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**Perspectives on Public Participation in Forest Management Planning**

**Case Study:  
Forest management in the greater Flagstaff, Arizona region**

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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?
2. 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 management, 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. The survey asked about 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 community members, local officials, regulatory agencies, and other interested and affected parties. 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 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. Companion reports are available about each of the other nine case studies. Other publications will be prepared that address the cross case comparisons and the summary findings from the project as a whole.

### *Disclaimer*

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### *Acknowledgments*

We thank the people who agreed to participate in our case study, generously contributing their time to interviews and the Q sort exercise. We would also like to thank Brian Cottam, former Coordinator of the Greater Flagstaff Forests Partnership, for his help in understanding the context of forestry issues in the area and identifying people to participate in our study. We greatly appreciate advice on Q methodology provided by Will Focht of Oklahoma State University.

# Forestry Management in the Greater Flagstaff Arizona Region

## 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 forestry management planning in the Flagstaff, Arizona region, with special emphasis on the Greater Flagstaff Forests 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 Flagstaff region of northern Arizona is dominated by Ponderosa Pine forests. Much of these forestlands are in public ownership, managed by the US Forest Service in the Coconino National Forest. In addition, the US Fish and Wildlife Service, the state of Arizona, Coconino County, and City of Flagstaff manage public lands in the area. Private ownership is also within the mosaic of forests in the area. Concern is growing over the potential for future large-scale wildfires in the urban-wildland interface, with Flagstaff at the center of that attention. In part, these concerns have arisen because historically these forests have been characterized by burns, which helped to reduce fuel loads and recycle nutrients into the soils (e.g., Mount Elden fire of 1977). In addition, there is growing concern for the ecological health of the forestlands in the area. These forests have been heavily impacted during the last century by logging, grazing, fire suppression, and urban development.

Out of such concerns the Greater Flagstaff Forests Partnership (formerly the Grand Canyon Forests Partnership) was established in 1996.<sup>1</sup> It was initiated by the local National Forest Supervisor and important local organizations with a stake in forest management. In 1998 the Greater Flagstaff Forests Partnership (GFFP) was formally recognized through a cooperative agreement with the US Forest Service (USFS 1998). It focuses its activities in the 180,000 acres of urban-wildland interface around Flagstaff and has three primary goals (GFFP 2002):

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<sup>1</sup> Additional information about the history and activities of the GFFP can be found on its web site, [www.gffp.org](http://www.gffp.org).

- a) to restore the natural ecosystem functions –within the range of natural variability – of the Ponderosa Pine forests in Flagstaff’s urban-wildland interface;
- b) to manage forest fuels within the urban-wildland interface to reduce the risk of catastrophic fire, and;
- c) to research, test, develop, and demonstrate key ecological, economic, and social dimensions of restoration efforts.

The approach of the GFFP is very much based on the idea of *partnership* and *adaptive management*. The emphasis on partnership results from a history of distrust and conflict that stalled forest management efforts (Moseley and KenCairn 2001). The idea of adaptive management is based on the recognition that forest ecosystems change over time, as well as the social and economic systems within them. There is a desire to involve stakeholders with diverse viewpoints in reaching consensus about workable approaches to reaching their ecological, economic, and social goals (GFFP 2002). In addition, the GFFP places great emphasis on research, testing, and monitoring in demonstration projects; participants desire to “use the best available science” to build useable knowledge on which to base projects, including restoration activities (e.g., Munoz et al. 2001, ForestERA 2002). Each year the GFFP develops an annual work plan to outline its plans, as well as to document its achievements. Funding is provided by the Forest Service through the Cooperative Agreement.

The GFFP is structured with a Board of Directors and a Partnership Advisory Board. This structure is, in part, a result of needing to conform to the Federal Advisory Committee Act (FACA) because the GFFP derives its formal status through the Cooperative Agreement with the Forest Service. As of 2002 there were 23 member organizations in the Partnership Advisory Board, as shown in Table 1. These members participate in all deliberations of the GFFP and provide recommendations to the Board of Directors, but all formal decisions are made by the rotating five members of the Board of Directors. While there is the intention that decisions be made with the consensus of all Advisory Board members, this is not a requirement. The GFFP also has a full-time coordinator and other hired staff. In addition, a Management Team works with the Forest Service to implement projects and other Partnership activities. This group is guided by the Advisory Board, and any member may join it with the agreement of the Board of Directors. Meetings are held monthly and are open to the public. The GFFP, through public meetings and other activities, seeks input from groups and individuals who do not wish to be members of the Partnership. In some cases, groups have not wanted to be formally connected to the GFFP because they seek other avenues for participation in regional forest management policy-making, including litigation (e.g., forest plan appeals) and NEPA hearings.

By and large the history of the GFFP has been one of broad, diverse participation in a collaborative atmosphere. Of course, there are differences of view and approaches that must be addressed. In some cases these occur between the Forest Service and the GFFP or some of its members. For example, there have been disputes about details of forest plans in some areas, and conflicts about the preferred alternatives in Environmental Impact Studies. In other cases, there are disputes among the members themselves about, for example, appropriate recommendations for the Forest Service (e.g., about size of trees that may be thinned, a “Large Tree Policy”). Such differences have led to frustration about making progress on certain issues within the Partnership and can exacerbate long-standing tensions between groups in the area with different policy

preferences and emphases (e.g., preservation, forest products utilization). At the same time, there is strong support for deliberating such issues and finding common ground.

