing a plan for ensuring that promises made are actually carried through (50), another statement that proved key in other case studies, but was de-emphasized here.

The most consensual positive statement was that asserting the importance of building trust among Partnership participants (7).

Each of the Perspectives except for C places some emphasis on behaviors that underlie constructive, collaborative relationships. However, their ideas about how to achieve those relationships differ. Those holding Perspective A want to manage the demands of the participants and avoid having them push too hard for too much (15). Those subscribing to Perspectives B and D feel that respect (9) and clear ground rules (23) are keys to better dialogue. Perspectives D and E find an important role for facilitation (35), although the other perspectives eschewed it.

There are important areas of disagreement among these perspectives. First, there is a split among the perspectives about whose needs should receive the most attention. Those subscribing to Perspective A believe that the needs of the responsible agencies are primary. Those holding Perspectives C, D, and E de-emphasized the agencies.

In contrast to other perspectives, those holding Perspective B do not place a premium on the role of information (20, 45) or the role of science in the process (2). On the other hand, those subscribing to Perspectives A, C, and E view information as critical. Perspective E is unique in emphasizing the importance of *both* facts and values. No other Perspectives felt that discussion of values was an important input into deliberations. For instance, Perspective D de-emphasizes discussion of values because this can exacerbate the potential for conflict.

The need to develop trust was most emphasized by those subscribing to Perspective A. They wish to improve trust between the agencies and the community (36) and among different stakeholders in the process (7). Another relational aspect that differentiates perspectives is that in Perspectives A and D there is a desire that participants have reasonable expectations about what the responsible agencies can do (15). In Perspective A reasonable expectations are important so that people do not push the agency to do more than it can. In Perspective D the need for reasonable expectations is grounded in a strong desire to minimize

and manage conflict. Those holding Perspective C fear that discussions can be stifled if people are required to “be reasonable” from an agency point of view.

Finally, as suggested above, the desire to empower participants is a feature that distinguishes perspectives. Those holding Perspective A seek to minimize the power of participants and maintain the authorities of the responsible agencies. On the other hand, those holding Perspectives B and C wish to empower the participants through information, access, and ability to influence agendas. In Perspective D the power of leadership is more important than the power of the participants, in order to ensure that a process is well-run and conflict is minimized. In Perspective E it is not clear that one group is preferred to another.

Preferences for Outcomes

Because previous research has suggested that some people are strategic about which process features they prefer – they prefer processes that they think will produce specific end goals – we asked people to express their preferences for twenty different outcomes. In this section we describe the method by which this was accomplished and our findings.

Method

Twenty outcomes were written as statements on individual cards similar to those used for the Q sort (Table 6). They were selected by the research team based on data and experience in other studies.

The potential outcomes that can result from an environmental decision-making process can be of two general types. First, outcomes can be related to the building of capacity. Such outcomes include developing skills and knowledge, building relationships, and bringing new resources to the community. These types of outcomes are exemplified by outcomes 1 – 12 in Table 6. Second, outcomes can be related to substantive policy outcomes. Such outcomes include clear outcomes, a clear plan for implementation, equity in outcome distribution, and building support for outcomes. These types of outcomes are exemplified by outcomes 13-20 in Table 6.

After the Q sort was completed, we asked the participant to sort these outcome cards into three piles, where the right-most pile would be the outcomes they strongly preferred, and the middle and left-most piles were less preferred. Then we asked the person to choose from the right-most pile the three outcomes that they most preferred. This process resulted in four piles of cards, ranked from most preferred to least (or not) preferred.

Table 6. List of Outcome Statements.

