How Does Participation in the Framing, Review, and Incorporation of Scientific Information Affect Stakeholder Perspectives on Resource Management Decisions?

by

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ABSTRACT

The conventional environmental impact statement (EIS) decision-making process, governed by the National Environmental Policy Act (NEPA), represents the prevailing practice with regard to public involvement in science-intensive policy disputes. The efficacy of the current system, however, has been widely criticized in terms its methods of public involvement. One shortfall is that, although agencies solicit public input at various points, they do not involve stakeholders in a meaningful way in the scientific work associated with environmental decision-making. In particular, agencies give the public only a small role in framing scientific studies and no role in research interpretation or incorporation of science into decision-making. Further, agencies' attempts to involve stakeholders in technical questions, while well intentioned, are seldom designed in such a way as to maximize legitimacy of the process or credibility of the science used to craft the plan or policy.

Joint fact finding is a process by which stakeholders work with scientists and decision-makers to frame, review, and incorporate scientific information into policy decisions. Through literature review and case studies of three approaches to public involvement, joint fact finding is explored as a process with the potential to improve the legitimacy and credibility of environmental assessments.

While a broad range of stakeholder views were found, joint fact finding was particularly distinguished from conventional processes by its transparency and the explicit connection of science with policy. Resource management decisions involve not only scientific information but nonobjective judgments and values-based interests. Thus, the involvement of stakeholders in a range of scientific processes, and the linking of scientific information to policy-making, is key to public perceptions of credibility and legitimacy.

Based on the literature and cases, a number of minimum conditions for successful public involvement in resource management decisions were identified. Convening a stakeholder group of diverse, self-selected representatives must occur early enough for stakeholders to participate in framing the scientific inquiry. Agencies should recognize, manage, and involve stakeholders in nonobjective judgments inherent in scientific inquiry, and help prepare stakeholders for technical discussions through capacity building activities. Finally, it was found that the use a neutral facilitator can benefit the process, and that stakeholders should be involved in selecting and contracting with a facilitator to ease concerns about agency influence.

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INTRODUCTION: OBJECTIVES AND CONTEXT FOR RESEARCH

Since arriving in Boston almost two years ago, I have watched the dispute that has arisen concerning the proposed offshore wind farm in Nantucket Sound. The Cape and Islands Offshore Wind project, a proposed wind farm of 130 turbines in the federal waters of Nantucket Sound, is currently going through an environmental impact statement (EIS) review. If approved, the project would be the first offshore wind farm in the United States. As European countries build offshore wind farms, the American public is only beginning to explore such projects and finds itself in an interesting and difficult position. Though the benefits of clean renewable energy are obvious, questions remain about the potential effects of offshore wind turbines on animal life and the aesthetics of an ocean view.

Without accepted baseline data about the ocean floor, marine and avian life, or economic impacts, interested parties are in a conundrum. Although the public would like to capture the benefits of renewable energy, some worry about the environmental costs of installing wind turbines in a sensitive marine area. Others are concerned about the negative effects of the wind farm on tourism and property values.

Even though the Nantucket Sound wind farm permitting process is in the draft EIS review stage, many stakeholders' scientific questions remain unanswered. While there are important political or value-based questions at stake, it is the scientific and technical questions that remain the focus of the debate. Without a forum to engage stakeholders in scientific questions in a meaningful way, groups on all sides are using this uncertainty to both support and condemn the proposed project. Interest groups and other regional institutions are publishing

study after conflicting study, and there is no consensus on whose science should be used in the permitting decision.

As a result, public meetings divide towns into groups that are for and against the wind farm. The developer and opposition groups have hired public relations experts to plead their case in the media. Though the Army Corps of Engineers is on track to issue its decision later this year, there is a high likelihood that it will be litigated. In short, the absence of data considered credible by all parties is handicapping the scientific process, the EIS and permitting decision, and the wind industry as a whole.

The public controversy surrounding the Cape and Islands offshore wind farm EIS is but one example of the difficulty of involving stakeholders with competing views in environmental policy decisions. The conventional NEPA process is meant to involve groups of all kinds in a way that ought to shape the policy choices made by government agencies and private proponents of new development. However, stakeholders with scientific as well as political concerns have been given little opportunity to present their views in a productive manner. While it is common for agencies to invite the public to comment on the scope of environmental impact assessment (EIS), few decision-making processes involved stakeholders in designing background research, choosing researchers, or interpreting research outcomes and incorporating science into policy decision.

Federal agency representatives have recognized that the EIA/EIS process is less than satisfying to members of the public who have concerns about resource management decisions. Agencies have used consensus-based processes, such as federal advisory committees and negotiated rulemakings, to involve stakeholders in a much more in-depth manner. Despite these initiatives, however, a preponderance of agency employees, including decision-makers, scientists, and resource managers do not understand or see the benefit of these new approaches to

environmental policy-making that goes beyond the standard NEPA procedures for public involvement. With the case studies included in this thesis, I hope to draw a clear distinction between traditional public involvement procedures typical of the EIA process and those associated with what can be called joint fact finding. Ultimately, I am interested in what the investment in expanded public involvement in scientific controversies will yield in terms of greater stakeholder satisfaction, focused on perceived legitimacy of government decision-making and credibility of the technical information used to make these decisions.

Chapter 1. PUBLIC INVOLVEMENT IN SCIENCE-INTENSIVE ENVIRONMENTAL DECISION-MAKING

The National Environmental Policy Act (NEPA), passed in 1969, requires all federal agencies to assess the environmental impacts of major projects or decisions, the expenditure of federal money, or other actions that affect federal lands; to consider environmental impacts in making decisions; and disclose to these impacts to the public. NEPA regulations, published first as guidelines and then formally promulgated by the Council of Environmental Quality (CEQ) in 1978, helped clarify NEPA procedures. These regulations provided minimum requirements for involving the public in NEPA-affected decisions. Beyond simply disclosure, NEPA now opens decision-making to public scrutiny and comment at a number of stages. "The public" can include any individual or group outside the federal government, including citizens, nongovernmental organizations (NGOs), business and industry, academics and state, local, and tribal governments.

While NEPA was the first law to focus on environmental decision-making, it was not the first law that helped open government decisions to the public. The Administrative Procedures Act (APA), passed in 1946, outlines the process by which federal agencies must conduct rulemaking. The APA requires federal agencies to give public notice about proposed rules, including information on which rules were based. It also requires agencies to allow opportunities for public comment on proposed rules. The Freedom of Information Act (FOIA) of 1966 encourages agencies to make their records as open to the public as possible, and grants the public the right to access federal records that are not otherwise available. An additional law promoting transparency in government, the Federal Advisory Committee Act (FACA) of 1972 requires that advisory committees convened by federal agencies operate in an open and accessible manner.

Why Involve the Public in Scientific Questions?

Public Involvement and "Productive Harmony"

NEPA, along with these earlier and subsequent laws, acknowledged the importance of transparency and public consultation as a component of environmental decisions. In fact, Congress crafted rather lofty language to underscore the value of public involvement. NEPA's Section 101 "productive harmony" clause describes a holistic view of environmental decision-making: cooperation between federal, state, and local governments and public and private organizations "to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans."[1] Congress further recognized that "each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment."

Science, Uncertainty, and "Wicked Problems"

While "productive harmony" is an admirable goal, NEPA decisions must also be based on science. In an environmental assessment (EA) or environmental impact statement (EIS), both triggered by NEPA, agencies require an investigation of potential environmental consequences of a project. How will the project affect the quality of surface and groundwater? To what extent will the construction phase disrupt the habitat of local plant and animal species, particularly those listed as endangered or threatened? Whether considering a permit application for a new bridge or a suite of management regimes for a forest plan, regulatory agencies look to scientists

[1] NEPA Section 4331. Congressional declaration of national environmental policy. US Code Title 42, Chapter 55, Subchapter I, Policies and Goals. (Pub. L. 91-190, title I, Sec. 101, Jan. 1, 1970, 83 Stat. 852.)

and their technical information to answer these questions and help them choose among alternatives.

Unfortunately, decision-makers seldom have one piece of scientific "evidence" to tell them which is the best policy. The inherent complexity of environmental systems makes environmental decision-making highly vulnerable to scientific uncertainty. Forecasts and other models are built with a great number of assumptions and in spite of large data gaps. Even when using the best available scientific and technical information, decision-makers are essentially in the position of making an educated guess.

In "Dilemmas in a General Theory of Planning," Rittel and Webber asserted that "[t]he easy problems have been solved. Designing systems today is difficult because there is no consensus on what the problems are, let alone how to resolve them."[2] They discussed "wicked problems" that can be explained in numerous ways. In other words, interested parties will have different perspectives on what the actual problem is, in addition to different ideas about the source of the problem and what steps should be taken to fix it.

Rittel and Webber stressed that wicked problems cannot be resolved with traditional analytical approaches. Fischer suggests that public participation can help decision-makers move forward on issues for which the problem definition may be as unclear or controversial as potential solutions.[3]

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[2] Horst Rittel and Marvin Webber. 1973. "Dilemmas in a General Theory of Planning." *Policy Sciences* v4. Amsterdam: Elsevier Scientific Publishing Company, Inc. (pp 155-169)

[3] Frank Fischer. 1993. "Policy Discourse and the Politics of Washington Think Tanks." In *The Argumentative Turn in Policy Analysis and planning,* ed. F. Fischer and J. Forester. Durham, NC: Duke University Press.

Nonobjective Judgments

While scientific inquiry requires much technical knowledge and training, there are many aspects of research design and analysis that involve nonobjective decisions on the part of the expert. Susskind and Dunlap outline several decision points in EIS processes that are influenced by nonobjective criteria; choice of professional team members; organization of the work plan; approaches to coping with uncertainty; attitudes toward mitigation; approaches to public participation; and the use of data for and the style of forecasting.[4] For each of these points in the EIS, choices depend not on facts, but on judgments. Therefore, those running the inquiry can have undue influence over research outcomes that inform the environmental decision. This may not be a deliberate power exercised by most experts. To the contrary, most experts strive for complete objectivity in their work. However, nonobjective judgments in science can and do affect the decision-making process.

Thus, though experts may be best poised to make the call on certain technical aspects of scientific inquiry, Susskind and Dunlap suggest practitioners recognize that

1. Environmental impact practitioners often give advice and make judgments that are not based solely on technical training
2. all technical judgments have a range of value judgments embedded in them; and
3. some technical judgments are more constrained by value choices than others.

Local Knowledge

Many have also recognized that the public can inform the decision-making process by providing an expertise that comes from a close connection to the land or other environmental

[4] Lawrence Susskind and Louise A. Dunlap. "The Importance of Nonobjective Judgments in Environmental Impact Assessments." *Environmental Impact Assessment Review* v2, n4. 335-366.

resource in question. "Local knowledge," as distinct from expert research, relies on a knowledge base built over time through continued close observation of setting or events. Local knowledge also involves an interpretation of these observations that generally emphasizes common sense rather than formal training. In debating fish stocks, a fisherman may argue that a scientific study does not accurately reflect their observations because scientists did not know how to set the nets properly, focused their study in the wrong area, or failed to properly account for seasonal variation in populations. In water quality investigations, citizens may contribute information about a series of unusual odors or local health problems in an area that environmental or public health agencies may have overlooked or failed to connect. As Fischer explains, long-time local residents have the unique ability to ground expert knowledge in the local context and therefore increase its relevance to policy decisions.

Challenges of Involving the Public in Science-intensive Decisions

The "Fundamental Paradox"

Both scientific information and public interests are key inputs into environmental decision-making. In principle, involving the public in the scoping of EISs and review of draft and final decisions is an important step in the decision-making process. Unfortunately, there are significant challenges to involving the public in highly technical discussions. An EIS can be hundreds of pages long, written in highly technical language and full of charts, graphs, maps, and other information. Sullivan et al. found an "atrocious" level of citizens' understanding of EIS material[5].

[5] W. C. Sullivan, F. E. Kuio, and M. Prahu. 1996. Assessing the Impact of Environmental Impact Statements on Citizens. *Environmental Impact Assessment Review* 16(3).

Thus, while individuals or stakeholder groups may have a critical interest in the outcome of the decision-making process, they may not necessarily have the expertise to understand and participate in discussions about the technical aspects of environmental issues. Daniels and Walker describe this "fundamental paradox" between technical competence and public participation: "Citizens demand technically sound decisions, but as situations become more complex, fewer people have the technical background needed to either meaningfully contribute to, or critique, the decisions."[6]

Though NEPA guarantees all citizens access to public meetings and relevant documents, only a very small percentage has the ability to truly understand and therefore truly participate in the decision-making process. The range of technical capacity in the general public can lead to not only a de facto exclusion of less-educated individuals, but can give an advantage to interest groups who do have the staff and resources to participate. These groups organize to participate in public hearings, send public comments, respond to agency documents, and even commission new scientific work. This can add to the confusion of the public who cannot necessarily discern between reports and lead to a tendency for these citizens to latch onto the science that backs up their interests.

Adversary or Advocacy Science

"The facts" of an environmental problem are not only difficult to ascertain and understand, but they can also be masked or misappropriated by political interests. It is not merely the uncertain nature of science which complicates the decision-making process, but the tendency of interest groups to exploit this uncertainty in order to advance their own agendas. Scientific

[6] Stephen E. Daniels and Gregg B. Walker. 2001. *Working Through Environmental Conflict: The Collaborative Learning Approach.* Praeger: Westport, Connecticut.

consensus on environmental questions can take years or even decades, as evidenced by the global warming issue. In the absence of agreement within the scientific community, interested groups and individuals often attempt to use the uncertainty to their advantage.

Some research is activist in nature – the expert deliberately conducts research to support the interests of a particular group, often a set of stakeholders that is traditionally underrepresented or lacking formal power. In other cases, an interested party may fund research and apply pressure to the principal investigator such that research outcomes favor the interests of the funder.

But much conflicting science is not advocacy research by design. Susskind and Ozawa note that scientists may disagree because of miscommunication, differences in the design and interpretation of inquiries, and errors.[7] For these reasons, different experts studying similar questions can arrive or communicate very different conclusions, which are then used by opposing interest groups to advance their argument in an adversarial manner. Even experts with the best of intentions may not be trusted by members of the public because of current or former affiliations, funding sources, or past research.

Fischer points out that "policy questions today present the complicated task of not only coming to grips with expert analyses of sophisticated technical issues but also understanding how different citizens arrive at their own judgments about such issues, including their understandings of the experts themselves."[8] But there is a lack of clear procedures for soliciting and incorporating scientific advice. In this void, adversarial science often enters the policy-making process. Scientists in government agencies, academia, environmental advocacy

[7] Connie P. Ozawa and Lawrence Susskind. 1985. "Mediating Science-Intensive Policy Disputes" *Journal of Policy Analysis and Management* 5:1 (23-39).
[8] Frank Fischer. 2000. *Citizens, Experts, and the Environment: The Politics of Local Knowledge.* Duke University Press: Durham, North Carolina. (p 44-45)

organizations, and industry associations conduct their research in isolation from each other, and often publish studies with very different outcomes. Thus, even before discussing what to do about an environmental problem, parties debate about whose science is better and should be used in the decision. Rather than helping to inform the decision, experts are left to walk the line between explaining their findings and defending their credibility. Adversarial and advocacy science also casts doubt on all research and findings, leaving decisions-makers with no commonly accepted scientific information on which to base their environmental plans and policies. In this way, the scientific uncertainty inherent in environmental systems is compounded by the haphazard fashion in which information feeds into the decision-making process.