**Table 1.**  
**Members of the Greater Flagstaff Forests Partnership**

<ul style="list-style-type: none"><li>• Arizona Public Service</li><li>• Arizona Game and Fish Department</li><li>• Arizona State Land Department</li><li>• City of Flagstaff</li><li>• Coconino County</li><li>• Coconino County Farm Bureau / Cattle Growers Association</li><li>• Coconino National Resource Conservation District</li><li>• Cocopai Resource Conservation and Development District</li><li>• Ecological Restoration Institute</li><li>• Flagstaff Chamber of Commerce</li><li>• Flagstaff Native Plant and Seed</li><li>• Grand Canyon Trust</li><li>• Highlands Fire Department</li><li>• Indigenous Community Enterprises</li><li>• Northern Arizona Conservation Corps</li><li>• Northern Arizona University, College of Engineering</li><li>• Northern Arizona University, School of Forestry</li><li>• Perkins Timber harvesting</li><li>• Practical Mycology</li><li>• Society of American Foresters, Northern Arizona Chapter</li><li>• The Arboretum of Flagstaff</li><li>• The Nature Conservancy</li><li>• US Fish and Wildlife Service</li></ul>
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**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 Brian Cottam, former Coordinator of the Greater Flagstaff Forests Partnership (GFFP).<sup>2</sup>

The identified individuals were approached via telephone or email 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

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<sup>2</sup> At the time of our fieldwork he was the acting coordinator.

them and that the entire process would take about one and one-half hours. In this case 13 people participated in our study. The list of participants is shown in Table 2.

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

- 1) complete a Q sort exercise 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.

**Table 2.**  
**Participants in the Flagstaff Forest Management Case Study**

- Jim Bell (GFFP member; Practical Mycology)
- Kent Bushman (GFFP member; Arizona Public Service)
- Brian Cottam (Coordinator (at the time of our fieldwork), GFFP)
- Richard Fleishman (US Forest Service)
- Roxanne George (Flagstaff Activists Network)
- Shaula Hedwall (US Fish and Wildlife Service)
- Lewis Humphreys (GFFP member; Greater Flagstaff Economic Council)
- Brett Ken Cairn (GFFP member and former GFFP coordinator; Indigenous Community Enterprises)
- Tom Kolb (GFFP member; School of Forestry, Northern Arizona University; Society of American Foresters, Northern Arizona Chapter)
- Taylor McKinnon (GFFP member and former GFFP coordinator; Grand Canyon Trust)
- Doc Smith (GFFP member; Ecological Restoration Institute, Northern Arizona University)
- Ed Smith (GFFP member; The Nature Conservancy)
- Paul Summerfledt (GFFP member; City of Flagstaff Fire Department)

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, although we expected, of course, that their experiences would inform their ideas for a new process. In the following sections we discuss each of these tasks and our findings.

## 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.<sup>3</sup> 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 3. 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.

The statements sorted by the participants were chosen by the research team to represent the fullest possible extent of content relative to the topic.<sup>4</sup> 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 a forestry management planning process for the Flagstaff region is going to be done again. Sort the statements according to what you believe should be the most important to least important factors guiding the design of the process.*

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<sup>3</sup> 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.

<sup>4</sup> 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 sorts completed by people are the variables. This is just the opposite of standard survey techniques.

**Table 3. 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, who then make the final decisions.
- 15) Participants should have reasonable expectations about what the US Forest Service is 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 responds 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.
- 31) Everyone has an equal chance to put their concerns on the agenda.

**Table 3, continued.**

- 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.
- 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.
- 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 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.