- 1) The process improves the participants' skills to take part effectively in processes like this (e.g., problems solving, conflict resolution, communication)
- 2) The process improves participants' understandings of the issues.
- 3) The process improves participants' understandings of others' beliefs, values, and perspectives.
- 4) The process enhances trust between the community and the US Forest Service and Bureau of Land Management.
- 5) The process enhances trust among different parties/stakeholders in the community.
- 6) The process develops access to networks that allow new resources to be brought to the community (e.g., financial, technical).
- 7) The process promotes a regional sense of place.
- 8) The process improves people's ability to work together better.
- 9) The process strengthens democracy and rebuilds people's faith in government.
- 10) The process does not make any pre-existing conflicts worse.
- 11) The process builds the confidence and self-esteem of the participants.
- 12) The process helps create new and lasting interest groups that can continue to work on the issues.
- 13) The process results in clear outcomes.
- 14) There is a clear plan for how to implement the outcomes.
- 15) Costs and benefits of the outcomes are distributed in an equitable way.
- 16) The outcomes are personally desirable to me or my organization.
- 17) The outcomes satisfy the US Forest Service and Bureau of Land Management.
- 18) The outcomes have broad-based support within the community.
- 19) Participants feel a sense of ownership in the outcomes of the process.
- 20) One outcome of the process is a plan to ensure that the promises made are actually followed through, that organizations are accountable for their promises.

Outcome Ranking Results

The outcome data were entered into an excel spreadsheet. As part of this case study report we did not conduct any further analyses of these data because the number of study participants is small.¹¹

Table 7 shows the importance given to each of the potential outcomes by the twelve respondents. Each outcome card was placed by a respondent in one of four groups. The Table shows how often a card was placed in each group.

¹¹ These data are being used for further statistical analyses as part of our cross-case comparisons that will be described in a future report.

The results show that participants in our study have little consensus about which outcomes they prefer. Participants were concerned with both capacity building outcomes (#1-12) and substantive policy outcomes (#13-20). Only three statements had no one rank them in the lowest category, implying these were somewhat important to everyone. All three were related to capacity-building. These were:

- #2. The process improves participants' understandings of the issues;
- #5. The process enhances trust between the community and the agencies; and
- #6. The process develops access to networks that bring in new resources.

Likewise, three of the capacity-building related outcomes had no one rank them in the most important pile, suggesting these were not critically important:

- #2. The process improves participants' understandings of the issues;
- #7. The process promotes a regional sense of place; and
- #11. The process builds the confidence and self-esteem of the participants.

Several of the substantive policy outcomes were ranked low by all but a couple of the participants including:

- #15. The costs and benefits of the outcomes are distributed in an equitable way;
- #16. The outcomes are personally desirable to me or my organization; and
- #17. The outcomes satisfy the US Forest Service and BLM.

Table 7.
Ratings of outcome statements.

Outcome	Group 1 (lowest)	Group 2	Group 3	Group 4 (highest)
<i>Capacity Building Outcomes</i>				
1. The process improves the participants' skills to take part effectively in processes like this (e.g., problems solving, conflict resolution, communication)	3	4	4	1
2. The process improves participants' understandings of the issues.	0	5	7	0
3. The process improves participants' understandings of others' beliefs, values, and perspectives.	2	4	4	2
4. The process enhances trust between the community and the USFS and BLM.	2	5	2	3
5. The process enhances trust among different parties/stakeholders in the community.	0	4	4	4
6. The process develops access to networks that allow new resources to be brought to the community (e.g., financial, technical).	0	6	3	3
7. The process promotes a regional sense of place.	3	3	6	0
8. The process improves people's ability to work together better.	1	7	2	2
9. The process strengthens democracy and rebuilds people's faith in government.	4	4	2	2
10. The process does not make any pre-existing conflicts worse.	5	4	2	1
11. The process builds the confidence and self-esteem of the participants.	5	5	2	0
12. The process helps create new and lasting interest groups that can continue to work on the issues.	3	5	3	1
<i>Substantive Policy Outcomes</i>				
13. The process results in clear outcomes.	3	4	3	2
14. There is a clear plan for how to implement the outcomes.	1	3	4	4
15. Costs and benefits of the outcomes are distributed in an equitable way.	4	5	0	3
16. The outcomes are personally desirable to me or my organization.	8	3	0	1
17. The outcomes satisfy the US Forest Service and Bureau of Land Management.	8	3	0	1
18. The outcomes have broad-based support within the community.	1	5	3	3
19. Participants feel a sense of ownership in the outcomes of the process.	1	2	8	1
20. One outcome of the process is a plan to ensure that the promises made are actually followed through, that organizations are accountable for their promises.	2	4	4	2

Surveys

Participants were asked to complete two surveys. Copies of the surveys and the collective results are in Appendix B.

