

TITLE:

Visions of success and achievement in recreation-related USDA Forest Service NEPA processes

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Abstract

The National Environmental Policy Act (NEPA) is incorporated into the planning and decision-making culture of all natural resource agencies in the U.S. Yet, we know little about how the attitudes and internal interactions of interdisciplinary (ID) teams engaged in NEPA processes influence process outcomes. We conducted a web-based survey of 106 ID team leaders involved with environmental analyses (EA) or environmental impact statements (EIS) for projects dealing with recreation and travel management on national forests. We explore how they define success in these processes and identify factors most powerfully associated with perceptions of positive outcomes. The survey revealed a tremendous diversity in definitions of success. Strong correlations between the perceived importance of particular indicators of success and their achievement suggest that preconceived notions may often help to shape process outcomes. Regression analyses revealed the following factors as the best predictors of ID team leaders' perception of an "excellent outcome": achievement of the agency mission, whether compromise had taken place between the interested parties, team satisfaction and harmony, timely process completion, and project implementation. Yet, respondents consistently ranked compromise with interested parties and team member satisfaction among the least important measures of successful NEPA processes. Results suggest that clarifying appropriate measures of success in NEPA processes across the agency could make ID team performance more consistent. The research also suggests that greater attention to ID team interactions both internally and between teams and interested publics could result in better outcomes.

Keywords: National Environmental Policy Act, natural resource management, Forest Service, recreation, travel management, teams, success

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makers, other relevant agencies, and the general public about the environmental consequences of government actions through a set of general process requirements (Dreyfus and Ingram, 1976; Caldwell, 1998).

Required procedures associated with NEPA focus primarily upon the mandated development of a detailed statement on associated environmental impacts to accompany any "recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment" (Sec. 102 [42 USC § 4332]). This document is required to analyze the short and long-term environmental impacts and trade-offs of the proposed action along with potential alternatives for meeting project goals. The Act further mandates that the statement be developed in consultation with other relevant agencies and made available to the public (Sec. 102 [42 USC § 4332]). The Forest Service forms interdisciplinary (ID) teams to develop these statements. These teams are most commonly made up of disciplinary specialists and environmental coordinators who work within the National Forests. These ID teams typically work in consultation with a line officer who receives the final document and makes the official decision on actions to be taken.

The literature points to a number of impacts NEPA has had upon the Forest Service. Through the requirement of interdisciplinary analysis, agency staffs have become less homogeneous, particularly in terms of disciplinary training (Ackerman, 1990; Culhane, 1990). Although the scope and techniques employed for public involvement vary considerably, NEPA has generally worked to enhance the transparency of agency analyses and decision-making (Ackerman, 1990; Espeland, 1994; Black, 2004). Analyses of environmental impacts are made available for public scrutiny through NEPA processes, and a wider range of alternatives is commonly considered in the analysis process than may otherwise take place (Ackerman, 1990; Canter and Clark, 1997; Espeland, 1994).

These shifts have come with associated costs of long delays in decision-making, as analyses are performed and reports are produced, and of high-priced responses to litigation of agency processes. While the public may comment and participate in various ways throughout NEPA processes, the act does not empower individuals to *directly* influence agency decisions. Decision-making authority remains with the agency. NEPA merely empowers stakeholders to challenge decisions on procedural grounds. The additional transparency requirements of NEPA have subjected public agencies to greater public scrutiny and have presented additional managerial challenges including, but not limited to, determining the appropriate scope of analyses, identifying a reasonable range of alternatives, staffing interdisciplinary teams with adequate expertise, effective public involvement, coping with litigation, and training agency personnel in how to comply with the Act (Bear, 2003; Canter and Clark, 1997; Culhane, 1990; Laband et al., 2006; Malmsheimer et al., 2004; Poisner, 1996; Twelker, 1990). These challenges are particularly acute in the Forest Service, where litigation and appeals have been on the rise in the last decade (Malmsheimer et al., 2004).