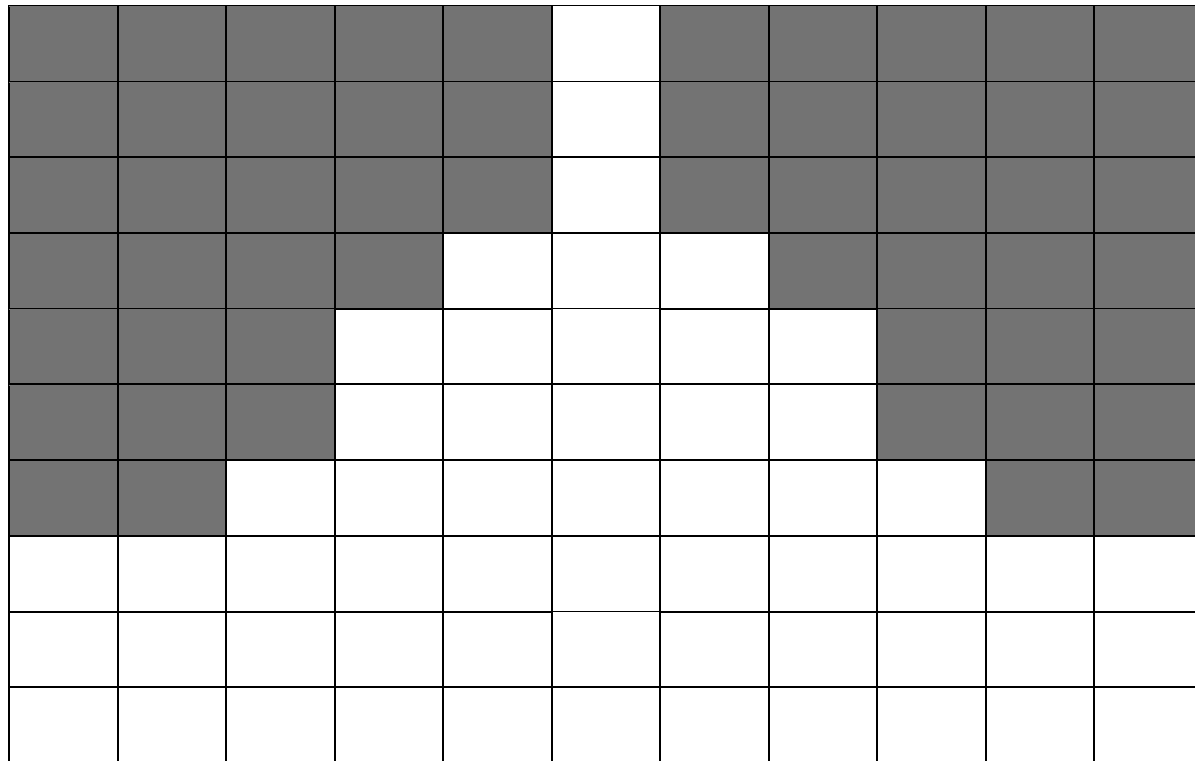
This condition of instruction was designed to focus the participant's thinking on the topic of forestry management in the greater Flagstaff, Arizona region specifically. We wanted to draw on the participant's experience with the decision-making and public participation processes to-date and at the same 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.<sup>5</sup> 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.

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

<sup>5</sup> 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.

### Q Method Data Analysis

Q sort data were entered into a computer program called MQMethod.<sup>6</sup> This program computes the statistical analysis.<sup>7</sup>

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 subscribe 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 13 Q sorts are the measured variables and the factor analysis reduced them to four 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

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<sup>6</sup> This freeware program is available through <http://www.qmethod.org>. Readers interested in learning more about Q method will find this website informative.

<sup>7</sup> 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.

matched the factor, a 0 would mean there were 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*

Four distinct and coherent factors — or what we will continue to call perspectives on public participation process — emerged from the analysis.<sup>8</sup> 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 4 presents the statement rankings for each of the four perspectives. The end product of the Q study is a set of narrative descriptions of each perspective, which are discussed below.

Table 5 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 that loading score being the result of a random event.

Table 5 shows that there are four different perspectives on what would be the appropriate public participation process.<sup>9</sup> Table 6, which presents the correlation coefficients among the factors, indicates that these four perspectives are largely independent. The closest correlation is between perspectives B and D, which are  $37\%$  alike.

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<sup>8</sup> 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.

<sup>9</sup> Recall that the condition of instruction was: *Imagine that a forestry management planning process for the Flagstaff region is going to be done 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 4.**  
**Ranking of each statement for each perspective.**

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

43	The staff involved is receptive to questions or requests for information from the public.	5	0	2	2
44	The process makes progress on solving the right problem.	-5	5	-1	0
45	Get the right information.	-5	2	4	4
46	The process produces outcomes that are acceptable to me or my organization.	0	2	-1	-1
47	The process taps the knowledge and experiences of local people.	0	1	-4	1
48	The process produces outcomes that are acceptable to the USFS.	-1	0	-5	-4
49	The process needs an effective leader.	3	4	-3	5
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.	-1	-1	0	5
51	There is adequate administrative support (e.g., funding, staffing) for the life of the process.	1	-1	-4	3
52	The process is well-timed to the USFS's window of opportunity to act.	-1	1	-4	-4
53	There is adequate notification of meetings, comment periods, etc.	2	-1	1	0
54	Allow time to re-visit issues and decisions, even if it means extending the timetable.	1	-2	3	-1
55	Participants are involved in deciding <i>what</i> studies ought to be done.	1	4	3	-2
56	Participants are involved in deciding <i>how</i> studies ought to be done.	-1	1	2	-5

**Table 5.**  
**Re-ordered factor matrix of loading scores for participants**

	Loading scores on perspectives			
	A	B	C	D
<i>Perspective A</i>				
Don	<b>0.86</b>	0.18	-0.04	0.07
Lisa	<b>0.68</b>	-0.14	0.19	0.30
<i>Perspective B</i>				
LeRoy	0.13	<b>0.80</b>	-0.05	0.17
Bob	0.37	<b>0.67</b>	-0.01	0.23
Margaret	<b>-0.43</b>	<b>0.55</b>	0.28	<b>0.48</b>
<i>Perspective C</i>				
Patrice	-0.04	0.00	<b>0.81</b>	-0.12
Mark	0.31	-0.24	<b>0.58</b>	0.39
Mavis	0.40	0.21	<b>0.46</b>	0.26
<i>Perspective D</i>				
Jay	0.00	-0.16	-0.09	<b>0.77</b>
Beatrice	0.16	0.40	-0.41	<b>0.65</b>
Marylia	0.24	-0.02	0.11	<b>0.65</b>
Mason	0.10	0.27	0.12	<b>0.61</b>
Harry	<b>0.52</b>	0.04	0.18	<b>0.55</b>
Variance explained	17%	14%	12%	21%