The first survey included questions that asked the person to document their perception of the present conditions in which the public participation process existed. For example, people were asked to assess on a scale from 0 (low) to +5 (high) the communication and conflict resolution skills that stakeholders in the community have at the present moment.

The second survey included five questions which inquired into the affiliation the individual had with interest groups associated with the controversy, his or her motivations for participating, and his or her experience with similar public participation processes.

Contextual Variables

The first survey included 32 questions that asked the person to document their perception of the present conditions in which the public participation process existed. The instrument included in Appendix B provides information about the responses we received as well. The number of times a statement was rated along the scale of 0 (low) to +5 (high) is shown in the appropriate cells. Because of the small number of respondents, and our commitment to protect anonymity, we will discuss the responses in general terms.

The results shown in Appendix B reveal that there are often disagreements about how individuals assessed contextual conditions. This is rather remarkable, given that these Partnership members have been working together for years. One way to examine this disagreement is to compute the maximum difference in rankings that were given for each of the questions. We looked to see which columns were occupied with a response.

For eight of the 32 questions there was the maximum difference in scores. Answers were spread across five columns. This means that there was significant disagreement among some of the participants. At least one person rated the item “very high” and at least one other person rated it “very low.” The eight questions for which there was the least agreement were:

- #1. Political pressure on agencies to really involve stakeholders;
- #2. Support for process from within agencies;
- #3. USFS and BLM previous experience with public participation;
- #7 Commitment of Applegate Partnership to hearing all points of view;
- #14 Support from political leadership for the process;
- #15 Support from local population for this process;
- #17 Cultural diversity among the regional communities; and
- #20 Density of social networks connecting the key interest groups.

For 15 of the questions there is a very wide difference in scores, where answers were spread across four columns. These also indicate substantial differences in perceptions. For eight questions scores are spread over three columns, indicating mild differences. There was only one question out of the 32 questions for which all scores were within two adjacent

columns. This implies strong consensus among the respondents (#21: How strong is the sense of place in the regional communities?)

We conclude from these results that we cannot take for granted that people will have similar perceptions about contextual conditions (such as trust, commitment interest groups, etc.). Just looking at these data, we see that people who have been active in the Partnership for some time still disagree about some important issues.

We are able to make a few general observations about how respondents' perceptions of context are related to their preference for process.¹² The person who loaded highest on Perspective A perceived political pressure on the USFS and BLM to really involve and listen to the local stakeholder groups (Question #1 in Appendix B) to be high. He or she also perceived strong support for the process from within the USFS and BLM (#2), strong support from political leadership for this process (#14), and high level of importance of this issue to the regional population (#16). The people who loaded highest on Perspectives C and D tended to view the political support (#14) and the level of importance to the regional population (#16) as weaker.

Respondents who also loaded high on Perspectives B, C, D, and E see the clarity of the policy issues being addressed (#24), clarity of the mandate for what the process is intended to achieve (#26), and extent of scientific consensus about the policy issue (#25) as weaker than the person from Perspective A. On the other hand, people subscribing to Perspectives B, C, D, and E believe that there are other ongoing process for involving the community and the Applegate region in forestry planning (#27), while the person who holds Perspective A believes that there are fewer ongoing options other than the Applegate Partnership.

Individual Variables

The second survey was used to gather information about each person's interest group affiliation, his or her motivations for participating, and his or her experience with similar public participation processes.

The responses from the twelve individuals reveal that about half were interested mainly in local issues (5 of 12) and half were interested in both local and national issues (6 of 12; as opposed to either local or national). They were also affiliated with a variety of interest groups (which is one of the reasons we chose them to participate in this case study). We asked people which interest groups they most identified with and only Native American and Tribal Government were *never* selected. People identified themselves with business and private industry (3 times), environmental groups (5 times), community groups (6 times), state and federal agencies (3 times), peace and social justice groups (2 times), educational and research institutions (5 times), local government (once), religious groups (once), and property rights (once).