In today's Forest Service, the National Environmental Policy Act infiltrates nearly every action taken by the USDA Forest Service to manage the landscape. A recent report revealed that nearly 8,000 Forest Service employees were engaged and nearly \$365 million spent in carrying out nearly 6,000 processes required by NEPA in 2006 alone (Management

tremendous discretion to individual agency personnel regarding how success might be defined in NEPA processes. According to the Act itself, one might interpret success to be achieving the Act's explicitly stated purpose – that is, preventing or eliminating damage to the environment. Alternatively, one could focus upon the procedural requirements of the Act or Forest Service guidance and envision full disclosure of environmental impact analyses to be the appropriate metric of success. Each of these sentiments was uncovered in the pilot study along with a host of others. Some of the most commonly noted indicators of success included avoiding litigation, moving the proposed project to implementation, satisfying public concerns, educating decision-makers, improving the quality of final decisions, and mitigating conflict. Some respondents felt that NEPA processes are (or should be) entirely separate from the decision-making process. Others felt process outputs should be used to inform decision-making. Still others felt that NEPA processes *are* the decision-making process (Authors, in press). Thus, the beliefs of the ID team leaders could have tremendous implications for how decisions are made within the Forest Service.

In the pilot study, many team leaders were unable to articulate a clear purpose for many of their actions other than avoiding litigation. As such, ID team behaviors may be driven by procedural compliance to a strong degree, rather than beliefs about appropriate outcomes. Merton (1968) has described this means/ends confusion within bureaucracies as ritualism. Wilson (1989) discusses this phenomenon as well. As bureaucratic procedures amass, they can often shift the focus of employees away from their critical tasks or mission. In agencies where mission is unclear or ambiguous, this may be especially common. Moreover, in situations in which more accountability and transparency has been demanded by the public, the means for providing such accountability and transparency can become so onerous as to overwhelm agency staff and in effect become ends in themselves.

4.2. Exploring the impacts of ID team leader beliefs on achievement

The pilot study revealed that the most consistent element within any given NEPA process was typically the ID team leader. ID team leaders are normally involved in all decisions made throughout NEPA processes (though to varying degrees). Our interviews suggested that they are typically the *only* person involved in all such decisions. Their pivotal role in the process not only makes them the most knowledgeable person about the process, but also possibly the most influential. ID team leaders are situated at the confluence between agency decision-makers and supervisors and various stakeholders to whom they must disclose their analyses and from whom they must accept and respond to input. Exploring the relationships between the perceptions of ID team leaders about what *should* happen vs. what *did* happen thus seems an appropriate line of inquiry.

4.3. Team member interactions

Pilot study interviews commonly revealed numerous forms of conflict and stress within ID team environments. The literature on conflict within teams suggests that interpersonal relationship conflict is detrimental to achieving positive team outcomes while “task conflict” can have a positive influence. Task conflict, which has been defined as “a perception of disagreements among group members about the content of their decisions” (Simons and Peterson, 2000: 102), typically demonstrates a curvilinear relationship (similar to a normal curve) with the quality of outcomes in which very low levels and very high

about appropriate measures of success for Forest Service NEPA processes. For projects that had advanced to the analysis stage, respondents were asked about analytical techniques employed in the process. Respondents who had served as ID team leaders of completed projects were also asked to rate their projects' degree of achievement of each of the success measures and to assess additional factors associated with each of the themes discussed above. An additional dependent variable was used to assess ID team leaders' overall perceptions of the outcomes of completed projects. Respondents were asked the extent to which they agreed or disagreed with the following statement, "The process achieved an excellent outcome." All other measurements are described in more detail in the results section.

6. Results

6.1. Sample statistics

One-hundred and six ID team leaders completed the online survey, representing a 75% response rate. All regions within the national forest system were represented in the sample. Seventy-four of the 106 ID team leaders who responded to the survey reported having participated on NEPA-related ID teams at least ten times before. Only five respondents reported that this was their first such experience. Table 1 contains additional information about the types and status of the projects represented within the sample.