**Table 6.**  
**Correlations Between Perspectives**

<b>Perspective</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
<b>A</b>	1.00	0.32	0.12	0.33
<b>B</b>		1.00	-0.01	0.37
<b>C</b>			1.00	0.01
<b>D</b>				1.00

What is particularly important is that every person loaded significantly on at least one perspective. Only two people, Margaret and Harry<sup>10</sup>, loaded significantly on more than one factor; Margaret loaded on three factors, one negatively and two positively. This result suggests that these people have point(s) of view that are unique and not captured by any of the four “ideal types” emerging from this solution. It suggests there is another factor solution that might be appropriate.<sup>11</sup> However, when we investigated this possibility, through additional judgmental hand rotation of factors and inclusion of additional 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.

Table 5 reveals that the first perspective is strongly held by two of the people in our study. Perspective A accounts for 17% of all the variance. Mavis has a nearly significant positive loading score (0.40 n.s.)<sup>12</sup>, suggesting agreement with some aspects of this perspective. In addition, Bob and Mark have positive, but not significant loading scores (0.37 n.s. and 0.31 n.s., respectively) on this factor, suggesting agreement with some portions of it. Margaret has a negative and significant loading score (-0.43) suggesting strong disagreement with some aspects of Perspective A. While Harry has a positive significant loading score on this perspective (0.52), he is listed with Perspective D because he has a higher loading score on it.

Perspective B is shared by three individuals, including one (Margaret) that loads with a positive and significant score on Perspective D (0.48) and a negative and significant score on Perspective A (-0.43); she loaded more highly on this perspective, which is why she is listed with it. Beatrice has a positive, and nearly significant, loading score (0.40 n.s.) on this factor, suggesting agreement with some portions of it.

Perspective C is defined by three individuals. Beatrice has a negative, and nearly significant, loading score (-0.41 n.s.) on this factor, suggesting disagreement with some portions of it.

Perspective D is defined by five individuals. It accounts for 21% of the variance in our study; this is the highest of all the factors. This means that among our small group of participants it is the most widely held view. In addition, there are two individuals who load

<sup>10</sup> To maintain confidentiality we have used aliases for each of the people who participated in our study.

<sup>11</sup> 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. It is the solution that maximizes the variance explained. In other words, it explains more of the variation in the data than does any other solution.

<sup>12</sup> n.s. means “not statistically significant at the 0.05 level or better.”

significantly on this and other factors (Margaret in Perspective B and Harry in Perspective A). Margaret is listed with Perspective B because she loaded more strongly on it. Harry is listed with Perspective D because he has a higher loading score on it than Perspective A. Mark and Lisa have positive, but not significant loading scores (0.30 n.s. and 0.39 n.s., respectively) on this factor, suggesting agreement with some portions 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 forest management in the Greater Flagstaff region. Since the narratives are constructed from the Q statements, references to important Q statements are included in the descriptions below.

### *Perspective A*

Those who support this perspective on process share an emphasis on the need for both good information and good relationships. Both are necessary to ensure that deliberations – and resulting recommendations – are informed by the best understandings possible. While the process may not begin with a clear understanding or consensus on what are the “right” problems (44), it is expected that deliberations informed by good understandings will lead to their identification and solution.

Good information is brought to the process by attention to the quality of the information and the way it is shared. The highest ranking statement in this perspective is that the process should use the best available science for analysis (2). To ensure that information is widely shared staff should be receptive to questions, etc. (43), all participants should have equal access to information (39), and there should be full disclosure of information at all times (41). In addition, the process should be set-up so that people listen to each other (1, 26) and a common language and understanding is developed (5).

At the same time that a high level of importance is given to the quality of information, there is, according to our interviews, a recognition within this perspective of the limits of information. *Every* recommendation cannot be justified with evidence (20), although they should be when it is important and possible. Relevant information should be gathered and used, even if the *right* information cannot always be defined (45). And, information should in general be validated, but no requirement should be made that *all* information be validated to ensure it is correct (29), because that is impossible in this context.

In combination with good, shared information a process must ensure that relationships are developed that promote action to be taken on the basis of that knowledge. Consequently, this perspective sees the need to pay attention to how people interact. Participants should be courteous and respectful (9) and listen to others’ (1). While such behaviors cannot be required of participants, there are things that a process can do to promote them. For example, the process should work to build trust among the participants (7) and use groundrules that govern interactions (23). However, this is not a process that places much emphasis on building the capacities of individuals, either by improving skills or understandings (34, 32).

Two additional features are important to those subscribing to this perspective about process. First, the process needs an effective leader (49). An effective leader is necessary to keep the process on track, ensure that participants are oriented toward collaboration, and provide administrative support. Second, the process can be enhanced when consensus is used to decide what decision rules will be used (22). Consensus is not necessary for *all* important decision, but it should be used to ensure that there is wide support for the recommendations forthcoming from the Partnership.