¹² The data on which these findings are based are not presented here. Because of the small sample size these data would reveal people's identities. In our analysis of all ten case studies this analysis is done statistically. Those results are not presented in this report.

Table 8 shows how the individuals described their motivations for participating in efforts to manage forests of the Applegate region. In the survey, respondents were asked to assign a “1” for their most important motivating factor and a “2” for their second most important motivating factor. In this Table we have counted the number of times a factor was selected by a respondent, whether or not it was identified as a “1” or “2.”

The results illustrate that protection of ecological systems (i.e., conservation, preservation, or stewardship) was the most salient factor motivating people (6 times), as would be expected in a case that addresses forestry issues in a rural area of Oregon. Four people said that they participated because of a sense of civic duty, while no one said it was a job responsibility. Three people participated in order to improve quality of life in the area. Many other motivating reasons were selected (or provided in response to “other”) by one or two people.

Table 8.
**Number of people selecting factors that explain their motives
for being involved in this process.**

Reason for participation	Number of times selected
Protect the health of myself and/or my family	1
Protect the health of others (e.g., community, vulnerable populations)	2
Economic effects to myself and/or family	2
Economic effects to others (e.g., community, region)	2
Improve the quality of life (e.g., recreational opportunities, farm life)	3
Protect ecological systems (conservation, preservation, or stewardship)	6
Sense of civic duty	4
It is my job	0
Improve social or environmental justice	1
Redevelop community and sense of place	1
Find solutions that are not mutually exclusive	1
Develop sustainable community	1

Summary

This paper reports on the results from a case study that was performed as part of a larger research project whose goal was to advance knowledge of how best to involve members of the public in decision-making about contentious environmental and public health issues. We addressed four questions in this case study research having to do with people's preferences for process features and outcomes, and how these are linked to their perceptions of the context and individual factors, such as interest group affiliation and years of involvement with the issue. In this report we present our findings from our study of the process to address issues related to forestry management in the Applegate region of southern Oregon and northern California.

Our analysis revealed five distinct preferences for process design among the 12 people who participated in our case study research. Perspective A is mainly concerned with a strong concern for the agencies' needs. The primary goal of the process is to give recommendations to the agencies that are reasonable and within their mandates. For those who ascribe to Perspective B access to the dialogue is primary. People who loaded highly on this perspective were also sensitive to mitigating imbalances in power among participants in the process, including issues of how deliberations are managed and people interact. In contrast to other perspectives, those holding this view do not place a premium on the role of information in the process. Perspective C combines a concern for ensuring that important stakeholders have meaningful involvement with good information. To ensure that participation is meaningful, those holding this perspective are also concerned with issues of power. However, in contrast to Perspective B where power to participate and influence decisions is important, in Perspective C information is power. Those holding Perspective D are interested in promoting a process where leadership is competent, participants are reasonable, and conflict is managed. Conflict should be managed so that it does not derail the process. Hand in hand with good leadership must come cooperative and responsible participation. According to Perspective E a good process is based on informed discussion of all important issues, including facts and values. This was the only perspective that thought it was important to discuss *both* facts and values.

While those who participated in our study hold different ideas about what is a good process, there is general agreement about the types of outcomes that a process should endeavor to produce. Among those who participated in our study there was emphasis on both substantive policy outcomes and capacity building outcomes. However, there are also important differences in preferences for specific outcomes by those holding different perspectives about process. Preferences for process and for outcomes arise in part from people's perceptions of the context in which the effort is situated and who is participating. Although the sample in this case study is small (12 people), some suggestive trends were apparent in our results.

This report discusses one case study out of ten in our full project. The limited number of people in this case study make it impossible for us to draw any significant conclusions about the relationship between people's preferences for public participation process, and their preferred outcomes, personal beliefs and motivations, and personal assessment of the contextual conditions. What this case study does reveal is that even among a small group of

regular and experienced planners and participants there can be vast differences in all of these areas. One implication of this finding is that planners and participants in processes like this should engage in on-going discussions about process preferences and assessments of context and outcome preferences. Our final report from this research project will include a statistical analysis among these types of variables for 117 participants in our ten case studies. From these results we expect to be able to make specific recommendations for improving public participation.