6.2. Project goals

Respondents rated closed-ended items in terms of their degree of importance in relation to the goals of their projects on a 1 (not important) to 7 (very important) scale (Table 2). Resource protection was a dominant theme across the projects. Only one project ranked both protecting cultural and natural resources below the middle-point on the scale. Other high ranking items were closely associated with increasing management efficiency or access designation (commonly related to the 2005 Travel Management Rule). In general, enhancing recreation opportunities ranked lower for most projects. Write-in responses shed further light on the nature of projects included within the sample. Additional goals included ecosystem restoration (2), reducing conflicts with adjacent landowners (3), facilities development (1), public safety (2), and maintenance (2).

6.3. Defining success

Respondents were asked to rate each item listed in Table 3 in terms of its appropriateness as a measure of success for Forest Service NEPA processes in general on a seven-point scale with three anchor points: 1 (not important), 4 (moderately important), and 7 (critical to measuring success). They were then asked to select up to three of these items as the most appropriate measures of success for these processes. The results suggest the high importance of full disclosure of analyses, project implementation in accord with the mission of the Forest Service, and procedural compliance. Most other items were reported to be at least moderately important; only litigation and appeals averaged a score below the middle value on the scale.

process-related statements were solicited on the same five-point scale for completed projects. Table 4 shows the means and the results of Spearman Rank correlation analyses of each of these variables with team leaders' perceptions of excellent outcomes. Table 5 shows correlations between achievement-related statements and these perceptions.

Process-related factors with statistically significant relationships to ID team leaders' perceptions of excellent outcomes included whether the process increased conflict, whether the morale of team members was negatively affected by the process, whether team members disagreed about how to get the work done, and whether the final decision more or less matched the general consensus of the ID team. Perceptions of mistakes made in the process, whether the process helped to mitigate conflict and whether team members disagreed about the preferred alternative did not show statistically significant correlations with perceptions of excellent outcomes.

These results suggest a distinct difference between the two measures of task conflict and their relationships to perceived outcomes. Figure 2 further explores these differences, revealing a near linear negative relationship between process-based conflict (disagreement about how to get the work done) and the perceived outcome and a near u-shaped relationship between outcome-based task conflict (disagreements about the preferred alternative) and the perceived outcome. The u-shaped relationship conflicts with the findings of prior research, which suggests that moderate levels of task conflict should contribute to more positive outcomes (Simons and Peterson, 2000). Despite the small sample size, it appears that ID team leaders who felt ambivalent about whether there was internal team conflict about the preferred alternative reported less positive assessments of process outcomes. This could suggest that in processes in which ID team leaders were least attuned to team dynamics (no opinion or knowledge about whether disagreements existed regarding preferred outcomes), processes were less likely to succeed. Alternatively, it could suggest that when ID team members withhold their opinions about desired outcomes (or have no strong opinions), processes suffer as a result.

Achievement factors with statistically significant relationships to ID team leaders' perceptions of outcomes included whether or not the final decision reflected the mission of the agency, whether a well-documented rationale for the decision had been developed, whether the project had been implemented, whether other agencies had been effectively engaged, whether all team members were satisfied with the process, whether public participants were satisfied with both the process and the final decision, whether the process had been completed in a timely manner, and whether compromise had taken place between the interested parties (Table 5). ID team leaders' prior experience on ID teams showed no statistically significant relationship with perceptions of excellent outcomes, nor did the number of ID team members.

To explore which combination of variables could best explain ID team leaders' perceptions of excellent outcomes in their NEPA processes, all process-related and achievement variables were entered as potential independent variables into forward conditional binary logistic regression, which was specifically designed for use with small samples to relieve sparse-data bias (Hosmer and Lemeshow, 1989).

Binary logistic regression is preferable to linear regression in this case due to the skewed nature of responses in the dependent variable, perceptions of an excellent outcome. Only two disagreed with the statement; fifteen were neutral, reflecting an ambiguous

goal statements exhibited statistically significant correlations with ID team leaders' perceptions of excellent outcomes.

7. Discussion

The results reveal tremendous diversity in the viewpoints of ID team leaders regarding what Forest Service NEPA processes should accomplish and how success should be measured, despite the fact that we based the analyses on projects specifically related to recreation and travel management. It also shows that these beliefs appear to have real influences upon the achievement, or at least the perceived achievement, of particular objectives. Perhaps most strikingly, the analysis also suggests that ID team leaders' perceptions of success only partially align with the best predictors of perceived excellent outcomes. Each of these issues is discussed in greater detail below.