### *Perspective B*

Those who hold this perspective seek a process in which important stakeholders work together in good faith to make progress on important problems. Working together in a respectful, trusting atmosphere is what underlies the idea of a *partnership*.

To ensure that participants can make progress on the important (right) problems (44) they should have clarity about the purposes and goals of the process (37). Of course, an understanding of what the “right” problems are can emerge *during* the process. To keep the process on track and ensure that goals are kept in the forefront, an effective leader is important (49).

At the same time, leadership will not by itself suffice to ensure that a high quality process is conducted. The quality of relationships among the participants is viewed as an additional critical element in a successful process. The process should help to establish relationships that promote constructive collaboration (3); this feature is the second highest in this perspective. Constructive collaboration is promoted when participants see beyond their self-interests to the larger good (11) and they are courteous and respectful toward each other (9). Much of the responsibility for establishing good working relationships among participants falls on the participants themselves. Participants should attend meetings regularly (17), for example.

Support for this perspective comes from those who believe that rigid rules are not necessary in the process. In fact, rigid requirements can set a process up for failure. Thus, even though the quality of information is viewed as important (2, 45), in parallel with Perspective A, there is an understanding that *every* recommendation does not need to be justified with evidence (20), *all* information does not need to be validated (29), and *all* information does not need to be disclosed at all time (41). In addition, consensus for decision-making (16, 22) receives only moderate support.

Ultimately, progress can be achieved only when there is a clear plan for implementation resulting from the process (42) and when the recommendations are viewed as legitimate. Support for recommendations is obtained when all important stakeholders take part (40) and are fully engaged. To promote ownership of the process and outcomes, participants should attend meetings regularly (17). They should also be involved in deciding what studies are needed (55).

It is also important to have all important stakeholders involved (40) and communicate to the broader public (36) because the outcomes resulting from the hard work of the participants can be undermined when they are opposed by stakeholders that did not take part. For example, forest

management plans can be appealed; it is hoped that if the stakeholders take part they would not feel a need to appeal the plans.

### *Perspective C*

This perspective is based on a concern for informed deliberations, transparency, and accountability.

Informed deliberations are the foundation upon which high quality recommendations and decisions can be made. To be informed requires that information and decision-making be transparent. Transparency is based on acknowledging and exploring the uncertainties inherent in current understandings of forest ecology and human-environment interactions (4). It also means that the process should ensure that all participants have equal access to information (39), there is full disclosure of information at all times (41), everyone should have an equal chance to put topics and concerns on the agenda (31), all information should be validated to ensure it is correct (29), no topics should be avoided because of their potential to create conflict (33), the staff involved are receptive to questions, requests for information, etc. (43), the responsible agency responds in a timely way to requests for information, etc. (24), and every recommendation is justified with evidence (41).

To ensure that relevant and high quality information is obtained, the best available science should be used in analysis (2), the right information should be considered (45), participants should be involved in deciding what studies ought to be done (55) and, in some cases, how to do studies (56). These latter two needs also speak to the desire for transparency in the process. Why certain information is important should be understood by all involved. Of course, not all information that is important is technical; values underlying people's opinions are also important to discuss if recommendations and decisions are to be fully informed (27); no other perspective placed such importance on the sharing of values in the participants' deliberation.

Transparency and accountability are also based on the ability of people to participate. Thus, it is important that all important stakeholders be able to participate (40). No one should be excluded or feel like they are unwelcome. In addition, the process should reach out in a number of different ways through different mechanisms to different communities on different issue points, throughout the process (6). Ranked more highly in this factor than the others is the need to hold meetings at different times and locations to broaden the opportunities for people to participate (8).

Unlike other factors in this case, there is little concern for the needs or preferences of the responsible agency (US Forest Service). Thus, the process does not need to produce outcomes acceptable to the responsible agency (48), the process does not need to be well-timed to the agency's opportunity to act (52), the process does not need to improve the trust between the responsible agency and the community (36), and the process does not need to only give recommendations to the responsible agency (14). Moreover, there is no need for participants to have reasonable expectations about what the responsible agency can do (15) because this is viewed as a way of marginalizing certain views.

Yet, this is a process that is oriented toward making decisions that are justifiable based on the available evidence. When evidence is not available – because, for example uncertainties are too large – those holding this perspective lean toward caution. There is a desire by those subscribing to this view that decisions be good the first time and mistakes be avoided; thus, it is important not to be held to arbitrary (e.g., bureaucratic) deadlines. The process should allow time to revisit issues and decisions (54) when necessary.

#### *Perspective D*

This perspective is focused on making progress on important problems with maximum efficiency. Thus, those subscribing to this perspective place emphasis on process features that enable progress to be made efficiently. First and foremost among these is that the process should end with a plan to ensure that promises made are promises kept (50). The process is not primarily aimed at the needs of the US Forest Service (14, 48), even though it is the responsible agency sponsoring the process. Other local, country, state, and federal agencies (e.g., BLM) have management responsibility for lands in the region; the process should produce recommendations for them, as well as private landowners, when necessary. In addition, there is a concern that success of the process should not be measured by the activities that are accomplished (e.g., meetings held, studies conducted). Ultimately, success of the process should be based on solving problems.