Summary

With the passage of NEPA, Congress recognized the importance of environmental decision-making and the benefits of involving the public in these decisions. The "wicked problem" characteristics, as well as nonobjective judgments inherent in science, make it important to involve the public in science-intensive environmental decisions. Further, local knowledge can augment or more precisely focus expert-driven research and thus lead to better informed decisions. However, the complex nature of environmental science, coupled with the realities of the general public's scientific capacity make it extremely difficult for public involvement to make a useful contribution to the decision-making process.

Daniels and Walker suggest that "[f]inding ways to increase the quality of technical expertise, while simultaneously increasing the inclusivity of decision processes, is perhaps the

fundamental challenge of effective policy formation."[9] Similarly, Fischer urges that "[i]nstead of questioning the citizen's ability to participate, we must ask, How can we interconnect and coordinate the different but inherently interdependent discourses of citizens and experts?".

Neither NEPA nor CEQ's NEPA regulations outline an actual process by which to achieve its intent of public participation. The following chapter will describe the processes that federal agencies have used to fulfill NEPA public involvement requirements and assessments of these processes in terms of stakeholder satisfaction.

[9] Stephen E. Daniels and Gregg B. Walker. 2001. *Working Through Environmental Conflict: The Collaborative Learning Approach.* Praeger: Westport, Connecticut.

Chapter 2. CURRENT APPROACHES TO PUBLIC INVOLVEMENT IN ENVIRONMENTAL DECISION-MAKING

NEPA represents the conventional approach to public involvement, with public notice, scoping sessions, hearings, and written comments and responses. This approach has given the public an opportunity to comment on a range of resource management decisions. The federal government has recognized some of the shortcomings of this approach, however, and has implemented consensus-based approaches as an alternative approach public involvement. This chapter explores the NEPA and consensus-based models, including potential benefits and shortcomings of each.

The NEPA model of public involvement

As discussed in chapter 1, NEPA requires public notification and involvement in the evaluation of potential environmental consequences of major federal actions. The environmental impact assessment (EIA) and environmental impact statement (EIS) processes, governed by NEPA and state NEPAs (or "little NEPAs") represent the prevailing practice with regard to public involvement in science-intensive policy disputes. Public involvement takes place within the EIS process, which typically involves the following major steps:[10]

1. A meeting between EIS project staff and sponsoring federal agency to share pertinent project information.
2. Choice of methodology by EIS staff and approval by the sponsoring agency.
3. Scoping meetings to identify major issues to be researched and addressed and project alternatives, which are summarized in a Scoping Report.

[10] Jacob I. Bregman and Kenneth M. Mackenthun. 1992. *Environmental Impact Statements.* Boca Raton, FL: Lewis Publishers.

4. Data collection, based on the established project scope, and description of existing natural (climatology, topography, biology, geomorphology) and person-made environment (water quality, noise, air quality, land use, historic preservation and archaeology, demography, housing, local economy, hazards and nuisances, aesthetics and urban design, community services, and transportation).
5. Assessment of potential environmental impacts and mitigation options for each project alternative, including a "do nothing" alternative.
6. Preparation of the preliminary draft EIS for review by the sponsoring agency.
7. Preparation and notification of draft EIS, which is made available to the public, and opening of public comment period, usually 45 days.
8. Response to comments by EIS preparer and submission to sponsoring agency for approval.
9. Preparation of preliminary final EIS for review and approval by sponsoring agency.
10. Preparation and notification of final EIS.
11. Preparation of a Record of Decision (ROD), summarizing actions to be taken in accordance with final EIS.

Avenues for Public Involvement in NEPA

The Council on Environmental Quality (CEQ) was given regulatory oversight of all federal agencies for NEPA actions. CEQ's EIS guidelines, initially issued in 1973, were revised in 1978 to address government and public concerns about public involvement, efficiency, and coordination of EISs with other agency activities. The 1978 regulations did not go so far as to outline a start-to-finish public involvement procedure to be followed by all agencies but added

features that, at least theoretically, made the process more accessible. For example, the regulations established the scoping process to involve the public and other agencies in determining the scope of the draft EIS and to identify major project-related issues to be addressed. The regulations also instituted a format and page limits to help improve readability of EISs, and outlined instructions for inviting and responding to public comment.

CEQ regulations require agencies to "make diligent efforts to involve the public in preparing and implementing their NEPA procedures."[11] In addition to complying with CEQ regulations, they must consult with CEQ in developing their own NEPA procedures "to ensure that environmental information is available to the public and the agency decision makers before decisions are made and actions taken."

Bregman and Mackenthun summarized[12] public involvement actions required of federal regulatory agencies conducting an EIS:[13]

- public involvement in preparing and implementing NEPA procedures
- public notice of meetings and available documents to specific requestors, the *Federal Register*, state and regional clearinghouses, Indian tribes on reservations, local newspapers or other local media, community organizations, newsletters, and individuals by direct mailing (for local actions)
- public hearings and meetings where there is substantial environmental controversy concerning the proposed action or a request by another agency with jurisdiction over the action
- solicitation of information from the public

[11] *Federal Register.* 1978. 43 FR 56000, Nov. 29.
[12] The actual public involvement requirements for NEPA environmental reviews are under 40 Code of Federal Regulations, Chapter V, Parts 1500-1508.
[13] Jacob I. Bregman and Kenneth M. Mackenthun. 1992. *Environmental Impact Statements.* Boca Raton, FL: Lewis Publishers.

- explanation of sources of information available for interested persons
- making EIS and supporting information readily available in convenient public places such as libraries.

Typically, the public may be invited for scoping sessions to determine the issues associated with a project or decision. The public is also usually invited to comment on both the draft and final EIS. Some agencies also take public comments on the Record of Decision (ROD), and some will open an appeals process after the ROD is issued.

Other strategies that have been used to satisfy public involvement include:[14]

- questionnaires to determine public opinion trends;
- lectures describing the EIS process to a variety of organizations;
- use of volunteers to collect base data and gain a better understanding of local conditions;
- television and radio spots and paid newspaper advertising to publicize the process and public meetings;
- graphic project presentation with an expert panel to answer public questions; and
- newsletters with updates on project progress.

Assessments of NEPA in terms of stakeholder satisfaction

While NEPA has allowed the public to give input on thousands of projects, some have criticized the ability of the NEPA process to produce public policy that garner a high level of public satisfaction. Although public input is solicited at various points, it has been observed that the public is not involved in a meaningful way in research, decision-making, or implementation

[14] Sherman J. Rosen. 1976. *Manual for Environmental Impact Evaluation.* Englewood Cliffs, NJ: Prentice-Hall, Inc.

processes. As evidenced in the strategies used by agencies, noted above, "public involvement" often takes the form of simple notification, solicitation of public comment, or other types of one-way communication.

Public participation as defined by CEQ and individual agency guidances makes a distinct separation between the scientific study and public participation. This division has prevented agencies from realizing the full potential of NEPA as a tool to craft effective and stable environmental policy.

Solomon et al. noted five trends that have shown to be significant barriers to achieving the principles of public involvement through the typical EIS process:[15]

1. **Reduction in the number of EISs:** Federal agencies have reduced their reliance on EISs, partly due to the use of programmatic EISs and agency efforts to reduce environmental effects of proposed projects so as to avoid triggering NEPA. As the primary "hook" for public involvement in environmental decision-making, fewer EIS processes have translated to fewer opportunities for public participation.
2. **Public involvement restricted to required CEQ procedural phases:** NEPA regulations require public involvement in the scoping phase and on the draft EIS. These regulations assume that agencies do not undertake significant planning prior to scoping and withhold decision-making until after hearing from the public. When agencies suddenly issue project plans, disappear into the black box of decision-making, and reappear with a draft EIS, it is unclear to the public how research was conducted and what criteria were used to make choose the preferred alternative. Procedural compliance does not necessarily mean effective public involvement.

[15] R. M. Solomon, S. Yonts-Shepard, and W. T. Supulski II. 2000. "Public Involvement under NEPA: Trends and Opportunities" in *Environmental Policy and NEPA: Past, Present, and Future,* Ray Clark and Larry Canter, eds. Boca Raton, FL: St. Lucie Press. (pp 265-272)

3. **Agency reliance on a limited array of public involvement techniques:** Agencies tend to favor non-confrontational "public involvement" strategies and one-way communication, such as newsletters, informational meetings, and formal written responses. These options may be more comfortable to agencies, but the lack of interaction can be frustrating to the public and may lead to other demonstrations of their concern, such as through litigation.
4. **Overreliance on the analysis of biological and physical components of the environment:** As outlined in Section 102, NEPA is meant to consider social goals as well as potential impacts to the physical world. However, regulations such as the Endangered Species Act and Clean Water Act tend to focus NEPA processes (and litigation protection efforts) on biological and other physical attributes of a project. While social impacts may be mentioned in EISs, agencies are not required to disclose to the public how or whether such concerns have been addressed.
5. **Reliance on overly technical quantitative estimates of effects to explain risk and support decisions:** There is a mismatch between the general public's concerns about risk and the quantitative methods and models used to examine potential project impacts. The highly technical models used in conventional EIS processes are neither constructed with public input nor effectively explained in terms that allow the public to understand whether or not their concerns have truly been addressed.

CEQ's evaluations of NEPA found a public perception that federal agencies today are more accountable for and better understand the consequences of their actions than before

NEPA.[16] Interviewees said that agencies are more likely today to consider the views of the public. However, the study further determined that NEPA processes are costly and lengthy; that agencies make decisions before hearing from the public; and that agency officials, particularly senior leadership, lack adequate training in public participation. Furthermore, documents are too long and technical for many people to use; the highly technical nature of NEPA documents and the lack of public resources to "translate" materials into information useful to the interested public have contributed to an "atrocious" level of citizens' understanding of EIS material.[17] According to federal agency NEPA liaisons, the EIS process is still viewed by many as a compliance requirement rather than as a tool to effect better decision making.

Because of poor implementation of public involvement processes, agencies have lost public credibility. Agencies have also expressed frustration at the method of public involvement used most often in EIS processes. A NEPA Task Force (2003) received feedback that agencies may also misinterpret or misrepresent environmental effects information and do not conduct quality analyses. Agencies expressed frustration that other agencies and the public are insensitive to agency goals and responsibilities. Public participation through NEPA often occurs too late in the EIS process and tends to emphasize short-term impacts rather than long-term goals. Both public and agency interviewees noted a need for additional efforts to strengthen trust and credibility.

In its review of public involvement in NEPA, The US Institute for Environmental Conflict Resolution (US Institute) identified additional problems including a lack of agency guidance and interagency coordination, inefficient and duplicative processes, confusion about

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[16] Council on Environmental Quality. 1997. *The National Environmental Policy Act: A Study of its Effectiveness after Twenty-five Years*. http://ceq.eh.doe.gov/nepa/nepa25fn.pdf

[17] W.C. Sullivan., F. E. Kuio, and M. Prahu. 1996. Assessing the Impact of Environmental Impact Statements on Citizens. *Environmental Impact Assessment Review* 16(3).

participants' roles, overemphasis on NEPA documentation and litigation protection, and infrequent use of NEPA processes as part of strategic planning and decision making.[18] All of these reflect the lack of meaningful public participation.

An additional finding by the US Institute and a growing number of NEPA evaluators is that current practice reflects too little focus on NEPA's Section 101 "productive harmony" clause.[19] In focusing solely on Section 102, agencies are emphasizing procedure at the expense of NEPA's call for meaningful public involvement. In EIS cases reviewed by Kent and Preister, the social and economic portions of EISs "are a few paragraphs" or rely on Census statistics or other secondary data. They also noted that a lack of citizen participation in social and economic impact analyses. In summary, they explain that "[m]any of the efforts of reform have centered on streamlining the process and decreasing redundancy or irrelevancy rather than increasing citizen ownership and making issue resolution a centerpiece for a 'living process.'"

Yet another frustration with NEPA is that it often leads to litigation, taking the decision-making authority out of the hands of all involved parties. Of the approximately 35 NEPA court decisions issued since October 2001, the federal agencies lost 19, over 54 percent.[20] While judicial review provides the public with another avenue to affect an agency's decision, it frames the issue in terms of only the litigating party's interests and can end up trumping an agency's decision.

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[18] U.S. Institute for Environmental Conflict Resolution. 2001. *Report and Recommendations on A NEPA Pilot Projects Initiative.*

[19] For example, K. Preister and J. A. Kent. 2001. *Using Social Ecology to Meet the Productive Harmony Intent of the National Environmental Policy Act (NEPA).* Social Ecology Associates and James Kent Associates. (p7) http://www.naturalborders.com/Docs/KPreister_UsingSocialEcology.pdf

[20] Lucinda L. Swartz. 2003. A *Review of NEPA Cases 2001-2003.* http://www.naep.org/NEPAWG/recent_cases.html

Consensus-based Approaches to Environmental Decision-making

For the many reasons cited above, federal agencies have explored alternative public involvement models for environmental decision-making. The Enlibra Toolkit, embraced by many state and federal officials, illustrates a view of decision-making that places a premium on collaboration. "Enlibra offers a vision of more inclusive, collaborative processes for defining problems and their solutions" and "the imperative use of good science, not only for technical reasons but to achieve public and political acceptance."[21] Agency initiatives, such as the Department of the Interior's (DOI's) "4C's agenda" also represent an effort to expand the NEPA definition of public involvement. This approach calls for "consultation, communication, and cooperation, all in the service of conservation" and recognizes that environmental disagreements can best be solved through "effective partnerships between the Federal, state, and local government, citizens, and organizations."[22]

While federally funded environmental decisions are always subject to NEPA, agencies have used processes other than the traditional model of public hearings and public comment to seek input. By involving a small group of stakeholders representing constituencies with different, often opposing perspectives, agencies can get much more in-depth public input and have a two-way dialogue that is not possible through public hearings and written public comment. One example of this type of process is a negotiated rulemaking or regulatory negotiation. Under FACA, a federal agency will convene a stakeholder committee representing the public, interest groups, and state and local governments to advise the agency on a specific subject. If the group reaches agreement, the federal agency can use the group's terms as a basis for its proposed rule,

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[21] *The Enlibra Toolkit: Principles and Tools for Environmental Management.* First Edition. The Oquirrh Institute. (p4)

[22] U.S. Department of the Interior. 2003. *Strategic Human Capital Management Plan, FY 2003-2007.* Section 3: "Achieving Our Performance Goals." http://www.doi.gov/pfm/human_cap_plan/pdf/section3.pdf

which will then be subject to public comment. If agreement is not reached, the agency proceeds with its normal rule-making activities.