7.1. NEPA beliefs: defining success in Forest Service NEPA processes

In relation to the letter of the law, only some of the potential success measures included in the study are actually required by the National Environmental Policy Act. These include full disclosure of impact analyses and following all procedures correctly. While others are closely associated to these requirements, some of the highest ranked potential success measures fall outside the scope of NEPA. Other high-ranking items rather reflect concepts ranging from the achievement of the Forest Service mission to the injection of personal values of ID team leaders, particularly with regard to accountability to the public. Disclosure was also viewed differently by respondents, ranging from disclosing impact analyses to full transparency in the decision-making process. The item most closely associated with the written goal of NEPA (minimizing adverse environmental impacts) ranked seventh amongst potential success measures in terms of its mean score, although it was selected as one of the three most important items by the highest percentage of respondents.

The high rankings of procedural compliance and project implementation may be related to ID team leaders' responses to courts' attention to procedural details in litigation, the most common impediment to project implementation. Interviews conducted during the pilot study, in which we identified the success factors explored here, lend some credence to this proposition. For example, one ID team leader explained, "We're not writing EAs for the public, we're writing EAs for the 9th Circuit." Thus, it does appear in at least some cases that the procedures themselves may occupy the primary focus of ID teams.

The results reveal a wide diversity of beliefs regarding what NEPA processes are supposed to accomplish. This may be reflective of the ways in which team leaders learn about NEPA as well as the contexts in which they work. Although official NEPA trainings do take place, interviews conducted in our pilot study suggested that many Forest Service employees learn about NEPA primarily from other employees who have worked with it before and through on the job experience (Authors, in press). Thus, NEPA beliefs may be passed from generation to generation within the Forest Service, informed by the unique experiences of individuals working in different contexts and with potentially different values. The implications of this diversity are less clear, though the research suggests that these beliefs may largely dictate how NEPA processes unfold. Additional research into

facilitating compromise between interested parties. While nothing more than disclosure is required by NEPA, the analysis revealed that successful processes often involved compromise. The findings do not suggest that the Forest Service should necessarily strive for compromise in their NEPA processes, particularly in cases where they might have to sacrifice something of the agency mission. However, as others suggest (Force and Forester, 2002; Innes and Booher, 2004; Stern, 2008), it appears that additional attention to stakeholders beyond mere disclosure might be warranted.

Items revealing something of the quality of internal team processes also appeared predictive of the quality of process outcomes. The presence of team member satisfaction in the regression equation on outcomes suggests that positive, or at least benign, experiences for team members likely contribute to more successful processes. Findings regarding task conflict further reveal the nature of these relationships. Conflict between team members about how to get the work done was significantly correlated with perceptions of less-desired outcomes. This suggests the importance of an effective team leader, appropriate selection of team members, and team cohesion. Disagreements about the preferred outcome of processes amongst team members had less consistent impacts upon outcomes. In cases in which team leaders had neutral opinions about whether these disagreements existed, outcomes were less positive on average. Two potential lessons emerge from these findings. The first may be that disengaged team leaders who are unaware of the values or preferences of their team members are less effective. The second is that revealing biases internally within the ID team might actually be a good thing for process outcomes. Such openness could create an environment in which tasks become more clearly defined through debate. Additional debates might also enhance the quality of analyses as team members feel the need to more clearly defend their propositions.

7.4. Appeals and litigation

Few respondents felt that appeals and litigation made appropriate indicators of success in NEPA processes. Appeals were not significantly related to any other process-related variables. Rather, appeals tended to take place on projects that were probably more contentious from their outset – those involving protecting natural and cultural resources through recreation-related interventions, balancing multiple interests, reducing recreation conflicts, and limiting the use of some recreational users. While our sample is limited to recreation-related projects, the findings parallel those of Keele et al. (2006), who found that lawsuits against the Forest Service were highly dependent upon the specific subject matter, or purpose and need, of the NEPA process. Laband et al. (2007) also found the nature of the specific proposed actions on fuels reductions projects highly predictive of appeals.