An efficient process depends on effective leadership (49). This does not have to be from one person; a group of individuals that are responsible for championing, promoting, and marketing the process and its recommendations are also able to keep a process on track. Leadership in this process must be clear about goals and purposes (37) while at the same time being flexible because the “right” problems may not be defined at the beginning (44); what problems are important may get defined during the process.

The idea that the process needs to be championed is emphasized by the desire in this perspective for social and political legitimacy. The process should reach out in a number of ways through different mechanisms to the public (6), there should be mechanisms for communicating to the broader public (28), and opportunities for participation should be meaningful and result in people feeling that they were heard (26). Ultimately, it is the broader community that must be relied upon to ensure that wildfire hazards are reduced and ecosystem health is promoted. Two other factors are thought to increase support for recommendations that emerge from the process. First, support for the process and its outcomes are promoted when staff involved are receptive to questions, etc. (43). Second, adequate administrative support (51) is important to ensure that the process is well-run and is able to reach-out broadly.

In addition to ensuring that there be effective leadership, a process should attend to a) the quality of information) and b) the relationships among participants and their behaviors. The need for high quality information to inform deliberation and on which to base recommendations is reflected by the desire for getting the right information (45). The “right” information does not imply that only scientific analysis is important. Rather, expert judgment and people’s values (27) can also be important to share and discuss. That is why, for example, relatively low emphasis was placed on the need to justify every recommendation with (scientific) evidence (20)

or validate all information to ensure it is correct (29). To weaken the chance that hidden agendas will be pursued there should be full disclosure of information at all times (41).

The ability of people to deliberate in an atmosphere of trust is important to a well-run, efficient process. Those subscribing to this perspective want participants to see beyond their self-interests to the larger good (11); they should not push their personal agendas. At the same time, participants should have reasonable expectations about what the responsible agencies (e.g., USFS) can do (15). To promote such behaviors, the process should be set-up to establish relationships that promote constructive collaboration (3). Building trust among the participants (7) is important so that people are able to speak their minds openly. Great benefits can emerge when collaborative relationships and trust are developed: stakeholders can support others on issues that are not a central concern of their own because they will feel that the others will, in turn, support them.

Those holding this view do not feel that it is the responsibility of the process to get stakeholders to participate (40). Of course, all important stakeholders should be invited, but all that is necessary is that a good faith effort be made. People will participate because they think it is important. In some cases, stakeholders may choose to participate in forest planning through other avenues (e.g., NEPA processes, legal appeals).

#### *Comparison of Perspectives*

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

First, each of the perspectives supports the idea that a process should address important problems, but that identification of the “right” problems can emerge during the process. In addition, none of the perspectives places emphasis on needing restrictions on who can participate (12). However, those subscribing to Perspective D do not feel that it is the responsibility of the process to get all important stakeholders to participate (40). The statement that participants should have technical understandings of the relevant issues received more support in Perspective C than in the others.

The last three areas of agreement that we wish to highlight are related to consensus, facilitation, and building of skills and knowledge. First, consensus was not a feature that was very important in any of the perspectives. There was little emphasis on using consensus for all important decisions, perhaps because it is unreasonable to do so in *all* situations (16). Using consensus for determining decision rules (22) received moderate support in all of the perspectives. Second, the use of independent facilitation (35) did not receive strong support in any of the perspectives. Finally, improving participants’ skills (32) and understandings (34) were not emphasized by any of the perspectives.

There are important areas of disagreement among these perspectives. First, there is a split among the perspectives about access to information. Perspective A agrees with Perspective B that all stakeholders should have equal access to information (39) and an equal chance to place issues on the agenda (41); these features are not important to Perspectives B and D.

Second, having effective leadership (49) was important to Perspectives A, B, and D, but not to C. In Perspective D there was support for a group to provide leadership, rather than investing it in a single person.

Third, while the quality of information used by participants to make decisions and recommendations is a critical feature in all of the perspectives, underlying this agreement there are important differences in emphasis. For example, Perspective C gives the strongest support for including discussion of values and beliefs (27), acknowledging and exploring uncertainties (4), validating all information (29), justifying recommendations with evidences (20), getting the “right” information (45), and including participants in deciding what studies to do (55); this is the perspective that emphasizes full transparency in a process. On the other hand, Perspective C (as well as the others) gives weak support for tapping knowledge of local people (47); perhaps because there is little confidence that this is the most effective route to the best information for evaluating alternatives and making decisions. Perspectives A, B, and D agree that it is often difficult to validate *all* information (29) and justify *all* recommendations with evidence in every case (20), even if they are important goals.

Fourth, while there is agreement that the relationships among participants are important to the success of a process, underlying this agreement there are important differences in emphasis. Trust is more important to Perspectives A and D than to Perspectives B and C. Developing trust between the US Forest Service and the community is somewhat important to Perspectives A and B. Perspective A places stronger emphasis on the responsibility of participants to ensure that relationships are courteous and respectful (9) and for setting up a situation that encourages listening (1). Establishing relationships that promote constructive collaboration among participants (3) is very important to Perspective B. Finally, Perspective D places emphasis on the responsibility of participants to see beyond their self interests to what is good for the larger community (11), having reasonable expectations (15), and participants (and organizations) being accountable for what they say, promise, and do (13, 50). While each perspective places emphasis on the need for positive relationships, there is little worry that pre-existing conflicts might be made worse by what is discussed within the process (38).