Negotiated rulemakings represent one type of consensus building process. Consensus building is a process by which stakeholders with a broad range of interests come together for a dialogue aimed at collaborative problem-solving. This dialogue is managed by a neutral facilitator and usually involves multiple parties and covers multiple issues. The goal of consensus building is to reach agreement on a plan that meets the high-priority interests of all parties involved, is based on sound scientific and technical information, and is politically acceptable and implementable.

Consensus-based approaches have also been used for watershed groups, in which local stakeholders work together over time to manage local resources, including water and land use; and scientific advisory panels, in which a range of experts meet to work toward a scientific consensus on a topic affecting future regulatory decisions

Consensus building promotes mutual gains, the concept that a group working together can create value and "expand the pie" of benefits.[23] The mutual gains approach is distinct from compromise or "zero sum negotiation," which requires one stakeholder to give up something in order for another to gain. Rather, mutual gains negotiations require a dialogue in which parties are actively looking for ways they can meet each others' interests at low cost to themselves. By understanding each stakeholder's main interests, the group is more likely to be able to work collaboratively and creatively on solutions that address their interests. If the conversation

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[23] See:
Howard Raiffa. 1982. *The Art and Science of Negotiation*. Cambridge, MA: Belknap Press/Harvard University Press.
D. A. Lax and J. K. Sebenius. 1986. *The Manager as Negotiator*. New York: The Free Press.
Lawrence Susskind and Patrick Field. 1996. *Dealing With an Angry Public: The Mutual Gains Approach to Resolving Disputes*. New York, NY: The Free Press.

remains focused on fixed resources, parties will continue to compete for the largest piece of the pie.

Susskind outlines five key steps of consensus building:[24]

1. **Convening** refers to the initiation of a process, including an assessment of the conflict or problem and barriers to its resolution. The "convenor" is process sponsor, often a federal agency with regulatory authority. The convenor should involve a neutral facilitator to help identify the range of stakeholders and their interests, whether a consensus-based approach is appropriate, and who should ultimately be "at the table" for the consensus building process. Before beginning work, the convenor and other participants should also secure sufficient resources to carry out the process.

   In the convening stage, stakeholders may highlight a need for capacity building, or training geared toward preparing participants for the upcoming process. Capacity building can include coaching in the consensus building process itself, to help participants learn how to work together productively. It can also have a substantive focus, targeting key scientific and technical concepts that will be dealt with in the deliberations.

2. The next step is for the group to jointly **clarify responsibilities** of all participants, including the role of stakeholders, convenor, and facilitator. In a federal decision-making process, the role and participation options for the public at-large must also be determined, in accordance with applicable federal regulations. Before addressing substantive issues, the facilitator will

[24] Lawrence Susskind. 1999. "A Short Guide to Consensus Building" *The Consensus Building Handbook: A Complete Guide to Reaching Agreement.* Lawrence Susskind, Sarah McKearnan, and Jennifer Thomas-Larmer, eds. Thousand Oaks, CA: Sage Publications.

help the group establish agreed-upon goals and principles for their work, including ground rules, operating procedures, and timelines.

3. Once these key preparation steps have been completed, **deliberations** can begin. This is the phase that most people have in mind when they think about negotiations. At this stage, the group has already reached procedural agreements, and should build on these successes with a continued emphasis on relationships and constructive dialogue. Susskind highlights a number of key principles of deliberation, explaining that stakeholders should express concerns in an unconditionally constructive manner; engage in active listening; disagree without being disagreeable; and strive for the greatest degree of transparency possible (27-28).

   Documenting the agreement is a critical aspect of the deliberation phase. A written agreement serves not only as a "group memory," but as a tool to communicate the agreement to each stakeholder's constituency and other members of the public who were not directly involved in the process. A common method of documenting the agreement is creating a single, detailed report that outlines the group decision. This document would be considered a draft, and not an agreement, until all parties sign it. By creating draft agreements, parties can clearly see trade-offs they are making, and where the draft does or does not meet their interests. When parties disagree, a single-text allows them to be more specific about points of contention. Further, parties are encouraged to not just disagree, but to articulate alternate language that is more acceptable.

Fisher, Ury, and Patton describe the "one-text procedure" as a negotiation tool to help parties make a clear distinction between inventing options and final decision-making.[25] Parties may be more willing to be creative and experiment with possible agreements if it is clear that, by proposing a new idea, they are not committing to it. A single-text document is one example of a boundary object. Boundary objects are documents, such as tables, maps, text, or even a common vocabulary that can aid people from different disciplines build a shared understanding of an issue.[26]

During deliberations, it may be beneficial for participants to consider creating subcommittees and involve experts. Subcommittees, or work groups, can engage in more in-depth learning about a particular subject, brainstorming, or document drafting. Subcommittees are not decision-making bodies, and will always bring their work and/or findings back to the larger group.

4. When **deciding**, groups should seek agreements that maximize the mutual gains to participants. Generally, the initial goal of a consensus building group is to reach full agreement. However, Susskind points out that it is also appropriate to seek overwhelming support on final recommendations if unanimity cannot be achieved after attempting to meet the needs of "holdouts." In considering the group's final recommendations, the convening agency should note which groups did or did not support the decision and why.

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[25] Fisher, Robert, William Ury, and Bruce Patton. (1991). *Getting to Yes: Negotiating Without Giving In* (Second Edition). Houghton Mifflin Company. (p 112)

[26] See S.L. Star and J. R. Griesemer. 1989. "Institutional ecology, 'translations' and boundary objects." *Social Studies of Science* 19(3): 387-420.

Again, the group must maintain a written record of the agreement in its numerous iterations. Using the one-text approach, stakeholders can put suggestions on the table and work with other representatives to draft a proposal, which will be reviewed by the entire group and revised until it is acceptable to everyone. Next, the all stakeholders can bring the draft document back to their constituencies for final review. At this point, their organizations may suggest additional changes to the document, which the parties can revisit and revise before final sign-off.

5. In the **implementation** phase, stakeholders must ensure that their constituencies ratify the agreement. In consensus building, the stakeholders at the negotiating table are almost always representing a larger constituency, such as association or advocacy organization. The success of a consensus building process, and the decision phase in particular, is contingent on these larger stakeholder organizations signing off on the final agreement. Thus, it is important for representatives to maintain close contact with their "second table" throughout the process. Facilitators should encourage this communication, and representatives must be sure to take any proposals and final agreements from the consensus building process to the second table of their constituency.

The question of constituencies is particularly important to rulemakings and other federal decision-making processes informed by a stakeholder group in a consensus-based process. Though only a relatively small number of representatives can be chosen to sit at the table, the process must comply with the APA, FACA, NEPA, and any other relevant federal regulations that mandate public involvement. Even if the consensus group reaches

agreement, implementation can be held up if these procedures are not followed. Thus, at the same time as a stakeholder group deliberates and recommends a policy alternative, the decision-making agency must still build in opportunities for traditional avenues of involvement and consider input from the public at-large before finalizing any decisions.

In implementing the agreement, the group should also consider how the decision's efficacy will be monitored. In the event that unanticipated issues arise as a result of the group's decision, participants should also consider setting up a procedure to reopen the process and revisit the agreement. Finally, stakeholder groups should evaluate their own participation and consider "lessons learned" for their next collaborative effort.

Assessments of Consensus-based Approaches – Benefits and Shortcomings

The federal government has recognized the benefits of convening a stakeholder group to inform decision-making processes,[27] including

- rules that are more sensitive to the needs and limitations of both the parties and the agency;
- rules that are more pragmatic and more easily implemented at an earlier date;
- a reduction in the number and a more moderate tenor of public comments;
- a reduction in the number of substantive changes required before the rule is made final; and
- greater creativity in rule making.

[27] David Pritzker and Deborah Dalton. 1990. Negotiated Rulemaking Sourcebook. Washington, D.C.: Office of the Chairman, Administrative Conference of the U.S.

In addition to improved decision-making outcomes, proponents of consensus-based processes have also asserted a number of positive secondary effects. Birkhoff and Lowry summarized four "levels" of outcomes and benefits that speak to the promise of consensus-based processes:[28]

- **Individual-level outcomes**, such as met interests and needs; satisfaction with process and outcomes; empowerment through increased influence and access to decision makers and information; capacity building in technical information and skills such as negotiation and coalition building; and personal transformation through greater understanding of other parties' perspectives;
- **Relationship-level outcomes**, such as increased trust and establishment of shared norms between parties that can lead to future cooperation;
- **Social-level outcomes**, such as the formation of new networks; increased social capacity to resolve disputes; and institutionalization of public participation and civic engagement; and
- **Ecological-level outcomes**, including more sustainable, creative, and adaptive solutions through increased participation and inclusion of different perspectives and sources of knowledge

In studying consensus-based approaches, scholars and past participants have also noted potential problems or reasons to be wary of the stakeholder group approach to federal decision-

[28] Juliana E. Birkhoff and Kem Lowry. 2000. "Whose Reality Counts?" in *The Promise and Performance of Environmental Conflict Resolution* Rosemary O'Leary and Lisa B. Bingham eds. Washington, DC: Resources for the Future. (p28-32)

making. Wondolleck and Yaffee observed three basic challenges to collaboration, from the perspective of process management:[29]

- **Unfamiliarity with the process:** The process can overwhelm the substance of the policy decision if agency staff underestimate resources, timing, and other needs of a collaborative process.
- **Lack of process skills:** Though not typically trained as mediators, agency staff may need to mediate contentious issues between stakeholder groups while simultaneously facilitating the process within their agency – from resource managers with implementation concerns to high-level decision makers with political concerns.
- **Managing the tension between the process and the world around it:** Despite best efforts at the table, there are many external forces that can complicate a consensus-based process. For example, a stakeholder's constituency may not agree to sign on; the lead agency may be pressured by elected officials; stakeholders or non-participants may exert political influence in other arenas; stakeholder groups may be involved in an ongoing conflict about another issue, thus straining their working relationship.

Mike McCloskey, Chairman of the Sierra Club, also expressed concerns about consensus-based approaches, from the stakeholder perspective, in a letter to his board of directors.[30] Several of his comments underscored the tension between local and national interests, noting that many collaborative processes do not provide an effective mechanism for the

[29] Julia M. Wondolleck and Steven L. Yaffee. 2000. *Making Collaboration Work.* Island Press: Washington, DC. (p 63)

[30] Michael McCloskey. Letter to the Sierra Club Board of Directors, reprinted in High Country News. May 13, 1996. http://www.hcn.org/servlets/hcn.Article?article_id=1839

involvement of "distant stakeholders." In addition, he observed that stakeholders who refuse to negotiate in good faith or move from their positions may exert undue influence, "paralyz[ing] the process and defy[ing] the popular will."

McCloskey also highlighted the importance of "parity in experience, training, skills or financial resources" between environmental and industry groups, expressing concern that local environmental groups may not be on a level playing field when negotiating with industry interests. Further, as consensus-based processes can be time-intensive, local groups may not have the time or energy to sustain their participation, or to sustain their work on other environmental concerns.

Finally, while conflict may hold up a decision-making processes, public disagreement and debate are valid and valuable in creating and unifying political constituencies. McCloskey worries that consensus-based processes "tend to de-legitimate conflict as a way of dealing with issues and of mobilizing support."

Negotiated rulemaking, as a particular application of consensus-based approaches, have also been evaluated. Negotiated rulemaking brings together stakeholders and a federal agency in an advisory committee with the goal of negotiating and reaching consensus on the text of a proposed rule. If the committee reaches consensus, the federal agency may use their text as a basis for its proposed rule, which is subject to public comment like any other proposed rule. Negotiated rulemaking has been used by several agencies, but very infrequently in comparison to the number of rules promulgated through the conventional rulemaking process. The possible benefits of negotiated rulemaking include a reduction of conflict and litigation. Some have asserted additional benefits, such as an increase in legitimacy of the rulemaking process.[31] Others

[31] Jody Freeman and Laura I. Langbein. 2000. "Regulatory Negotiation and the Legitimacy Benefit." New York University Environmental Law Journal 9: 60.

have contested the performance of negotiated rulemaking, citing evidence that it has neither saved regulatory time nor reduced litigation.[32] Echoing McCloskey's concerns, others cite time and resources constraints may disadvantage small and/or local advocacy organizations in a negotiated rulemaking process.

Summary

While NEPA has allowed the public to give input on thousands of projects, the conventional public involvement model has been highly criticized by scholars, past participants, and even agency representatives. Although public comment is solicited for the scoping report and on the draft EIS, public involvement is often seen as a procedural requirement rather than a step in crafting better policy that aims to balance environmental, economic, and social goals. Though environmental decisions often hinge on scientific and technical information, the conventional NEPA approach makes a distinct separation between the scientific study and public participation. Further, it fails to recognize value judgments inherent to scientific inquiry and the importance of involving stakeholders in making such judgments. These shortcomings have prevented agencies from realizing the full potential of NEPA as a tool to craft effective and stable environmental policy.

Consensus-based approaches have been used to address some of the inadequacies of NEPA public involvement. Federal and state statutes have legitimized the use of consensus building, and agencies at all levels of governments have used collaborative processes to facilitate their decision-making. Consensus building processes have the potential to resolve not only the

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Philip J. Harter. 1987. "Negotiated Rulemaking: An Overview." *Environmental Law Reporter* 17 (July): 10245-10247. http://www.law.nyu.edu/journals/envtllaw/issues/vol9/1/v9n1a3.pdf

[32] Cary Coglianese. 1997. Assessing Consensus: The Promise and Performance of Negotiated Rulemaking. *Duke Law Journal* 46:1255-1349. http://www.law.duke.edu/shell/cite.pl?46+Duke+L.+J.+1255

value-based conflicts over natural resources, but also the questions of fact that often delay or even overturn environmental decisions. Still, many of these processes have ignored or taken for granted the questions of scientific and technical information.

There remains a great need to acknowledge and address technical questions in a collaborative manner so that information is gathered, analyzed, and incorporated into decisions such that it is credible and useful to decision makers, stakeholders, and technical experts. Even less explored is the integration of the local (or contextual) knowledge, or observational/anecdotal information, possessed by residents or users of natural resources. The next chapter explores joint fact finding, a consensus-based process focused on the scientific and technical questions of environmental decision-making.

Chapter 3. INNOVATIONS IN INVOLVEMENT: THE JOINT FACT FINDING MODEL

Joint fact finding is a consensus-based process by which stakeholders work with scientists and decision-makers to scope, review, and incorporate scientific information into policy decisions. Joint fact finding brings together diverse stakeholders and scientists to frame research questions with the goal of gathering information that is credible to all parties. Joint fact finding involves stakeholders in helping planners frame the research questions, choose objective and credible experts, monitor the research, interpret the results, decide on a course of action, and revisit the plan after implementation to consider whether modifications are needed. This chapter explores the key roles, steps, and advantages and disadvantages of the joint fact finding approach to public involvement, particularly its potential to increase stakeholders' perceptions of credibility and legitimacy in resource management decisions.