References

- Applegate Partnership 2000. "Applegate Partnership." Available at The Applegate Community Homepage <http://www.rvi.net/~arwc/Applegate%20Partnership.htm>
- Brown S. R. 1980. *Political subjectivity*. New Haven: Yale University Press.
- Brown, S. 1986. Q Technique and method: Principles and procedures. In W.D. Berry and M.S. Lewis-Beck (eds.) *New tools for social scientists*. Thousand Oaks, CA: Sage.
- Brown, S. 1996. Q Methodology and qualitative research. *Qualitative health research*. 6(4): 561-567. <http://www.rz.unibw-muenchen.de/~p41bsmk/qmethod/srbqhe.htm>
- Dryzek, D. 1996. *Democracy in capitalist times*. NY: Oxford.
- Focht, W. J. 1995. *A heuristic political inquiry into NIMBY conflict: Exploring solutions to gridlock*. Unpublished Ph.D. dissertation. Oklahoma: Oklahoma State University.
- Kalof, L. 1998. Understanding the social construction of environmental concern, *Human Ecology Review* 4(2) 101-105.
- Kalof, L. 2000. The Multi-Layered Discourses of Animal Concern. In Helen Addams and John Stroop (eds.) *Social Discourse and Environmental Policy*. London: Edward Elgar Publishers.
- KenCairn, B. 1996. Peril on Common Ground: The Applegate Experiment. In P. D. Brick and R. M. Cawley (eds.), *A Wolf in the Garden: The Land Rights Movement and the New Environmental Debate*. Lanham, MD: Rowman and Littlefield.
- Moseley, C. and KenCairn, B. 2001. Problem solving or social change? The Applegate and Grand Canyon Forest Partnerships. In R. Vance, C. Edminster, W. Covington, and J. Blake (eds.), *Ponderosa Pine Ecosystems restoration and Conservation: Steps Toward Stewardship*. Conference Proceedings (RMRS-P-22), Flagstaff, AZ. Ogden UT: US Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- McGinnis, M. and Woolley, J. 2000. Changing California: From Wastesheds to Healthy Watersheds. Report. Center for Coastal Studies: Santa Barbara, CA. Available at: www.msi.ucsb.edu/msslinks/OCPC/OCPCtexts/watersh.htm
- McKeown, B. and Thomas, D. 1988. *Q Methodology*. Sage University Paper Series on Quantitative Applications in the Social Sciences 07-066. Beverly Hills, CA: Sage.
- National Research Council 1996. *Understanding risk: Informing decisions in a democratic society*. Washington, DC: National Academy Press.

- Normand, V. and Salazar, D. 1998. Assessing the meaning of ecosystem management in the North Cascades. In D.L. Soden, B. Lamb, and J. Tennert (eds.), *Ecosystems Management: A Social Science Perspective*, pg. 105-127. Dubuque Iowa: Kendall/Hunt Publishing.
- Pelletier, D., Kraak, V., McCullum, C., Uusitalo, U., and Rich, R., 1999. The shaping of collective values through deliberative democracy: An empirical study from New York's North Country, *Policy Sciences* 32(2):103-131.
- Preister, K. 1994. *Words Into Action: A Community Assessment of the Applegate Valley*. Xx: The Rogue Institute for Ecology and Economy.
- Stephenson, W. 1953. *The study of behavior*. Chicago: University of Chicago Press.
- Sturtevant, V. and Lange, J. 2003. From Them to Us: The Applegate Partnership. In Kusel, Jonathan and Elisa Adler (eds.), *Forest Communities, Community Forests: Struggles and Successes in Rebuilding Communities and Forests*. Pp. 117-133. Lanham, MD: Rowman and Littlefield.
- Woolley, J. and McGinnis, M, 2000. The conflicting discourses of restoration, *Society and Natural Resources* 13:339-357.
- Woolley, J, McGinnis, M, and Herms, W. 1998. Survey methodologies for the study of ecosystem restoration and management: The importance of Q-Methodology. In Kate Snow (ed.), *Critical methodologies for the study of ecosystem health*. Ann Arbor, MI: Sleeping Bear Press.