Finally, there is a lack of agreement about what a process should be designed to achieve. Perspective C places emphasis on deliberating issues – even repeatedly (54) – until they are resolved satisfactorily. Perspective D sees the process as providing recommendations to the responsible agencies (i.e., Forest Service) who then make the final decisions (14); this is why it is important for the participants to have reasonable expectations about what the Forest Service can do. At the same time, in this perspective (and Perspective C) there is little support for the idea that the outcomes of the process should satisfy the Forest Service (48).

### **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 7). 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 7. 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 7.

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 7. 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.
- 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.
- 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.<sup>13</sup>

Table 8 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.

The results show that participants in our study have little consensus about which outcomes are preferred. There was support for both substantive policy outcomes and capacity building outcomes. The statements that were most often placed in the highest ranked group were that “the process enhances trust among different parties/stakeholders in the community” (#5) and “the outcomes have broad-based support within the community” (#18).

Other substantive policy outcomes that received support included:

- “there is a clear plan for how to implement the outcomes” (#14),
- “participants feel a sense of ownership in the outcomes of the process” (#19), and
- “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” (#20).

Additional outcomes related to capacity building that received some support included:

- “the process improves participants’ understandings of the issues” (#2),
- “the process develops access to networks that allow new resources to be brought to the community (e.g., financial, technical)” (6),
- “the process improves people’s ability to work together better” (#8), and
- “the process helps create new and lasting interest groups that can continue to work on the issues” (12).

Five of the outcomes related to capacity building had no one or only one person rank them in the most important category, suggesting these were not critically important:

- “the process improves the participants’ skills to take part effectively in processes like this (e.g., problems solving, conflict resolution, communication)” (#1),
- “the process enhances trust between the community and the US Forest Service” (#4),
- “the process strengthens democracy and rebuilds people’s faith in government” (#9),
- “the process does not make any pre-existing conflicts worse” (#10), and
- “the process builds the confidence and self-esteem of the participants” (#11).

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<sup>13</sup> These data are being used for further statistical analyses as part of our cross-case comparisons that will be described in a future report.

Furthermore, while there was support for improving understandings of issues (#2), there was much weaker support for improving understandings of others' values, beliefs, and perspectives (#3) or participants' skills (#1).

Three of the outcomes related to substantive policy outcomes, similarly, had no one or only one person rank them in the most important category, suggesting these were not critically important:

- “costs and benefits of the outcomes are distributed in an equitable way” (#15),
- “the outcomes are personally desirable to me or my organization” (#16), and
- “the outcomes satisfy the US Forest Service” (#17).

**Table 8.**  
**Ratings of outcome statements**

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

## Surveys

Participants were asked to complete two surveys. Copies of the surveys 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 low (0) to high (+4) 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 low (0) to high (+4) is shown in the appropriate cells. Because of the small number of respondents, and our commitment to protect confidentiality, we will discuss the responses in general terms.

One way to examine the degree of agreement or disagreement among those participating in our study is to compute the maximum difference in rankings that were given for each of the questions. Answers were spread across five columns (thus, the maximum difference can be 4). We looked to see which columns were occupied with a response.

For 6 of the 32 questions there is a maximum difference of four between the lowest and highest rankings. 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.” In other words, there are some features of the context for which there are divergent perceptions. For sixteen of the questions there is a maximum difference of three between the lowest and highest rankings. These also indicate substantial differences in perceptions. For nine questions there is a difference of 2. For only one question is there a difference of one, indicating basic agreement about their perceptions that there is “support from political leadership for this process” (#14).

Thus, for a large number of these questions there is a lack of agreement on rankings for how people assess contextual feature. The questions for which there was the broadest range of perceptions were:

- “Level of trust between interest groups and the USFS” (#4);
- “The community’s economic dependence on the National Forests” (#9);
- “Stakeholders’ prior experience working with each other on similar processes” (#10);
- “Cultural diversity among the regional communities” (#17);
- “Prior experience of participants working with the USFS” (#18); and
- “Extent of scientific consensus about the policy issue” (#25).

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 part of forest management planning in the Flagstaff region for some time still disagree about some important issues.

Furthermore, we are able to make a few observations about how the context is viewed among those who subscribe to the four different perspectives about the process, as discussed above.<sup>14</sup> For example, those who subscribe to Perspective B more strongly believe that there is support for the process from within the USFS (#2) than those who subscribe to Perspective C. Similarly, they believe more strongly than those who hold Perspectives A or C that there is commitment within the USFS to hearing all points of view (#7), that there is commitment by the USFS to seeing the process through to its end (#8), and that the community is economically dependent on the National Forests (#9). Those subscribing to Perspective A feel that there is less cultural diversity among the regional communities (#17) than do those subscribing to Perspective B. Interestingly, those subscribing to Perspective B feel more strongly that stakeholders are knowledgeable about each other's beliefs and values (#13) than those subscribing to Perspectives A or C.