Key Roles

It is critical that all participants in a joint fact finding process understand their roles. Joint fact finding should involve:[33]

- decision makers, or representatives from agencies with decision-making responsibility;
- managers who will be responsible for implementing the decision;
- representatives of stakeholder groups who will be affected by the decision;
- scientific and technical experts to interact with and serve as a resource to other

[33] Lawrence Susskind, Patrick Field, Mieke van der Wansem, and Jennifer Peyser. "Integrating Scientific Information, Stakeholder Interests, and Political Concerns in Resource and Environmental Planning and Management" in *Fostering Integration: Concepts and Practice in Resource and Environmental Management.* Kevin S. Hanna and D. Scott Slocombe, eds. Oxford University Press. Forthcoming, Fall 2005.

stakeholders throughout consensus process;

- a convenor that can bring these key parties to the table; and
- a neutral facilitator that can create a climate conducive to joint investigation of issues, productive dialogue, and relationship building among participants.

Decision makers are those responsible for writing the environmental plan or policy. While the actual decision makers could be defined as legislators voting on the approval of new regulations, they will generally not be involved in negotiations. Representatives of agencies under whose purview the new policy will be promulgated are more likely to participate in the rule making process and therefore joint fact finding. This group should be clear about goals and timelines for the policy process and where flexibility does and does not exist.

Managers are likely from the same agency as the decision makers, but are responsible for implementing the regulations "on the ground" from one of the agency's many field offices. For example, a manager of a new rangeland policy would work directly with local ranchers and other landowners to implement grazing regulations or habitat restoration activities, as well as to monitor activities on public lands. Managers are needed in joint fact finding processes to inform other participants about the practicality of potential new regulations under consideration by the group.

Stakeholders are individuals or groups who will be potentially affected by a new plan or policy. A convenor and/or neutral facilitator should conduct a conflict assessment to determine the range of stakeholders and which among them should be offered a seat at the table. In environmental management issues, stakeholders often include advocates hoping to represent the resource in question, such as a river, ecosystem, or a particular plant or animal species. Local

community stakeholders may have social or economic concerns, such as the effect of a decision on growth, open space, or the job market. Stakeholders can also include business and industry representatives whose development or delivery of products and services may be affected by the decision. Participants from this group often communicate how regulations will impact resources of their sector, including time and money.

Joint fact finding also brings in scientists and analysts to work with decision makers, managers, and stakeholders to frame the research question(s), gather data, interpret the data, and communicate the research results. In traditional EIS processes, scientists are confined to the lab or the field, and the interested public does not have the benefit of their expertise. In joint fact finding, experts play a central and ongoing role throughout the entire decision-making process. Having scientists and analysts at the table can improve stakeholders' understanding of technical issues, recognize scientific uncertainties, and answer questions about what issues can and cannot be addressed through research. Technical experts can also help stakeholders understand baseline information, determine data gaps, and frame researchable questions based on identified issues of concern.

Members of the technical team must be seen as credible to all parties and be able to work in a collaborative situation with decision makers and stakeholders. This does not mean that they should sacrifice objectivity. Rather, they must conduct their work in a transparent fashion, be willing to address stakeholders' questions, and help the group consider how scientific and technical information relates to the policy decision. Further, they must be able to communicate across disciplines with experts involved in other research related to the policy.

In order to bring together decision makers, managers, stakeholders, and experts, a convening group or individual is often needed to provide a connection to the overall decision-

making process, as well as funding and other logistical support. In many cases, an agency with regulatory responsibility serves as the convenor. Convenors also typically choose the neutral facilitator, with approval from other participants.

In general, facilitators are responsible for process management, though they should also have a basic understanding of the substantive issues, including the range of stakeholder interests and scientific and technical questions. Facilitators should be experienced in the consensus building principles and techniques.

Key Steps

Joint fact finding involves decision-makers, resource managers, stakeholders, and experts in a number of key steps in the process of scientific inquiry.[34] Again, joint fact finding should take place within the context of a larger consensus building process, as described in Chapter 2.

Step 1: Assess the need for joint fact finding

The convenor, in consultation with a neutral facilitator, should first assesses the need for a joint fact finding process, including a review of the scientific, financial, and human resources that will be needed for a successful collaborative inquiry. Convenors should identify the data gaps or scientific controversies that could be addressed by joint research. A neutral facilitator should aid in assessing the situation and stakeholders' perspectives.

This assessment will aid in identifying a balanced group of potential joint fact finding participants. A balanced group should include stakeholders representing different sectors and viewpoints, resource managers who can speak to the "on-the-ground" practicality of proposals,

[34] These steps are based on those outlined by the Consensus Building Institute and the MIT-USGS Science Impact Collaborative (MUSIC), 2005. Available on the MUSIC website, http://scienceimpact.mit.edu.

and other agency representatives. Experts may be considered at this time, but they must be officially agreed to by the rest of the group after deciding to proceed.

Step 2: Convene the joint fact finding process

If all parties weigh the costs and benefits of joint fact finding and decide to proceed, convenors can invite the group to the table to begin the process. At this point, as called for by the consensus building process, the facilitator assists participants in developing ground rules and a work plan, including outstanding scientific questions and a timeline for their work. Additionally, participants will now jointly determine what kinds of expertise will be needed to help inform the decision-making process and which experts have the training and credibility to join the process.

Before proceeding, all parties must understand sources of conflict, which questions are appropriate to deal with through joint fact finding, and what other issues must be considered in the overall consensus building process. While most EIS studies focus on scientific questions, joint fact finding also allows the introduction of other issues, such as economics or aesthetics. There may be long list of issues, but the group and sponsoring agency, in particular, should also be clear about realistic goals and limitations of their work as it relates to the policy-making process.

Step 3: Scope the study

After discussing which issues are of highest importance to stakeholders, experts aid participants in translating their concerns about knowledge gaps or conflicting information into researchable questions. Experts also help identify sources of existing information and appropriate methods of information gathering and analysis, as well as the costs and benefits of different

methods. Further, as discussions likely involve highly technical issues, it is appropriate for experts to take time early on for capacity building around scientific and technical information or processes that will be discussed during the rest of the joint fact finding effort.

Throughout scoping and all phases, participants must continue to tie the scientific inquiry back into the policy questions to ensure that their work will be relevant to the decision-making process which will follow joint fact finding. For example, beyond determining data needs and study design, joint fact-finding participants would also determine criteria for use in the decision-making phase. Criteria should address environmental, economic, and social factors, as well as mitigation measures that are feasible and potentially acceptable to stakeholders and the regulatory agency. Criteria must also consider applicable federal, state, or local laws to which the proposed project would be subject.

Step 4: Conduct the study

As experts conduct the study as scoped by joint fact finding participants, they should draw on stakeholder expertise and local knowledge. This could include inputting a resource manager's observational data into their models or learning about a research site from a local stakeholder. Experts should also educate participants about complexities of their research and check back with them regularly with progress reports, data, and draft findings.

Step 5: Evaluate the results

Following research, stakeholders, developer, agencies, and the scientists evaluate the results. Together, these participants would discuss what the scientific results mean, including the assumptions and uncertainty levels built into the results. Given this information, joint fact-

finding participants would determine how these results could be used most appropriately to inform upcoming decision.

In developing draft and final conclusions, participants should maintain transparency by noting the assumptions, uncertainties, and limitations of the scientific inquiry. They should also compare the results of their studies with the published literature and submit their results for peer review, if necessary. Joint fact finding participants must determine whether all key questions have been answered and how their findings can inform the policy decision.

Step 6: Communicate the results

Participants should prepare key messages from their research findings to share with different stakeholder constituencies and policy-makers. Communications should convey that the research was scoped, conducted, and evaluated in a collaborative manner, and that all members of the joint fact finding team are behind the results.

Participants should listen to feedback from other stakeholders and determine whether additional research is needed, as the eventual policy outcome will affect a much larger population than those stakeholders directly participating in the process "at the table." If participants conclude that their joint fact finding efforts have yielded they have the necessary scientific and technical information, they can feed this information into the larger policy-making process.

Past applications of JFF to environmental decisions

Joint fact finding is particularly suited to resource and environmental management and has been used for many environmental issues, including coastal zone management, watershed

management, and facility sitings.[35] It has also been successfully tailored to a number of process needs. McCreary et al highlight the flexibility and versatility of joint fact finding. They describe its use in three different fora:[36]

- a one-day dialogue to clarify areas of scientific agreement and disagreement, frame and prioritize a research agenda, develop policy options, and translate technical issues into legislative briefs;
- a series of ten monthly meetings with twenty-two agencies and private organizations in which participants built consensus on technical terms, prepared and discussed literature reviews, and participated in a single-text negotiation of a final report with management recommendations, emerging technologies, and a research agenda;
- a two-and-a-half day meeting of an independent review panel of scientists and other technical advisors to identify research needs and draft a single-text report to inform an ongoing steering committee.

Advantages and Disadvantages to Joint Fact Finding Participants

Ozawa explores individual-level outcomes, outlining the potential advantages and disadvantages of consensus-based approaches to scientific and technical inquiry and decision, as compared to conventional procedures, as outlined in Table 1.

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[35] See
Scott McCreary, John Gamman, Bennett Brooks, Lisa Whitman, Rebecca Bryson, Boyd Fuller, Austin McInerny, and Robin Glazer. 2001. "Applying a Mediated Negotiation Framework to Integrated Coastal Zone Management." *Coastal Management* 29:183-216.
Connie P. Ozawa and Lawrence Susskind. 1985. "Mediating Science-Intensive Policy Disputes" *Journal of Policy Analysis and Management* 5:1 (23-39).
Katherine L. Jacobs, Samuel N. Luoma, and Kim A. Taylor. 2003. "CALFED: An Experiment in Science and Decisionmaking." *Environment.* 45:1.

[36] Scott McCreary, John Gamman, and Bennett Brooks. 2001. "Refining and Testing Joint Fact-Finding for Environmental Dispute Resolution: Ten Years of Success." *Mediation Quarterly* 18:4.

Table 1: Advantages and disadvantages of consensus-based approaches to scientific and technical inquiry and decisions[37]

Policy Actor	Potential Advantages	Potential Disadvantages
Resource-poor Stakeholders	Share expertise through coalitions Greater access to information Ticket to entry not scientific expertise Opportunity to express all concerns	Consensus not good for political mobilization Time-consuming Delay as tactic is forfeited Cannot exploit scientific uncertainty
Resource-rich Stakeholders	Good public image Greatest concerns more likely to be addressed Higher certainty of outcome (can plan ahead)	Lose advantage of information and expertise Cannot exploit scientific uncertainty Delay as tactic is forfeited
Decision Makers	Share information Share expertise Good public image Wider array of interests heard Richer understanding of various groups' interests Better working relationships with groups involved Scientifically unwise decisions avoided	Lose some discretionary decision making power Requires concentrated dedication of time
Scientists	Easier for individuals to change their mind if new evidence arises Greater credibility if not seen as "hired gun" More likely to be listened to Brings together information from diverse sources	More "conservative" science

Many of the advantages noted by Ozawa help to address concerns highlighted by the public in terms of conventional NEPA processes. For example, shared expertise and greater access to information can help to balance the difficulty of involving non-experts (resource-poor stakeholders) in highly technical EIS processes. In general, Ozawa's conclusions illustrate that resource-poor stakeholders are granted a much better opportunity to have their interests met than in conventional processes. While resource-rich stakeholders, decision-makers, and scientists can realize benefits through a joint fact finding approach, it seems that resource-poor stakeholders have the most to gain through greater involvement and a more level playing field in scientific and technical issues.

[37] Connie P. Ozawa. 1991. *Recasting Science: Consensual Procedures in Public Policy Making*. Boulder, CO: Westview Press. (Table, p115)

While decision-makers and scientists may be unfamiliar with the joint fact finding approach and may perceive a loss of discretionary power through increased stakeholder involvement, these participants have an opportunity to make improvements suggested by NEPA evaluators. For example, stakeholders' constant interaction with scientists would offset the perception that agencies misinterpret or misrepresent environmental information or that they do not conduct quality analyses. Due to the heavy involvement of stakeholders early and throughout the process, joint fact finding would change the perception that agencies make decisions before hearing from the public. Finally, at the end of the process, all involved stakeholders will have contributed to the outcome. If conducted appropriately, joint fact finding can make agency and public representatives allies rather than adversaries.

These types of issues touch on stakeholder perceptions of scientific credibility and process legitimacy. Below, I explore the ways in which joint fact finding can address many of the criticisms of conventional decision-making in regards to credibility and legitimacy.

How JFF can improve credibility and legitimacy of environmental assessments

Cash et al illustrate that the efficacy of science in policy-making should be measured not only in terms of actions and outcomes, but the process of defining, framing, and choosing among options to deal with issues.[38] They describe credibility as the "scientific adequacy of the technical evidence and arguments." Legitimacy refers to "the perception that that production of information and technology has been respectful of stakeholders' divergent values and beliefs, unbiased in its conduct, and fair in its treatment of opposing views and interests."

[38] David W. Cash, William C. Clark, Frank Alcock, Nancy M. Kickson, Noelle Eckley, David H. Guston, Jill Jäger, and Ronald B. Mitchell. 2003. "Knowledge systems for sustainable development." Proceedings of the National Academy of Sciences 100:14.

Joint Fact Finding and Scientific Credibility

Credibility addresses the question of "Is the scientific information used in decision-making *believable*?" Adversary science is a major barrier to credibility in environmental and resource management decision-making. However, it can be managed through joint fact finding. As illustrated by Ozawa and Susskind, joint fact finding reduces parties' abilities to use technical analysis as a "deceptive shield" to serve their interests in a policy-making process. Rather, it makes transparent the scientific and technical issues and requires a joint selection of experts, rather than dueling scientists, to work on these questions. McCreary et al highlight the adaptability of joint fact finding in terms of expert selection and participation, noting that participants may choose to bring together experts that previously worked only with individual interest groups, a new group of non-aligned experts, or some combination of new and familiar experts.[39] Each of these options allows groups to move beyond the model of adversary science.

Joint fact finding also promotes the use of boundary objects, or documents such as tables, maps, or text, that allow experts to work with stakeholders and decision-makers to build a shared understanding, negotiate agreements around scientific issues, and apply technical information to policy questions in a transparent manner. Cash et al discuss the use of boundary objects to bring greater credibility to the acid rain debate, through the Regional Air Pollution Information and Simulation (RAINS) model.[40] This type of joint fact finding effort involved research from multiple disciplines and stakeholders representing a number of countries involved in negotiations of emission reduction protocols. The use of boundary objects allowed participants, representing

[39] Scott McCreary, John Gamman, and Bennett Brooks. "Refining and Testing Joint Fact-Finding for Environmental Dispute Resolution: Ten Years of Success." *Mediation Quarterly* 18:4.
[40] David W. Cash, William C. Clark, Frank Alcock, Nancy M. Kickson, Noelle Eckley, David H. Guston, Jill Jäger, and Ronald B. Mitchell. 2003. "Knowledge systems for sustainable development." Proceedings of the National Academy of Sciences 100:14.

different interests and different technical disciplines, to jointly create a model that all parties found credible and agreed could best inform their choice of an appropriate protocol.