7.5. Limitations of the study and future research

Some limitations of the study lead us to feel the need to caveat the findings presented herein, positing them first and foremost as grounded hypotheses to be further tested in future research. These limitations include using the perceptions of the team leader as a proxy for what actually happened in each process and the small sample size used for statistical analyses, particularly in regression on perceived outcomes. It is important for readers to recognize that the findings presented herein primarily reflect Forest Service NEPA processes as seen through the eyes of ID team leaders on recreation-related projects.

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Table 1. Sample statistics.

Sample statistics	EIS	EA
Number of respondents	39	67
Completed	7	45
In progress	28	20
On hold	1	2
Cancelled	3	0
Average number of members of ID teams	15.2	8.7
Range of number of ID team members	5 to 35	3 to 18

Table 2. Project goals.

Goal	Mean score	Standard Deviation
Protect natural resources	6.01	1.14
Designate a system of roads and trails for specific purposes	5.62	1.64
Protect cultural resources	5.49	1.66
Balance multiple interests	5.34	1.44
Increase management efficiency	4.86	1.66
Reduce recreation conflict	4.75	1.89
Enhance opportunities for motorized recreation	4.18	1.84
Enhance opportunities for non-motorized recreation	4.12	1.70
Maximize recreation for as many users as possible	3.95	1.94
Close areas to motorized access	3.71	2.28
Limit the recreational use of some users	3.31	2.04
Improve opportunities for recreation fee collection	1.86	1.31

Table 5. Correlations between ID team leaders' perceptions of excellent outcomes and achievement scores.

Achievement-related statement	Mean	r	p
All procedures were followed correctly	6.15	0.190	0.178
Full disclosure of impact analyses has taken place	6.10	0.168	0.233
The final decision reflects the mission of the agency	6.08	0.446	0.001
The final decision minimizes adverse environmental impacts	6.02	0.222	0.114
Well-documented rationale for decision was developed	6.02	0.444	0.001
The project has been implemented	6.00	0.419	0.002
The decision-making process was made transparent to all stakeholders	5.94	0.231	0.100
The process employed the best available biophysical science.	5.79	0.215	0.125
Other agencies were effectively engaged	5.46	0.343	0.013
The final document is easy to read and understand	5.42	0.218	0.121
All team members are satisfied with the process	5.25	0.516	< 0.001
The process employed the best available social science.	5.08	0.259	0.064
Public participants are satisfied with the PROCESS	5.08	0.442	0.001
The final decision minimizes adverse socioeconomic impacts	5.06	0.267	0.055
The process was completed in a timely manner	4.88	0.284	0.043
Compromise has taken place between the interested parties	4.65	0.306	0.029
Public participants are satisfied with the FINAL DECISION	4.63	0.312	0.024

Table 6. Forward conditional binary logistic regression on ID team leaders' perceptions of "an excellent outcome."

Variables in the equation:	Model 1 (N = 51)		Model 2 (N = 50)	
	Exp (β)	p	Exp (β)	p
The final decision reflects the mission of the agency	5.66	.003	7.09	.002
Compromise has taken place between the interested parties	2.24	.014	2.64	.011
All team members were satisfied with the process	2.18	.038	--	NS
The project was implemented	--	NS	3.96	.010
Model characteristics:				
Hosmer and Lemeshow Goodness-of-Fit Test Significance	.926		.380	
Nagelkerke R ²	.609		.682	
Correctly predicted outcomes	86.3%		88.0%	

Table 7. Spearman Rank correlations ($p < 0.001$) of items in team satisfaction index .

Survey items	Morale of team members was negatively affected by the process	Team members disagreed about how to get the work done	The process was completed in a timely manner	The project has been implemented
All team members were satisfied with the process	-0.661	-0.655	0.493	0.484
Morale of team members was negatively affected by the process	--	0.623	-0.465	-0.424
Team members disagreed about how to get the work done	--	--	-0.445	-0.410
The process was completed in a timely manner	--	--	--	0.403