### *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 thirteen individuals reveal that most were interested in both local and national issues (10 of 13). Three people wrote that they were interested only in local issues.

Those that participated in our study were affiliated with a variety of interest groups, as shown in Table 2 (which is one of the reasons we chose them to participate in this case study). In response to the question about which interest groups a person most identified people identified themselves with business and private industry (2 times), education and research institutions (3 times), peace and social justice groups (3 times), environmental groups (7 times), community groups (4 times), local government (once), and state and federal agencies (3 times). Religious groups, property rights, and Native American and Tribal Government were never selected.

Table 9 shows how the individuals described their motivations for participating in forest management planning efforts in the Flagstaff 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 (via conservation or preservation) was by far the most salient factor motivating people (9 times), as might be expected in a case that addresses forest management. Protection of public health was ranked as important five times, suggesting that forest health is related to public safety and health (e.g., potential for wildfires).

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<sup>14</sup> 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.

Four people ranked “civic duty” as an important motivating factor. Three ranked improving quality of life and two ranked improving social or environmental justice as important motivating factors. Finally, one person wrote in the “other” category that avoiding bitterness and disempowerment, and maintaining hope was a motivating factor for involvement. Concern for economic effects were not a very important motivating factor in this group.

**Table 9.**  
**Number of people selecting factors that explain their motives**  
**for being involved in this process.**

<b>Reason for participation</b>	<b>Number of times selected</b>
Protect the health of myself and/or my family	0
Protect the health of others (e.g., community, vulnerable populations)	5
Economic effects to myself and/or family	0
Economic effects to others (e.g., community, region)	1
Improve the quality of life (e.g., recreational opportunities, farm life)	3
Protect ecological systems (conservation, preservation, or stewardship)	9
Sense of civic duty	4
It’s my job	1
Improve social or environmental justice	2
Other: avoid bitterness, disempowerment, maintain hope	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 forest management issues in the Flagstaff, Arizona region.

Our analysis revealed four distinct preferences for process design among the 13 people who participated in our case study research. Perspective A emphasizes the dual need for good information and collaborative relationships. Those who subscribe to Perspective B seek a process in which important stakeholders work together in good faith to make progress on important problems. Working together in a respectful, trusting atmosphere is what underlies the idea of a *partnership*. People who hold Perspective C believe that informed deliberations, transparency, and accountability are necessary for a good process. Finally, Perspective D emphasizes the importance of efficiency in making progress on important problems.

In addition, there is a lack of consensus 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. 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 (13 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.

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## 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 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 to really involve and listen to the local stakeholder groups.	0	2	3	3	3	2
2	Support for the process from within the USFS.	0	2	5	4	2	0
3	Previous experience that the USFS has had with public participation.	0	1	5	1	4	2
4	Level of trust between interest groups and the USFS.	1	2	4	4	2	0
5	Level of trust among interest groups involved in the process.	0	0	4	5	3	1
6	Resources available to the USFS that would help them run a good public participation process.	0	1	4	5	2	1
7	Commitment of the USFS to hearing all points of view.	0	4	5	1	3	0
8	Commitment by the USFS to seeing the process through to its end.	0	0	5	1	6	1
9	The community's economic dependence on the National Forests.	1	2	3	1	6	0
10	Stakeholders' prior experience working with each other on similar processes.	1	0	5	4	2	1
11	Stakeholders' skills at problem solving, conflict resolution, communication.	0	1	2	9	0	1
12	Stakeholders' familiarity with the issue.	0	1	2	4	6	0
13	How knowledgeable stakeholders are about each other's beliefs and values.	0	1	6	4	0	2
14	Support from political leadership for this process.	0	0	0	7	6	0
15	Support from local population for this process.	0	0	4	4	5	0
16	Level of importance of this issue to the regional population.	0	2	2	2	7	0
17	Cultural diversity among the regional communities.	1	2	4	4	2	0
18	Prior experience of participants working with the USFS.	1	2	2	5	2	1
19	Availability of expert resources to the stakeholder participants.	0	1	0	5	6	1
20	Density of networks connecting the key interest groups.	0	2	1	7	1	2
21	How strong is the sense of place in the regional communities?	0	0	4	5	2	2
22	Commitment among key stakeholder groups to cooperate.	0	1	2	8	1	1
23	Existing strength of local democracy in the region.	0	0	5	3	2	3
24	Clarity of the policy issue being addressed.	0	1	2	5	4	1
25	Extent of scientific consensus about the policy issue.	1	0	4	3	3	2
26	Clarity of the mandate for what the process is intended to accomplish.	0	1	2	9	0	1
27	Number of other ongoing processes involving the community and the National Forests.	0	2	3	2	4	2
28	Number of other ongoing processes involving the community and state or federal governmental agencies.	0	2	4	4	2	1

29	The extent to which key interest groups have established leadership, we already know who speaks for which groups in the community.	0	0	3	4	5	1
30	Number of well-established interest groups in the area.	0	1	2	7	2	1
31	Number of places where meetings could be held that participants will feel are safe (neutral) and accessible.	0	3	2	5	2	1
32	Amount of time available to solve the problem and reach closure.	0	5	3	2	2	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.
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Reports for each of the case studies are also available from SERI.