Joint fact finding can also lead to increased credibility through an explicit management of the relationship between technical and local knowledge. Adler and Birkhoff outline several basic principles for managing the interplay between expert and local knowledge, or "knowledge from here and knowledge from away".[41] They note a number of principles shared by the best stakeholder processes, each of which can be accomplished through joint fact finding:

- no one type of knowledge or "way of knowing" is privileged above others – all modes of inquiry and analysis are welcomed;
- both technical and local information are accessible to everyone involved;
- stakeholders drive the framing of questions, information gathering, analysis, and its application to decision-making;
- all information, regardless of its source, is subjected to respectful questioning about validity, accuracy, authenticity, and reliability;
- capacity building for all participants in learning from different kinds of knowledge.

Joint fact finding also helps to mitigate uncertainty and improve credibility through the inclusion of adaptive management as a key component of resource decisions. Adaptive management is the process of making management decisions in light of scientific uncertainty and the dynamic nature of environmental processes.[42] In dealing with the many unknowns inherent to

[41] Peter S. Adler and Juliana E. Birkhoff. 2002. "Building Trust." Published by The National Policy Consensus Center.

[42] For example, see
Kai N. Lee. 1993. *Compass and Gyroscope: Integrating Science and Politics for the Environment.* Washington D.C.: Island Press.

environmental management in a transparent fashion, stakeholders are able to negotiate how this uncertainty should be dealt with and reflected in the implementation of a resource management plan.

Adaptive management involves making decisions with the best available information and creating contingencies to be triggered if certain thresholds or unanticipated consequences occur. While building consensus on the resource plan, stakeholders can also craft monitoring agreements and the criteria for triggering a review of implementation measures. By building such feedback mechanisms into the agreement, joint fact finding and adaptive management allow stakeholders to address unintended consequences and grants flexibility to improve plans based on information collected during implementation.

Joint Fact Finding and Process Legitimacy

Legitimacy deals with the question of "Is the process used to incorporate scientific information and make the policy decision *fair*?" Adler et al note that environmental disputes are seldom rooted in scientific and technical information *per se* but rather factors such as differing values, unequal control, and perceived or actual competition over interests and resources.[43] They further note that scientific and technical issues in environmental conflicts are embedded in a political context. These ideas are echoed in a review of science-intensive cases by Andrews, who concludes that "the need to consider interpersonal institutional, and procedural issues when

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J. R. Ravetz. 1986. "Usable Knowledge, Usable Ignorance: Incomplete Science with Policy Implications" in *Sustainable Development of the Biosphere*, W.C. Clark, and R.E. Munn, eds. Laxenburg, Austria: Cambridge University Press.
C. J. Walters and C. S. Holling. 1990. "Large Scale Management Experiments and Learning by Doing." *Ecology* 71 (6): 2060-2068.
[43] Peter Adler, Robert Barrett, Martha Bean, Juliana Birkhoff, Connie Ozawa, and Emily Rudin. 2000. *Managing Scientific and Technical Information in Environmental Cases.* Published by RESOLVE, the U.S. Institute for Environmental Conflict Resolution, and the Western Justice Center Foundation.

performing technical work [and] . . . demonstrates that analysts must make context-relevant analytical choices."[44] In short, the process legitimacy matters when it comes to decision-making and scientific and technical inquiries that feed into policy.

Ozawa points out that consensus-based approaches to decision-making provide an opportunity to clarify scientific and political values that often influence decisions but remain hidden from public view.[45] By dealing explicitly with the nonobjective aspects of scientific inquiry, all joint fact finding also helps participants see where and how different interests and values may influence scientific outcomes. As much as experts strive for objectivity in their work, Susskind and Dunlap urge practitioners to recognize that experts often give advice and make judgments that are not based solely on technical training, and that all technical judgments have a range of value judgments embedded in them.[46] The public should have a role in making these nonobjective decisions to help ensure that the research process is consistent with the needs and expectations of the larger decision-making process. Rather than hiding values behind scientific reports, joint fact finding promotes transparency in all phases of research. In this way, the relationship between science and policy can be clarified, and other concerns, such as socioeconomic considerations, can be addressed.

Joint fact finding can also improve legitimacy by addressing the trends (other than the reduction in the number of EISs) that Solomon et al. identified as significant barriers to achieving the principles of public involvement through the conventional NEPA EIS public

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[44] Clint Andrews. 2002. Humble Analysis: The Practice of Joint Fact-Finding. Westport, CT: Praeger. (p 115)
[45] Connie P. Ozawa. 1991. *Recasting Science: Consensual Procedures in Public Policy Making*. Boulder, CO: Westview Press
[46] Lawrence Susskind and Louise Dunlap. "The Importance of Nonobjective Judgments in Environmental Impact Assessments." Environmental Impact Assessment Review 2 (4): 335-366.

involvement model.[47] For example, the authors noted an overreliance on the analysis of biological and physical components of the environment, sometimes to the exclusion of social goals. Joint fact finding, through its involvement of a broad range of stakeholders, is a model better equipped to incorporate Section 102's productive harmony aims. The ESA and other regulations will continue to require agencies to incorporate science into its decisions. However, by calling for an explicit management of the interface between science and policy, joint fact finding increases transparency and involvement in decisions about how scientific and social considerations are balanced in resource management decisions.

Other shortcomings of conventional NEPA model are that public involvement techniques are limited and restricted to required CEQ procedural phases. Both these trends negatively affect public perception about the legitimacy of the NEPA process.

By expanding public involvement beyond the minimum guidelines, joint fact finding opens the "black box" of scientific and policy-making processes. NEPA regulations require public involvement in the scoping phase and on the draft EIS. However, by only involving the public in these steps, it is unclear to most how the research was conducted, reviewed, and used to choose the preferred alternative. It is understandable that agencies favor non-confrontational and one-way communication strategies to fulfill public involvement requirements. However, the lack of dialogue is a missed opportunity to open scientific and technical inquiries to a more rigorous review. Further, the lack of transparency, at minimum, damages the legitimacy of the process in the eyes of the public, and at worst, can spur litigation.

Another trend noted by Solomon et al is a reliance on overly technical estimates to explain risk and support decisions. Models used in conventional EIS processes are neither

[47] R. M. Solomon, S. Yonts-Shepard, and W. T. Supulski II. 2000. "Public Involvement under NEPA: Trends and Opportunities" in *Environmental Policy and NEPA: Past, Present, and Future,* Ray Clark and Larry Canter, eds. Boca Raton, FL: St. Lucie Press. (pp 265-272)

constructed with public input nor explained in ways that allow the public to understand whether or not their concerns have truly been addressed. Joint fact finding provides an opportunity for collaborative modeling that can incorporate assumptions and information relevant to public concerns.[48] The iterative process of model construction, revision, and application, such as in the RAINS model process, promotes communication among parties and allows for a productive discussion about methodology, data, values, outcomes, and the incorporation of scientific and technical information in policy outcomes. By giving all stakeholders more oversight and equal input into models, the process by which estimates are calculated will be seen as more legitimate than those that rely on quantitative inputs chosen by experts in isolation of stakeholders.

Summary

Joint fact finding provides a mechanism to deal with the scientific and technical information and issues that are central to environmental disputes and decision-making. Through greater involvement in stages from framing scientific questions to the review of science and incorporation into policy, joint fact finding gives stakeholders the opportunity to interact with decision-makers and experts to inform and shape the policy-making process. The creation and application of jointly created criteria and boundary objects allows stakeholders from different disciplines and levels of technical expertise are able to discuss and weigh policy options such as project alternatives. Joint fact finding has been used successfully in a suite of decision-making processes, helps address many of the concerns raised in assessments of conventional NEPA public participation, and has the potential to increase the scientific credibility and process legitimacy of resource management decisions.

[48] Connie P. Ozawa and Lawrence Susskind. 1985. "Mediating Science-Intensive Policy Disputes" *Journal of Policy Analysis and Management* 5:1 (23-39).

Chapter 4. CASES AND METHODOLOGY

In this study, I am examining how stakeholder involvement in scientific and technical issues during environmental and resource-management decision-making affects stakeholder perceptions of the process and information used in the process.

I have investigated three models of public involvement:

1. an EIS case, representing the most common practice of public involvement in science-intensive policy disputes
2. a consensus-based process that involved stakeholders more in the scientific and technical aspects of decision-making and through a facilitated face-to-face dialogue.
3. a joint fact finding case, representing a higher degree of stakeholder involvement in the scoping, review, and incorporation of scientific information into a resource management decision.

For each case, I focused on federal resource management decisions involving an environmental assessment taking place within the Department of the Interior (DOI), or at least involving a DOI agency as a major player. I also looked for cases in the same or nearby regions. In terms of timing, I looked for cases that have been completed one to five years ago. An additional criterion for my second and third cases is the use of an independent facilitator/mediator. To find my cases, I interviewed dispute resolution practitioners, resource managers at DOI, and academics, who provided case examples and contacts for the project.

Based on my criteria and interviews, I chose the following cases:

1. An EIS process to determine livestock impacts in a national monument, in which the public involvement requirement was handled through public comment and hearings

2. A consensus-based stakeholder process, which took place parallel to public comment, with the goal of reviewing a completed livestock study for an EIS process
3. A consensus-based stakeholder process, organized in response to a citizens' suit, to examine flood control alternatives and recommend a preferred alternative for a general reevaluation report/environmental impact report-supplemental environmental impact statement (GRR/EIR-EIS)

These cases are further described below.

The Cascade-Siskiyou National Monument Livestock Impact Grazing Study

The Cascade-Siskiyou National Monument (the Monument) was established by President Clinton in 2000. As an area with eleven existing grazing leases, the Presidential Proclamation directed the Secretary of the Interior to "study the impacts of livestock grazing on the objects of biological interest in the monument with specific attention to sustaining the natural ecosystem dynamics." Bureau of Land Management (BLM) began conducting a number of studies, monitoring projects, and literature reviews to determine whether ranching is compatible with the key monument goal of protecting objects of biological interest. The data was also intended to assess whether the grazing allotments on monument land met Oregon Standards for Rangeland Health.

Conventional Public Involvement Approach

In order to carry out the intent of the proclamation, the BLM prepared a *Draft Study of Livestock Impacts on the Objects of Biological Interest* in 2001. BLM mailed the draft study plan to a list of interested publics. The comment period was extended several times and finally ended

on December 1, 2001. BLM reviewed the 69 letters and 263 postcards received and incorporated these comments into the study design. BLM also met several times with the grazing lessees in the office and held a two-day field trip to discuss the study plan, which resulted in study modifications.[49]

In addition, BLM provided copies of the draft study to a group of approximately 30 scientific peer reviewers, as well as a panel at Oregon State University (OSU) in April 2004 to review and comment on the series of studies and monitoring projects that comprise the Livestock Impacts Study for the CSNM. Each panel member prepared a set of review comments that were compiled into a review document and presented to the BLM for consideration.[50]

Public meetings and a comment period were also initiated for the larger Cascade-Siskiyou National Monument Management Plan and Environmental Impact Statement, of which grazing management was one issue. BLM made the draft study available for public review, and extended the public comment period for several months. Following the comment period, BLM modified and updated the study based on additional discussions with potentially affected livestock operators as well as other public comments.

There was actually no requirement for public involvement in the study. The study plan is a "monitoring" project and as such involves using monitoring protocols, when they exist, and other science methods to evaluate the impacts of grazing on the biological objects, as required by the proclamation. As explained by Howard Hunter, BLM, explained,

> "Unlike a 'management plan' or 'activity' plan, the BLM is not required to go to the public or, as NEPA says, 'seek a balance' or 'weigh competing uses.' But, we knew how controversial the project was and made the draft

[49] Email Communication from Howard Hunter, April 25, 2005.
[50] The OSU Peer Review findings can be viewed at http://www.or.blm.gov/csnm/Docs/csnm_livestock_study_review_7-22-04.pdf

available. We sent the draft study plan to the public as well as a group of relevant scientists. After receiving the input from the public and the peer reviewers we modified our study plan in 2002."[51]

Livestock Impact Study Working Group

In addition to the approach described above, BLM chartered a Livestock Study Working Group. BLM said the committee was needed "to build trust and confidence in the grazing study and to prevent future conflicts from developing."[52] This committee was composed of seven members of two existing provincial advisory committees (PACs) in Southwest Oregon.[53] The purpose of the working group was to assist BLM with the following activities:

1. review the current Livestock Study;
2. review the Oregon State University (OSU) scientific peer review of the Livestock Study;
3. engage in a joint fact-finding public participation process to acquire input from the public, interest groups, and county commissioners (or representatives); and
4. assist the Southwest Oregon PAC in providing the BLM with recommendations regarding the study.

The working group process was managed by Terry Morton and Jon Lange, independent facilitators whom BLM contracted with through the U.S. Institute for Environmental Conflict

[51] Email Communication with Howard Hunter, April 25, 2005.
[52] Charter for the Cascade-Siskiyou National Monument Livestock Study Working Group.
[53] The Working Group was chartered under the Federal Advisory Committee Act (FACA), with its members coming from the existing Southwest Oregon PAC and the Klamath PAC, which were originally chartered to advise the Department of Agriculture's U.S. Forest Service on the Northwest Forest Plan.

Resolution.[54] These facilitators interviewed stakeholders, including participants in the Working Group as well as other interested individuals, and prepared a situation assessment "to provide the Working Group with an understanding of the perspectives of the various stakeholders, identification of some common ground as well as particular challenges, and thoughts about direction the Group might take."[55]

The group met seven times over a seven-month period.[56] Given the activities outlined in the charter, the Working Group determined which topics would be discussed at each meeting and other activities. The facilitators were responsible for drafting meeting notes to summarize each meeting, which group members had an opportunity to review before they were finalized and made available on the BLM website. The group agreed that they would attempt to reach consensus on any recommendations passed on to BLM.[57] They further decided that, if full consensus was not possible, the group would vote, with a simple majority deciding the recommendation.

All meetings were also open to the public with opportunities for the public to make presentations or provide input. At the end of each meeting, members of the public were given two to three minutes to ask questions or share comments with BLM and the Working Group. When possible, questions were answered immediately. Other questions or comments were recorded for future consideration by BLM.

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[54] The 1998 Environmental Policy and Conflict Resolution Act (P.L. 105-156) created the U.S. Institute for Environmental Conflict Resolution to assist parties in resolving environmental conflicts around the country that involve federal agencies or interests. For more information on the Institute, please see http://ecr.gov/,

[55] Initial Assessment for the Livestock Impacts Study PAC Working Group. August 2, 2004. Prepared by Jon Lange and Terry Morton.

[56] The Working Group meeting notes, background documents, final recommendations, and news releases are available on the monument web page at http://www.or.blm.gov/csnm/livestock_grazing_study.htm

[57] Cascade-Siskiyou National Monument Working Group: Study of Livestock Impacts. Meeting Notes, July 23, 2004. Prepared by Jon Lange and Terry Morton.