Appendix A: Case Studies in Research Project

1. Forest management in the Finger Lakes National Forest (NY). A process begun in 1998 to bring together citizens and stakeholders to identify issues for consideration in a revision of the forest management plan and also to resolve conflicts about trail use, land use management, and habitat management.
2. Forest management in the Applegate region (OR). An on-going project, begun in the early 1990's, to address forest planning issues in the Applegate region of southern Oregon is based within the Applegate Partnership. It has included a rich diversity of public participation opportunities.
3. Forest management in the greater Flagstaff region (AZ). An on-going effort of diverse stakeholders to address forest management issues in the Flagstaff region, including wildfire planning, is centered within the Greater Flagstaff Forests Partnership. It was established under a cooperative agreement with the US Forest Service. An Advisory Council provides recommendations to the Forest Service and it plans and assesses field experiments and technical studies to inform decision-making.
4. Morro Bay National Estuary Program (CA). Located near San Louis Obispo, this project is funded by the EPA National Estuary Program. It is a consensus-based approach that draws on citizens as well as stakeholder groups to participate in drawing up a management plan for the estuary.
5. Dungeness River Management (WA). A Dungeness River Management Team, established by the Clallam County Board of Commissioners and the Jamestown S'Klallam Tribal Council, has addressed a variety of water quality and water quantity issues arising from this river located in the Olympic Peninsula. The team includes participation from diverse stakeholders and state, county, local, and Tribal governments.
6. Raritan Basin Watershed Management Project (NJ). A long-term effort sponsored by the EPA to address non-point source pollution. Diverse participation has included local and state officials, community members, river protection committees.
7. Setting standards for clean-up of radionuclides in soils at Rocky Flats (CO). Various mechanisms have been used to provide input to the Department of Energy about the setting of "soil action levels" for clean-up of soils contaminated with plutonium. One process involves a Site Specific Advisory Board. A second is focused on providing input from local governments.

8. Assessing public health risks from radiological contamination at Fernald (OH). Fernald had one of four subcommittees established by the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry to provide advice about public and worker health related studies and activities around nuclear weapons facilities. This process has engaged local citizens in complex deliberations over the design and conduct of environmental health studies, including analysis of uncertainties.
9. Plutonium contamination from sewage sludge in Livermore, California. The Lawrence Livermore National Laboratory (CA) has been placed on the National Priorities List of Superfund sites for a variety of contamination problems. As one example, federal agencies determined that operations at LLNL contaminated processed sewage sludge from the Livermore Water Reclamation Plant with plutonium. As part of the assessment process for characterizing the public health risks from the plutonium contaminated sludge two opportunities were created for public involvement.
10. Boston Harbor Islands National Park Area (MA). A unique participation process that was started by the National Park Service in 1996 as an alternative to the “command and control” approach to running national parks. It consists of a two-tiered participation process consisting of an advisory council of 28 stakeholder group representatives who advise a partnership of 13 members that is responsible for managing the park.

Appendix B: Surveys

Name: _____

Case: _____

Below are a number of factors that can affect public participation. We would like you to measure the level of each factor at the PRESENT MOMENT.