A number of scientists advised the Working Group. Paul Hosten, the lead BLM scientist on the livestock impact study, attended meetings when his schedule permitted. A panel of scientists from OSU conducted a peer review of the livestock study, which was made available to the working group. This panel was chosen by BLM prior to the convening of the working group and consisted of

- a research rangeland ecologist and professor emeritus,
- a hydrologist and watershed expert, professor emeritus,
- a research wildlife biologist for the USGS, specializing in research and technology transfer,
- a plant ecologist with expertise in statistics, and a professor at OSU.

Though these scientists did not interact with the group prior to the completion of their work, the Working Group meeting invited one of the OSU peer reviewers and three other experts to participate in a science panel. These scientists attended one meeting to "help the Working Group understand the areas of agreement and disagreement regarding the Studies and be better able to make recommendations."[58] This scientific panel included

- the lead BLM scientist for the livestock grazing study,
- a research rangeland ecologist and professor emeritus from OSU,
- a volunteer and retired professor from UC-Davis, invited by the ranching community, and
- a World Wildlife Fund (WWF) fisheries biologist, invited by the environmental community.

[58] Cascade-Siskiyou National Monument Working Group: Study of Livestock Impacts. Meeting Notes, August 13, 2004. Prepared by Terry Morton and Jon Lange.

Each of these scientists was given time to share their feedback about the BLM livestock study, the OSU peer review, or other studies. They also answered questions from the Working Group and other members of the public who attended the meeting. At the meeting, the group asked scientists questions such as

- If you could start over, what would you like to have done differently?
- If you had additional funds, what would you do with them?
- Where do you see the controversy?
- If you could make one recommendation to the Working Group, what would it be?

Another of the group's ideas was to take a field trip to the monument "to gain hands-on experience of the Monument and the Studies," and to see for themselves what they had heard from presenters in their meetings.[59] In particular, the group was interested in seeing a bird station, riparian area, weeds, spring mollusks, variety of potential causal disturbances, areas of no grazing or light grazing, and photos for historical comparison. The group invited two additional representatives of the ranching community and two from the environmental community. The general public was also invited, but public comment was to be limited, as the focus of the trip was "to educate the Working Group on the physical environment and studies" about which they were to make recommendations.

The draft recommendations went through a number of iterations, each of which was discussed at meetings. If the group could not come to consensus on a point, it was removed from the list of recommendations. For example, while some members felt qualified to discuss

[59] Cascade-Siskiyou National Monument Working Group: Study of Livestock Impacts. Meeting Notes, August 13, 2004. Prepared by Terry Morton and Jon Lange.

methodology, others felt it was outside their expertise and suggested that individual members send comments to BLM if they had additional recommendations of their own.

The Working Group's final recommendations, which did represent full consensus, were approved in November 2004. The group stated that they "affirm the comprehensiveness and scientific integrity of the BLM Study combined with the associated additional studies" and included a number of recommendations to "support the integrity of the process in studying the impacts of livestock grazing on the objects of biological interest."[60] The working group recommended that BLM

- incorporate the OSU Peer Review recommendations into the livestock grazing studies, with the same panel with the same individual members be asked to review additional formal studies;
- incorporate studies sponsored by the World Wildlife Fund, to the extent that peer review shows that these studies are valid and reliable, and that the studies follow established scientific methods and analyses. Other formal studies initiated to address data gaps should receive comparable peer review;
- incorporate a thorough review of relevant literature regarding the impact of livestock grazing on the objects of biological interest, to enhance the design and analysis of the Studies;
- work to ensure that information regarding the studies associated with the Proclamation is readily accessible to the public; and
- continue to utilize personal observations and historic information as deemed appropriate in its scientific study.

[60] Livestock Impacts Study Working Group of the Southwest Oregon Provincial Advisory Committee. Final Recommendations, November 2, 2004.

These recommendations represent consensus only by individual members, rather than any overarching stakeholder groups or particular organizations. Further, as the Working Group was technically a subcommittee, their list of recommendations was taken back to the Southwest Oregon PAC, as the body able to send recommendations to the agency.

BLM has taken the recommendations from the Working Group and will consider them in the decision-making process, though they are not bound to follow all of the recommendations. The Cascade-Siskiyou National Monument Proposed Resource Management Plan/Final Environmental Impact Statement, outlines BLM's "framework for making future decisions regarding livestock grazing and complying with the presidential proclamation."[61] The document specifies three possible outcomes, which will be partially informed by public comment: current grazing practices, modified grazing practices, or retirement of allotments.

To reach a decision regarding the future of grazing on the Monument, BLM will follow a four-step process:

1. **Livestock Impact Study:** The study, associated data collection, and analysis will continue through 2006. Some monitoring and data collection would continue over the long-term.
2. **Conduct Rangeland Health Assessments, Evaluate Current Livestock Grazing Practices, and Determine Rangeland Health and Impacts to Objects:** These assessments are required prior to lease renewal and are conducted by an interdisciplinary team of resource specialists who assess ecological processes, watershed functioning condition, water quality, special status species, and wildlife habitat conditions. To the extent the results determine that existing grazing practices are "incompatible with

[61] Cascade-Siskiyou National Monument Proposed Resource Management Plan/Final Environmental Impact Statement, page 71-83.

protecting the objects of biological interest" the manager will determine whether or not practices can be modified in a manner that is economically and logistically feasible to achieve compatibility.

3. **Follow the NEPA Process for Lease Renewals or Allotment Retirement:** Lease renewals would be then be subject to the appropriate level of environmental analysis as prescribed by NEPA, which would develop a full range of management alternatives for grazing consistent with applicable legal authorities, including the presidential proclamation. Alternatives would include current management, a no-grazing alternative, and other alternatives. Evaluation would include consideration of social impacts and economic and logistical feasibility.
4. **Determine Grazing Compatibility, Issue Decision and Implement Grazing Lease Issuance/Renewal or Retire Allotments:** If current or proposed practices are compatible with protection of objects of biological interest and meet Oregon Standards for Rangeland Health, a term grazing lease would be issued and specify types and levels of use as well as management objectives. If grazing should be found incompatible, and grazing systems cannot be modified to achieve compatibility, or if BLM determines that lands are best allocated to other purposes, allotments would be retired.

During the protest period, which closed in March 2005, 13 protests were filed on the proposed management plan, some of which were aimed at BLM's livestock activities. BLM will continue to follow this plan through its four steps as it answers these protests and possible future lawsuits. At the end of this year, they will begin to write up the results of the studies.[62] NEPA is

[62] Email Communication with Howard Hunter, April 25, 2005.

one of the applicable laws referred to by the proclamation, and the eventual NEPA planning process will require several opportunities for public input in the future.

Guadalupe River Flood Control Project Collaborative[63]

The Downtown Guadalupe Flood Control Project was originally approved by Congress in 1986. Conceived as a flood protection measure, the project fell under the purview of four project sponsors: the US Army Corps of Engineers (the Corps), the City of San Jose (the City), the City of San Jose Redevelopment Agency (SJRA), and the Santa Clara Valley Water District (SCVWD).

In February 1992, the San Francisco Regional Water Board issued water quality certification and waste discharge requirements, as required by the Clean Water Act and the California Water Code, respectively. The certification was a result of negotiations between the project sponsors and several resource agencies: US Fish and Wildlife Service (FWS), the State of California Water Resources Control Board, National Marine Fisheries Service, (NMFS), the California Department of Fish and Game (DFG), and the San Francisco Bay Region Water Quality Control Board (SFBRWQCB). The approved project consisted of a traditional trapezoidal channel "hardscape," such as concrete armoring and training walls, to increase the channel's capacity and convey flood flows. The certification further required a number of measures to protect aquatic habitat and promote recreational access:

- development of a Mitigation and Monitoring Plan;

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[63] Information on this case was collected from the following sources:
Scott McCreary, Rebecca Bryson, and Gary Wildman. 2001. "Final Record of Decision and Withdrawal of Citizen's Suit Marks Resolution of a 15 Year Flood Control Dispute in San Jose." *CA Water Reporter.*
Richard Roos-Collins. Forthcoming, 2005. "A Perpetual Experiment to Restore and Manage Silicon Valley's Guadalupe River." *Golden Gate Law Review.*
Guadalupe River Park and Flood Protection Project Web site (http://www.grpg.org/FloodControl/History.html)
Email communications with Scott McCreary, February-April 2005.

- planting of riparian vegetation;
- maintenance of a low-flow channel for fish passage outside of the flood season; and
- assistance in the implementation of the San Jose's River Master Plan for recreational facilities and access, linking gardens, a visitor's center, tennis courts, and riparian trails.

The Corps and SCVWD completed the first two of three phases, or contracts, of the flood control project by 1996. In May 1996, before construction of Contract 3 began, the Guadalupe-Coyote Resource Conservation District (GCRCD), an advisory body to landowners in central San Jose on best management practices for their lands and other natural resources, issued a Notice of Citizens' Suit under the Clean Water Act to enforce the mitigation requirements of the 1992 certification. The suit alleged that the Mitigation and Monitoring Plan had not been fully approved by resource agencies. It also alleged that some of the mitigation measures in Contracts 1 and 2 failed to comply with 1992 certification requirements. Other environmental groups – Trout Unlimited and Pacific Coast Federation of Fishermen's Associations – joined the suit.

While the GCRCD stated that it would seek damages, injunctive relief, and attorneys' fees in any litigation, the notice proposed negotiation to resolve the complaint. In June 1997, the resource agencies and project sponsors invited the GCRCD to join the newly formed Guadalupe River Flood Control Project Collaborative (the Collaborative). Project sponsor agencies and resource agencies chose representatives from their organizations that were familiar with policies and regulations affecting the flood control project. The attorney that had worked with interested stakeholder parties (the GCRCD, Trout Unlimited, Pacific Coast Federation of Fishermen's

Associations) in developing the Notice of Citizens' Suit served as their representative at the table.

In initiating their work, the Collaborative participants jointly interviewed and selected a neutral facilitation team to convene the process and manage all meetings. While four agencies (the Corps, SCVWD, the City of San Jose Redevelopment Agency, and the City of SJ Public Works Agency) provided funding for the facilitation team, the contract made it clear that the team was to be responsive to the Collaborative as a whole rather than one party or the funders alone.

Looking ahead in the consensus process, the facilitation team emphasized the importance of building an agreement that was substantively sound and informed by the best possible scientific and technical information. However, the Collaborative consisted of policy-level stakeholders familiar with policies and regulations, and not necessarily with equal familiarity in biology, engineering, or other scientific and technical aspects of the project. For example, the Public Works Director of San Jose was familiar with engineering details, but not about regulation of fish biology under the Endangered Species Act. As such, facilitator Scott McCreary proposed the establishment of a Technical Fact-Finding Subcommittee (TFFS) to assist the Collaborative with such questions. Collaborative members agreed to this approach, and jointly agreed to the membership of the TFFS, with stakeholders able to nominate experts they felt were credible and could serve as a resource in the negotiation process.

Consisting of scientists and consultants from the project sponsors and resource agencies, the TFFS jointly developed, analyzed, and compared project alternatives. Each Collaborative participant had the opportunity to nominate a TFFS expert to serve as a technical advisor. The TFFS also included an environmental consultant who had worked on the 1992 certification and

was paid by the project sponsors. In the Collaborative process, the same contractor was used and paid for by the Corps. However, the consultant's contract specified that it would undertake further study at the instruction of the Collaborative as a whole.

The main activity of the TFFS was to evaluate the cost and hydraulic capacity of alternative project designs for Contract 3 and the alternatives' ability to reduce impacts to riparian and aquatic habitat. For key issues identified by the Collaborative, the TFFS clarified areas of scientific agreement, disagreement, and uncertainty. To facilitate the comparison of alternatives, the TFFS developed a set of metrics, summarized in a table, evaluating each alternative for three indicators: average annual habitat units; linear feet of shaded river aquatic habitat; and water temperature.

The Collaborative set the following objectives to modify the project and resolve to the issues in the citizens' suit:

- Redesign the project to avoid project-caused adverse effects or to minimize unavoidable effects
- Maximize on-site mitigation vegetation in shaded riverine aquatic cover
- Replace the quality as well as the quantity of impacted shaded river aquatic habitat
- Take an adaptive approach for long-term project management of operation and maintenance of the completed project

Together, the Collaborative developed flood protection and habitat conservation criteria. These criteria would eventually help the group evaluate different project alternatives, and required that an approvable alternative

- provide at least as much flood protection as the current project;

- achieve measurable objectives for other beneficial uses;
- result in timely project completion;
- be cost-effective and fundable; and
- comply with all applicable laws.

After seven months of intensive deliberations, the Collaborative also came to agreement on a Dispute Resolution Memorandum Regarding Construction, Operation, and Maintenance of the Guadalupe River Flood Control Project (DRM). Drafted using the single-text approach, the DRM applied the previously established criteria to studies conducted by the consultant, leading to consensus on a project alternative recommended by the Collaborative. This alternative included a bypass facility that diverted flood flows underground, which would achieve the same flood protection result as the existing project that relied on a good deal of hardscape, but also protecting and restoring fish habitat and providing for recreational use along the Guadalupe River. In July 1998, the project sponsors, resource agencies, and GCRCD entered into a DRM agreement in support of that alternative design. The staff level signatures on the DRM were supported by a second tier of ratification of elected officials and senior staff.

The Collaborative's agreement fed into the broader regulatory and flood control planning process. The Collaborative's preferred alternative underwent environmental review as required by NEPA and the California Environmental Quality Act (CEQA). The agreement also required the project sponsors to develop a Mitigation and Monitoring Plan that addressed riparian vegetation for coldwater fisheries; stabilization of water temperatures for anadromous fish species; and adaptive management of the project over its 100-year useful life. Moreover, the Collaborative created an Adaptive Management Team to receive annual reports on monitoring

results and make needed adjustments to ensure the project continues to meet the agreed-upon management objectives.

Evaluation Criteria

To evaluate conventional approaches to public involvement as well as those associated with joint fact finding, I will use the framework of the Global Environmental Assessment (GEA) Project, which has found that assessments are more likely to be effective to the extent that they are salient, credible, and legitimate in the eyes of stakeholders. For this case, I have chosen to explore credibility and legitimacy as two characteristics of successful public involvement in an environmental impact study, as described by Eckley and colleagues:[64]

> Credibility (*Is it true?*) is intended to reflect the scientific and technical believability of the assessment to a defined user of that assessment, who is often in the scientific community. Credibility can be gained based on the process by which the information in the assessment was created, or by the credentials or other characteristics of those producing the assessment.
>
> Legitimacy (*Is it fair?*) is a measure of the political acceptability or perceived fairness of an assessment to a user. A legitimate assessment process has been conducted in a manner that allows users to be satisfied that their interests were taken into account, and that the process was a fair one. Participants must believe that their interests, concerns, views, and perspectives were included and given appropriate weight and consideration in an assessment if they are to grant the assessment legitimacy.

[64] Noelle Eckley, Bill Clark, Alex Farrell, Jill Jaeger, and David Stanners. *Designing Effective Assessments: The Role of Participation, Science and Governance, and Focus*. Report from a workshop co-organized by the Global Environmental Assessment Project and the European Environment Agency, 1-3 March 2001, Copenhagen, Denmark.
Also described in David W. Cash, William C. Clark, Frank Alcock, Nancy M. Kickson, Noelle Eckley, David H. Guston, Jill Jäger, and Ronald B. Mitchell. 2003. "Knowledge systems for sustainable development." Proceedings of the National Academy of Sciences 100:14.