		Very Low				Very High	Don't Know
1	Political pressure on the USFS and BLM to really involve and listen to the local stakeholder groups.	1	3	4	2	1	1
2	Support for the process from within the USFS and BLM.	1	1	7	2	1	0
3	Previous experience that the USFS and BLM have had with public participation.	1	2	5	2	1	1
4	Level of trust between interest groups and the USFS and BLM.	2	5	3	2	0	0
5	Level of trust among interest groups involved in the process.	1	4	5	1	0	1
6	Resources available to the Applegate Partnership that would help them run a good public participation process.	0	4	5	2	1	0
7	Commitment of the Applegate Partnership to hearing all points of view.	1	1	4	3	3	0
8	Commitment by the Applegate Partnership to seeing the process through to its end.	0	3	3	4	2	0
9	The community's economic dependence on the Applegate region's natural resources.	0	4	3	3	2	0
10	Stakeholders' prior experience working with each other on similar processes.	0	1	7	4	0	0
11	Stakeholders' skills at problem solving, conflict resolution, communication.	0	6	5	1	0	0
12	Stakeholders' familiarity with the issue.	0	1	4	5	2	0
13	How knowledgeable stakeholders are about each other's beliefs and values.	0	3	4	2	2	1
14	Support from political leadership for this process.	2	3	3	3	1	0
15	Support from local population for this process.	2	2	3	3	1	1
16	Level of importance of this issue to the regional population.	0	8	1	2	1	0
17	Cultural diversity among the regional communities.	3	1	5	1	2	0
18	Prior experience of participants working with the Applegate Partnership.	0	4	6	2	0	0
19	Availability of expert resources to the stakeholder participants.	0	2	1	6	3	0
20	Density of networks connecting the key interest groups.	1	4	3	3	1	0
21	How strong is the sense of place in the regional communities?	0	0	0	7	5	0
22	Commitment among key stakeholder groups to cooperate.	0	2	7	3	0	0
23	Existing strength of local democracy in the region.	0	4	3	4	1	0
24	Clarity of the policy issue being addressed.	0	6	3	2	1	0
25	Extent of scientific consensus about the policy issue.	0	5	2	4	0	1
26	Clarity of the mandate for what the process is intended to accomplish.	0	6	4	2	0	0
27	Number of other ongoing processes involving the community and the Applegate region.	0	1	3	2	4	2

28	Number of other ongoing processes involving the community and state or federal governmental agencies.	0	1	7	2	0	1
29	The extent to which key interest groups have established leadership, we already know who speaks for which groups in the community.	0	2	3	4	2	1
30	Number of well-established interest groups in the area.	0	0	3	6	3	0
31	Number of places where meetings could be held that participants will feel are safe (neutral) and accessible.	0	1	1	8	2	0
32	Amount of time available to solve the problem and reach closure.	0	2	7	1	1	1

Name: _____

Case: _____

1. In how many other participatory processes like this have you participated during the last 10 years?

0	1	2	3	4	5 or more

2. With which interest groups do you most closely identify? Please rank the top two, placing a "1" next to the most important group and a "2" next to the second most important group.

- _____ Business / Private Industry
- _____ Education / Research
- _____ Environmental
- _____ Native American
- _____ Property Rights
- _____ Community Groups
- _____ Religion
- _____ Peace or Social Justice
- _____ Local Government
- _____ State or Federal Government
- _____ Tribal Government
- _____ Other, please specify: _____

3. Are you mainly interested in: (Check ONE)

- _____ Local Issues
- _____ National Issues
- _____ Both Equally Important

4. For how many years have you been involved in issues related to this process?

0	1	2	3	4	5	6	7	8	9	10 or more

5. What best explains your motives for being involved in this process? Please rank the top three. Place a “1” next to the most important reason you got involved, a “2” next to the second most important reason, and a “3” next to the third most important reason.

- _____ Protect the health of myself and/or my family
 - _____ Protect the health of others (e.g., community, vulnerable populations)
 - _____ Economic effects to myself and/or family
 - _____ Economic effects to others (e.g., community, region)
 - _____ Improve the quality of life (e.g., recreational opportunities)
 - _____ Protect ecological systems (conservation or preservation)
 - _____ Sense of civic duty
 - _____ It’s my job
 - _____ Improve social or environmental justice
 - _____ Other, please specify:
-

Appendix C: SERI background

The Social and Environmental Research Institute is a tax-exempt public foundation that conducts research on a broad range of social and environmental issues (founded 1995). The Institute is committed to the integrity of theory and practice. It conducts applied research projects that realize the practical gains provided by theory and as a means to realize concrete benefits to individuals, society, and the environment. The Institute conducts theoretical and applied research in two principal areas: discursive approaches to policy; and social relations to the environment.