Activities Associated with Credibility and Legitimacy

Based on the literature and personal observation of stakeholder processes, I created a list of activities that I expect to affect stakeholder perspectives on the credibility and legitimacy of public involvement approaches. I hypothesized that a resource management decision-making process using joint fact finding as the model for public involvement will show more of the following activities expected to affect credibility and legitimacy:

Credibility Factors

Stakeholders involved in the framing of scientific inquiry. The framing of scientific questions determines what types of information will be collected and analyzed, and therefore, what information will be used to determine a policy outcome. In an EIS process, this is referred to as "scoping." Ideally, the framing process will be broader than EIS scoping, which agencies typically initiate with many preconceptions of a project, limiting the depth and impact of stakeholder involvement. By involving the public at the very start of a project in jointly framing and directing research, stakeholders can more clearly see the impact of their involvement and have more confidence in the process and results of scientific inquiry and therefore increase their perception of credibility.

Stakeholders involved in the selection of technical experts. Stakeholders' perception of science is often affected by their opinion of the investigator. If scientists or technical experts are seen as biased, stakeholders will not trust their work. Thus, a diverse group of stakeholders should be involved in choosing which experts will be involved in research and other advisory activities to ensure that the outcomes of their work will be seen as

credible. Ideally, different stakeholder groups should come to agreement on experts that are trusted by all. If this is not possible, each stakeholder group should be able to involve an expert that they trust as a technical advisor throughout the process. Giving stakeholders a voice in the selection of experts whom they find credible can lend greater credibility to scientific findings.

Clarification of scientific agreement, disagreement, and uncertainty. In all consensus-based processes, stakeholders should clarify areas of agreement and disagreement. This is also true of science-intensive processes, in which stakeholders should probe areas of scientific consensus and controversy. Further, with the assistance of technical experts, stakeholders should help clarify areas of scientific uncertainty, how to narrow uncertainty, and how this uncertainty can affect the future policy decision. Making these clarifications can lead to greater credibility of scientific information with stakeholders.

Information sharing between stakeholder groups, decision-makers, and experts. Whereas adversarial approaches to decision-making are often characterized by parties' withholding of information, public involvement should benefit from as many sources of information as possible. Credibility can be increased by the pooling of information for a joint evaluation by stakeholders.

Use of jointly constructed documents and tools ("boundary objects"), such as maps and single-text agreements. Participation in the construction of maps and models allows stakeholders from different disciplines and levels of technical expertise to see how

information is applied to decision-making tools. Negotiated single-text documents, another type of boundary object, allows stakeholders to discuss and build consensus around different policy options. Involvement in creating and negotiating boundary objects, as opposed to relying solely on experts, allows stakeholders to see how scientific information is applied and can lead to greater credibility.

Legitimacy Factors

Use of a consensus-based approach. As discussed in Chapter 3, consensus-based approaches to public involvement have many potential benefits to participating stakeholders. Bringing together participants with diverse interests to discuss and reach consensus on policy decisions in a transparent manner can lead to greater legitimacy.

Capacity building around technical issues. The technical nature of environmental impact statements often serves as a barrier to participation by the general public. A process with capacity building can increase stakeholders' perception of legitimacy by allowing them to more fully participate in discussions and decision-making around key technical issues.

Stakeholder involvement in selection of neutral process manager. In conventional public involvement processes, decision-making agencies typically take responsibility for meeting management. If stakeholders lack trust in the agency, that agency's management of the process is often an additional source of suspicion. Bringing in a neutral facilitator allows decision-makers as well as stakeholders to look after substantive concerns, while the neutral manages process issues. Involving stakeholders in the selection of the process manager provides even greater

transparency and sense of a shared process. Giving stakeholders an opportunity to review and select, and "contract" with a facilitator who has no stake in the outcome can bring greater legitimacy to public involvement processes.

Transparency in use of science for policy decision. Environmental impact statements present a suite of scientific information. However, agencies typically do not show how they have applied and balanced scientific information in their policy decision, or choice of project alternatives, particularly when different pieces of information would suggest the choice of different alternatives. For example, in a road study, noise and air quality projections might suggest that an alternative through a less developed wooded area would be the best choice, while an assessment of threatened species would suggest that the woods alternative should be avoided for habitat protection. Stakeholders find decision-making processes more legitimate if agencies are clear about how they have used science to inform their policy decision.

Expert discussion of policy implications of science/technical issues. Agencies involve experts to investigate questions of environmental science. When it comes to the implications of their scientific findings, however, scientists generally prefer to remain quiet, feeling that any involvement in policy discussions will damage their scientific reputation. By conducting studies and leaving results with stakeholders and decision-makers to interpret on their own, experts create a missing link between science and policy and a missed opportunity to increase the impact of science on policy. Involving experts in discussions about the policy implications of their work can increase legitimacy for

stakeholders by helping them understand where science can inform policy as well as decisions for which science cannot give an answer and value judgments must be made.

A Note on "Stakeholder Satisfaction"

I do not argue that stakeholder satisfaction is a proxy for good policy, and I recognize the "conceptual limitation," identified by Coglianese (2002) and others, on the use of participant satisfaction as an appropriate indicator:

> "The mere fact that participants in a regulatory proceeding are satisfied with a policy decision does not mean that the decision is a good one. Second, the participants in any given regulatory proceeding are not the only people the regulatory policy will affect, so their satisfaction is at best a partial representation of overall social welfare."[65]

To help account for this, when interviewing for the two stakeholder processes (the Cascade-Siskiyou National Monument Livestock Working Group and the Guadalupe River Flood Control Project Collaborative), I expanded my definition of "stakeholders" to include parties who were not "at the table," but had an interest in the outcome of a particular decision.

Analysis

I used interviews and documentation to determine whether or not the above activities associated with credibility and legitimacy were present in each of the three cases. For each case, I conducted phone interviews with a range of stakeholders about their involvement in the process, focused on process structure and scientific and technical issues in the case. A list of these interview questions is included in Appendix A. For the CSNM cases, I interviewed the lead

[65] Coglianese, Cary. 2002. "Is Satisfaction Success? Evaluating Public Participation in Regulatory Policymaking." Regulatory Policy Program Working Paper RPP-2002-09. Cambridge, MA: Center for Business and Government, John F. Kennedy School of Government, Harvard University. (p8) http://www.ksg.harvard.edu/cbg/research/rpp/RPP-2002-09.pdf

BLM staff, two ranchers, two environmentalists, two "middle of the road" stakeholders, and both facilitators. For the Guadalupe River case, I worked with the process facilitator and conducted interviews with the key stakeholder, his "at the table" representative, and an outsider observer. I also used process documents, including meeting notes and written agreements, final reports, and published articles.

When possible, I used interviews to explore the ways in which the above activities impacted perceptions of credibility and legitimacy. Where relevant, I compared across stakeholder groups (e.g., ranching interests, environmental advocates). I also compared process steps and stakeholder roles at each stage, including scoping, research, review of scientific information, and incorporation of scientific information into policy decisions.[66]

Based on the interview results, I also made a determination on the presence or absence of each activity for each case. I recorded a check mark for "medium" and "high" level of each activity, with no check mark representing no or low levels of each activity.[67] Below, I outline the minimum criteria I looked for in each case to designate the presence of each activity.

Minimum Criteria for Activities Expected to Affect Credibility

Stakeholder involvement in framing of scientific questions. Stakeholders are given an opportunity to comment on data needs and scientific questions to be researched. This input must also be reflected in research activities to support the EIS.

Stakeholder involvement in selection of experts to conduct and/or review research. At minimum, each stakeholder group is given a chance to nominate an expert whom they find

[66] The results of this evaluation can be found in Chapter 5, Table 2.
[67] The results of this evaluation can be found in Chapter 5, Tables 3 and 4.

credible, and this group of experts jointly reviews scientific information. Alternatively, stakeholders come to agreement on one or multiple experts to review scientific information. Ideally, stakeholders will also be involved in choosing experts to conduct novel research.

Clarification of scientific agreement, disagreement, and uncertainty. Stakeholders work with experts to discuss and document areas in which experts as well as non-experts agree and disagree about scientific and technical information and/or how information is interpreted. Stakeholders and experts also discuss areas of scientific uncertainty and ways that uncertainty can be narrowed. Ideally, stakeholders are also involved deciding how to proceed based on agreement and/or disagreement and uncertainty.

Information sharing. Stakeholder groups bring reports, databases, and other potentially useful sources of information to the table. Stakeholders, decision-makers, and experts consider sources of information other than those introduced by the agency and determine how this information will be reviewed and evaluated. This process of information is contrasted with adversary or advocacy science, in which stakeholders commission and publicize studies for the express purpose of contradicting other studies, with no process for joint evaluation and comparison between studies.

Use of jointly constructed documents and tools. Stakeholders synthesize information into tables, maps, models, or other documents, such as single-text documents, through negotiation and interaction with experts. This should be an iterative process where the product is tested and modified based on stakeholder interaction with and questioning of experts.

Minimum Criteria for Activities Expected to Affect Legitimacy

Use of a consensus-based approach. A group of concerned stakeholders is convened to discuss and come to agreement on scientific issues. Besides key stakeholders, the decision-making agency, including policy experts and field-level resource managers, in addition to relevant experts should be involved.

Capacity building around technical issues. At minimum, capacity building should take place through stakeholder interaction with scientists through a dialogue at multiple meetings. Ideally, there will be additional activities aimed at giving stakeholders better understanding of technical issues, and/or actual training sessions.

Stakeholder involvement in selection of neutral process manager. Stakeholders participate in interviewing and/or reviewing resumes of different facilitators and coming to agreement on the process manager whom all parties feel comfortable with and consider neutral. Ideally, stakeholders should also participate in creating a "contract" that clarifies the neutral's responsibilities to the range of stakeholders, the agency, and any other key parties.

Transparency in use of science for policy decision. The agency makes clear to the public (through verbal statements or written documents) the studies, reports, and other data sources that are drawn on to make a policy decision.

Discussion of policy implications of science/technical issues. Following research and synthesis of data, experts return to answer stakeholder questions and participate in a discussion of the range of potential applications and limitations of scientific findings. This should include a discussion of different interpretations or scientific uncertainty and how those variables would affect the choice of a policy alternative.

Chapter 5. RESULTS: ANALYSES OF PROCESS AND STAKEHOLDER PERSPECTIVES

There were clear differences among the three cases and models of public involvement regarding joint fact finding activities, as illustrated in Table 2.[68] As expected, the conventional public involvement approach used in the Cascade-Siskiyou National Monument Livestock Impact Grazing Study had few joint fact finding features. In fact, there was limited public involvement in the study, most of which took place through the larger process for the overall CSNM Management Plan. The Guadalupe River Flood Control Project Collaborative provides a good model of joint fact finding, involving stakeholders at all stages of the scientific inquiry as well as the incorporation of technical information into the policy process.

Table 2. Process Comparison: Stakeholder Involvement in Joint Fact Finding Activities Across Three Cases

	Assess need for joint fact finding	Convene the process	Scope the study	Conduct the study	Evaluate the results	Communicate the results	Incorporate results into policy process
CSNM Management Plan Public Involvement Process			✓				
CSNM Livestock Impact Study Working Group					✓	✓	
Guadalupe River Flood Control Project Collaborative	✓	✓	✓	✓	✓	✓	✓

[68] For a more detailed discussion of each activity, see tables in Appendix B.

The CSNM Livestock Impact Study Working Group lies between these two processes in terms of public involvement with scientific and technical aspects of resource decision-making. The Working Group had additional joint fact finding features as compared to the general CSNM management plan and study process, and yet much less involvement as compared to the Collaborative. The Working Group's main focus was to evaluate the Livestock Impact Study, which it achieved through activities such as discussions with the BLM lead investigator and an invited expert panel, consideration of a peer review of the study, and a field trip to study sites. Further, it gave stakeholders a role in assessing the situation, convening the process, and communicating its results to the public.

However, though "joint fact finding" was noted as one of the group's duties in its charter, Table 2 illustrates that the process was missing critical joint fact finding elements. First, scoping was left out of the Working Group's charge. Members were able to recommend that BLM look at other information, including studies conducted by the Klamath Bird Observatory and others funded by World Wildlife Fund. However, BLM's consultation with the group occurred well after the study was under way, and three years after the draft study was published, so involving members in scoping was not feasible. Similarly, the Working Group was not involved in conducting the study or reviewing data, which BLM has not made public. Working Group members further made the decision that reviewing the methodology used in the Livestock Impact Study was beyond their scope.

Even the Working Group's evaluative activities did not fulfill the principles of joint fact finding. A scientific panel, made up of scientists trusted by different interest groups, was brought in for one meeting to interact with stakeholders and answer questions about the studies. However the experts who conducted the peer review of the study were chosen solely by BLM. Further,

several interviewees noted a major outburst from one scientist, who "shouted and screamed and accused" and "banged his fists on the table." While the meeting was meant to be a calm and reasoned discussion to clarify areas of scientific agreement, disagreement, and uncertainty, the outcome was closer to the attitude of "you get your science and I'll get mine."

A major limitation of the Working Group process was the explicit exclusion of stakeholder involvement in the incorporation of scientific information into the policy process. There were important issues and opportunities to build consensus around resource management that were "off limits" to Working Group discussions. For example, a possible buyout of existing leases is an option that both ranchers and environmentalists have expressed great interest in executing. There are even environmental groups that have offered to fund the buyout money. While this is not likely the first choice for many ranchers, most would be willing to retire or move their cattle off the monument in exchange for a buyout, a land-trading option, and the security of negotiating their future rather than waiting for BLM studies and conclusions. Unfortunately, the Working Group was instructed to focus solely on the scientific questions of livestock impacts and missed the opportunity to construct possible management solutions. The failure to tie the scientific process to the policy implications of management plan alternatives made the group's severely limited the group's contributions.

Another key problem with the Working Group, which was intended to be a consensus-based stakeholder process, was a lack of broad and balanced representation. Only individuals who served on the existing Southwest Oregon and Klamath Provincial Advisory Committees (PACs) were eligible to self-select and participate in the Working Group. As these PACs were originally convened to advise the Department of Agriculture's Forest Service on the Northwest Forest Management Plan, PAC members were not necessarily the right pool of stakeholders to

draw from for discussions on the CSNM. For example, while two of the Working Group's seven members were ranchers, there was no representative of the ranching community that leases land in the monument. Drawing exclusively on the PACs for Working Group membership, while making it administratively easier for BLM to convene the group, left an imbalance in committee membership.

Analysis of Stakeholder Perspectives

Stakeholder interviews and process documents also indicated clear differences among the three cases also in terms of activities expected to affect credibility and legitimacy, summarized in Tables 3 and 4.[69] As hypothesized, the joint fact finding approach to public involvement was characterized by a much broader range of these activities than the two other models.