The Institute's research on discursive policy approaches addresses the roles of participatory, discursive, and democratic methods at all stages of the policy processes, including design, research, decision-making, implementation, and evaluation. Research in these areas seeks to improve our understandings and to enhance and develop processes that involve a search for just, equitable, and integrative solutions based on deliberating issues, clarifying interests, perspectives, and values; identifying and addressing issues of power and lines of influence; discovering common understandings; identifying mutual responsibilities; and negotiating shared principles. The Institute's main goals within these areas are to further theoretical and practical understanding of the conditions that lead to collective efforts to define and address shared problems, how individuals come to see their private interests linked with the shared interests of their fellow citizens and the non-human world, and the factors that facilitate collaborative learning about issues, self, and others. Specific areas of research include how: to integrate multiple values, technical and social expertise, and diverse interests; to provide a fair opportunity for the airing and consideration of concerns, opinions, and viewpoints; to provide opportunities for disenfranchised groups to develop knowledge and to influence all stages of policy processes; to design processes that are adaptive to changing knowledge and social, political, and environmental conditions; and to promote the development of skills of constructive dialogue and collective problem-solving. Our mission is grounded in a fundamental commitment to creating a society that maintains respect for diverse values and interdependencies between human spheres and the biophysical environment, and that furthers its development by providing opportunities for learning, in part through participatory policy processes, including design, research, decision-making, implementation, and evaluation.

The Institute's research on social relations to the environment includes a wide variety of themes and efforts whose common thread is a focus on how the natural environment shapes and influences people and society and how human actions affect the natural environment. Research in these areas aims to better our understanding of how people form beliefs and values about nature; how they rationalize their environmental actions; how they orchestrate and conceptualize environmental experiences; how social, economic, institutional, and cultural forces shape individual attitudes, beliefs, and actions; and how people draw on their experiences to nurture themselves, to mediate their environmental actions, and to socialize others. The Institute's main goals within these research areas are to enhance and develop psychological and social theory by drawing in new understandings of how the natural environment both mediates human action and thinking as well as offers new possibilities for learning; and to aid in the search for ways to balance human needs with environmental integrity. Areas of research include: environmental attitudes and behavior, valuation of non-

market goods, environmental perceptions, human dimensions of global environmental change, environmental education, environmental health, and sustainable development. Our work in these areas is driven by a recognition that humans and the natural environment are tightly coupled, especially as technology and world population growth increase the ability of human actions to affect natural systems.

List of related publications available from SERI

- Tuler, S. and Webler, T. 1995. Process Evaluation for Discursive Decision Making in Environmental and Risk Policy, *Human Ecology Review* 2(1):62-71.
- Webler, T. and Tuler, S. 1997. Valuing diversity, *Whole Terrain* 6:59-65.
- Tuler, S. and Webler, T. 1999. Voices from the forest: What participants expect of a public participation process, *Society and Natural Resources* 12:437-453.
- Tuler, S. and Webler, T. 2000. Public participation: Relevance and application in the National Park Service, *Park Science* 20(1):24-26, 47.
- Webler, T. and Tuler, S. 2000. Fairness and Competence in Citizen Participation: Reflections from a Case Study, *Administration and Society* 32(5):56-595.
- Webler, T., Tuler, S., and Krueger, R. 2001. What is a good public participation process? Five perspectives from the public, *Environmental Management* 27(3):435-450.
- Webler, T. and Tuler, S. 2001. Public Participation in Watershed Management Planning: Views on Process from People in the Field, *Human Ecology Review* 8(2):29-39.
- Tuler, S., Webler, T., Shockey, I., Stern, P. C., 2002. Factors influencing the participation of local governmental officials in the National Estuary Program, *Coastal Management* 30(1):101-120.
- Webler, T. and Tuler, S. 2002. Unlocking the Puzzle of Public Participation, *Bulletin of Science, Technology, & Society* 22(3):179-189.
- Webler, T. 2002. Radiation Risk Perception and Communication: A Case Study of the Brookhaven National Laboratory. SERI Report 4. Leverett, MA: Social and Environmental Research Institute.
- Tuler, S. 2002. Radiation Risk Perception and Communication: A Case Study of the Fernald Environmental Management Project. SERI Report 5. Leverett, MA: Social and Environmental Research Institute.
- Webler, T., Tuler, S., Shockey, I., Stern, P. C., and Beattie, R. (2003). Participation by local governmental officials in watershed management planning, *Society and Natural Resources* 16:105-121.

Reports for each of the case studies are also available from SERI.