Table 3: Activities Expected to Affect Credibility

	Stakeholder involvement in framing of scientific questions	Stakeholder involvement in selection of experts	Clarification of scientific agreement, disagreement, and uncertainty	Information sharing	Use of jointly constructed documents and tools
CSNM Public Involvement Process: "Conventional" Approach	✓				
Livestock Impact Study Working Group: Consensus-based Approach			✓	✓	
The Collaborative: Joint Fact Finding Approach	✓	✓	✓	✓	✓

[69] For a more detailed discussion of each activity, see tables in Appendix C.

Table 4: Activities Expected to Affect Legitimacy

	Use of a consensus-based approach	Capacity building around technical issues	Stakeholder involvement in selection of neutral process manager	Transparency in use of science for policy decision	Discussion of policy implications of science and technical issues
CSNM Public Involvement Process: "Conventional" Approach					
Livestock Impact Study Working Group: Consensus-based Approach	✓	✓			
The Collaborative: Joint Fact Finding Approach	✓	✓	✓	✓	✓

While I did not collect data to make a determination of overall credibility and legitimacy of each case, I will explore the ways in which the presence or absence of each of the above activities seemed to affect stakeholders' perceptions of the process in which they were involved.

Credibility Factors

Stakeholder involvement in framing of scientific questions. Stakeholder involvement in framing, through conventional public involvement in the CSNM Management Plan, did seem to contribute to credibility. In this process, BLM gave stakeholders opportunities in public and individual meetings to comment on the scope of the study, and public involvement led to revision of certain aspects of the study, such as site selection. Stakeholders that identified themselves as scientists felt generally satisfied with BLM's study and viewed the agency's work as credible. Environmentalists were also generally satisfied. As one environmentalist explained, "BLM published a draft study when they didn't even have to, and put it out for public comment and peer review. Everyone had plenty of time to review it." The fact that stakeholders could see

the impact of their involvement in these revisions seems to have contributed to their views of the study's credibility.

However, ranching stakeholders also expressed frustration with the stakeholder involvement in framing. Robert Miller, a rancher on the monument land, felt that DOI's objectives of communication, coordination, and collaboration were not met by BLM's handling of the study process.[70] He explained, "We've asked repeatedly about the what, where, and when – to know the objectives, purposes, and goals of the studies. We get part of those answers, but only after pulling teeth out one by one . . . I can't tell you honestly what they're studying or how they're doing it."[71]

The Working Group chair, Robert Horton, pointed out that public involvement is important because scientists are not always interested in the same issues as stakeholders and may therefore miss key research questions. For example, BLM's study is not investigating environmental impacts of a range of alternative livestock management scenarios, something of great interest to ranchers. "Scientists were saying, 'That's not really a question I'm concerned with.' And ranchers said, 'Well, I'm concerned about it.'"[72]

The ranching community is understandably nervous about the scope of the study, given its focus on negative impacts of grazing on protected land and species. As their livelihoods depend on the results of science, they will likely withhold their assessment of credibility until study results are published. This illustrates that, while participation in scoping can improve credibility for some stakeholders, groups who will be highly impacted by scientific results may

[70] The "3Cs" of DOI under the Clinton Administration preceded DOI's current "4Cs Agenda" of "communication, consultation, and cooperation in the service of conservation"
[71] Interview with Robert Miller. April 15, 2005.
[72] Interview with Robert Horton, April 19, 2005.

reserve judgment and base their perception of science on whether or not findings support their interests.

Stakeholder involvement in expert selection. Multiple stakeholders cited expert selection as a factor that affected their views of the credibility of the Livestock Impact Study, because BLM chose the study team and the peer review panel without any public involvement. The ranching community was particularly concerned. Miller shared, "I'm not sure it would help, but it would have made us feel better if we had input on the peer review committee . . . Not that we wanted them all on our side, but at least one or two noted scientists in favor of multiple use."[73] Again, ranchers are the group with the most to lose in this policy decision, and having no input on the group of experts conducting the study has raised their level of concern.

By contrast, the Collaborative process had a high level of stakeholder involvement in the selection of experts to represent their interests on the Technical Fact Finding Subcommittee (TFFS). The TFFS worked with Collaborative members and the lead investigator of the GRFCP to ensure that stakeholders' interests were being addressed by the study and that their questions were answered. While stakeholders did not choose the lead investigator, a contractor that had conducted previous studies for the Corps, stakeholders developed confidence in this expert through the process. Collins reflects that "for the first month, we had a very tense relationship where we expressed distrust of his motives and he defended his work . . . it was hard for us to accept that he had switched his loyalty to the collaborative process." It was also a challenge for the contractor, who "felt under the gun" because the Notice of Citizen's Suit clearly contradicted his technical opinion. "[The contractor's] wife and kids made him a flack jacket, just to let us know that he was there to take what we could dish out." However, over time, the contractor

[73] Interview with Robert Miller, April 15, 2005.

gained the trust of the Collaborative. "His reports back to the Collaborative were consistently down the middle. He did not appear to favor the alternatives that were most like the current design, and gave equal consideration to other alternatives." In the end, Collins believes that "the relationship worked quite well" and led to the choice of a project alternative that he felt met his group's objectives.

Clarification of scientific agreement, disagreement, and uncertainty. The situation assessment conducted by Terry Morton and Jon Lange regarding the Livestock Impact Study served to clarify areas of agreement and disagreement as well as questions about uncertainty. While it was a useful record, the assessment did not seem to play a large role in stakeholders' views of the process.

The Collaborative used a more participatory approach to highlight areas of agreement, disagreement, and uncertainty. The iterative process used by policy level Collaborative members, the experts of the TFFS, and the contractor was a great success, according to Collins. For example, in constructing a water temperature model, the contractor's analyses of existing data and other model features were outlined in memos to the group. Each participant could then consult with the TFFS to make sure that the model and its inputs addressed key concerns. Participants could pose questions to the contractor directly or through one of the TFFS experts. The contractor would then address questions, revise the model as necessary, present this information in a memo, and come to meetings to explain any changes in person at a Collaborative meeting. This allowed stakeholders to build an information base that each party found increasingly more credible. "My function was to probe the uncertainty and narrow it as much as possible until we could agree we were confident enough to support an alternative,"

Collins explained. The high level of transparency and stakeholder involvement in this approach to clarifying scientific agreement, disagreement, and uncertainty seemed to be a key factor in building credibility for the overall process.

Information sharing. The consensus-based and joint fact finding models studied in these cases each led to greater information sharing than the conventional public involvement approach. Specifically, stakeholder involvement led to agencies' consideration of a wider range of data by reviewing studies commissioned and conducted by non-governmental groups. In the Working Group process, stakeholder involvement led to the recommendation that BLM consider a wider range of data, including third-party studies funded by WWF and the Klamath Bird Observatory. However, this additional information must still subject to scrutiny and can therefore create additional tensions. Rancher and forester Ed Kupillas explained that the Working Group struggled with the idea of the inclusion of other studies funded by advocacy groups:

> "There was so much pressure to have [the WWF studies] included. There were a number of us that said, 'OK, if we're going to do that, then at a minimum they have to be peer reviewed. That stimulated or caused a lot of discussion about peer review. Peer review can be biased, too. So that's why some of us still have a lot of unease about those particular studies."

Local knowledge as a source of shared information seemed to be a key contribution to the Working Group process. In addition to studies by outside groups, members recommended that BLM consider personal observations and historical information as deemed appropriate. Frank Lang, a retired Southern Oregon University professor of biology, botany, and plant ecology, gave an example of how local knowledge can complement the work of experts. He recalled a time that a BLM scientist showed a series of "then and now" slides of a stretch of Jenny Creek in the monument. One series included two shots of the same bank, one in which there were many

trees, and another in which the bank was bare. While this was meant to show livestock impact, "one of the ranchers in the room laughed and pointed out that there was a beaver dam nearby." Lang went on to say that anecdotal information should be substantiated with other evidence in some way, such as going out to look at tree stumps. Even so, it was "really valuable" to have local perspectives involved.[74]

Information sharing has the potential to bring new and valuable insights into the decision-making process. However, as all sources of information must undergo some level of joint evaluation by the group before being accepted as credible, it can also further complicate the scientific process.

Use of jointly constructed documents and tools. Stakeholder involvement in creating and negotiating boundary objects, as opposed to relying solely on experts, was an important feature of the Collaborative that appeared to add credibility. Throughout the process, Collaborative participants and TFFS experts worked together to build models, tables of summary data, and negotiated single-text documents to test and keep a record of agreements. The Collaborative process presented ongoing opportunities for the presentation of study results and reframing and refining of questions for investigation. According to the facilitator, "this happened multiple times with respect to flood control designs, design of low flow channels (much of which happened in real time through a fascinating interactive dialogue between fish biologists and flood control engineers), recreational trail alignment, [and] elements of long term monitoring."[75] Further, the Collaborative reviewed and critiqued multiple drafts of the GRR/EIR-EIS until coming to agreement on a final version that articulated all consensus points.

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[74] Interview with Frank Lang, April 21, 2005.
[75] Email Communication with Scott McCreary. April 24, 2005.

Legitimacy Factors

Use of a consensus-based approach. These cases indicated that, while convening a stakeholder group can make important contributions to legitimacy, it can also create additional complications. The conventional public involvement process used for the CSNM Management Plan clearly involved stakeholders in a very limited range of activities expected to affect credibility and legitimacy. Some stakeholders expressed frustration at the limited public involvement, but others felt that the process used to scope the study and comment on the draft was adequate.

The Livestock Impact Study Working Group process gave the public additional opportunities to give BLM feedback on scientific and technical aspects of the livestock management issue. However, stakeholder involvement was largely superficial and may have created larger problems, especially with regards to legitimacy. The undefined role of the general public created a rather high level of dissatisfaction among stakeholders, particularly the ranching community. One of the facilitators reflected,

> "They weren't really participants influencing the process, and they were mad because they wanted to influence it. So public comment was a time to blast the Working Group or BLM. There was some value of venting, and sometimes there were good questions to answer that the Working Group just didn't think of. Sometimes, the public also gave a pulse check of where people were at. What we struggled with was the question of, 'Is there a more inclusive process that could have just invited those voices in the beginning and have anything less than mayhem? Could it be manageable and still allow for interaction?' I'm still steeping over that."[76]

Further, not all stakeholders view public involvement in science as appropriate. As one stakeholder said, "It's totally absurd that a group of public citizens with virtually no

[76] Interview with Terry Morton, April 16, 2005.

scientific background would advise BLM on the impacts of livestock on biological objects."[77]

For these reasons, a consensus-based approach to resource management decisions is not a guarantee of greater legitimacy. I will explore minimum conditions for successful stakeholder involvement in Chapter 6.

Capacity building for non-experts. Stakeholders in the Working Group and Collaborative viewed capacity building as a positive by-product of the process in which they were involved. For example, several Working Group participants identified the field trip and interaction with the scientific panel as key features of the process that helped them to better understand the study. Collins also shared that he learned a great deal about technical issues through his participation in the Collaborative and interaction with technical experts.

Stakeholder involvement in selection of neutral process manager. In both the Guadalupe River Flood Control Project and the CSNM Livestock Impact Study, there was a low level of trust among many stakeholders and good deal of concern regarding the lead agency's ability to run an unbiased process. This suggests the importance of having a neutral process manager, outside the agency, to design and facilitate a stakeholder process that grants parties equal voice and influence over the outcome.

The facilitators who ran the Working Group process were widely regarded as having conducted a very professional and fair process. However, some were concerned about facilitators' ability to remain neutral in the face of perceived BLM biases, particularly as they

[77] Interview with environmental advocate, April 13, 2005.

were chosen and paid by BLM. Those interviewed about the Collaborative did not express any concerns regarding the neutrality of the facilitation team.

I believe legitimacy was built through the process used to bring the facilitation team into the process and hold the team accountable to all stakeholders. Unlike in the Working Group process, in which stakeholders were not brought in until after facilitators were chose, Collaborative members were involved in interviewing and choosing this team. Further, Collaborative stakeholders worked together to create a contract clarifying that facilitators were working for the group as a whole rather than an agency or any other single group.

Linking science to policy (Transparency in use of science for policy decision and Discussion of policy implications of science and technical issues). The disconnect between the scientific questions and the larger decision-making process regarding the future of livestock in the CSNM was a major legitimacy problem with the Working Group process. Stakeholders found it particularly frustrating that BLM has not specified when the findings of the Livestock Impact Study will be released and when they will be able to comment on the study again. It is also unclear how the data will be used to make a decision on the future of grazing in the monument.

The Working Group's activities were restricted to the study, to the total exclusion of policy implications of BLM's eventual grazing decision. A scientist observing the Working Group said,

> "I think the BLM did a good job of explaining the scientific uncertainty regarding the assessment of grazing impacts. However, I do not believe they did a very good job of dealing with its policy implications. Uncertainty is inevitable and significant in such environmental issues. And it raises the issue of how one handles the uncertain results, a question that inevitably brings up competing stakeholder values. For example, when faced with uncertainty over

> the grazing impacts, does one err on the side of conservation – these large, non-native herbivores don't belong on lands we have decided are critical for protecting native species? Or does one err on the side of history and industry – the land has been grazed for over 100 years and it is still valuable for conservation, and people's livelihoods and lifestyles depend on continued grazing? In other words, is a historical but potentially destructive practice innocent until proven guilty, or otherwise? BLM has consistently dodged the question, and the result will be lawsuits and controversy – perhaps inevitable as well, but in my opinion they could have been more upfront about the issue because it has to be explained eventually."[78]

BLM has made no commitments or indications regarding how different studies will be used or how they will weigh different factors in their decision. Stakeholders are very uneasy about impending decision and unsure of possible recourse, causing interests on both sides of the grazing issue to question the legitimacy of BLM's decision-making and stakeholder involvement process.By contrast, the Collaborative process did an exemplary job of linking science to policy. Stakeholders were involved not only in the review of scientific results but also in the application of findings to the choice of project alternative. Experts worked with stakeholders to create models, summarize outputs in comparison tables, and evaluate the success of different project alternatives at achieving jointly created management objectives for fish habitat, recreation, and flood control.

Furthermore, the Collaborative established an Adaptive Management Team, comprised of project sponsors, resource agencies, and stakeholders, to supervise the project on an ongoing basis and ensure the project as built is meeting its management objectives. This ongoing involvement in implementation is a key feature and stakeholder leverage point. Though stakeholders have some major concerns about how the project has been built on the downtown stretch of the Guadalupe River, their participation on the Adaptive Management Team allows them to hold the project sponsor agencies accountable for maintaining their commitment to

[78] Email communication from Hans Stroo. April 14, 2005.

achieving the management objectives agreed to by the Collaborative. If these criteria are not met, the Corps will be required to mitigate aspects of the project. Thus, the Collaborative's success at linking the scientific and engineering issues they reviewed with the policy alternative they recommended has ensured the agreement, including technical aspects as well as principles of habitat preservation and recreation, will be upheld throughout the project lifetime.

Chapter 6. DISCUSSION AND POLICY IMPLICATIONS

Stakeholder involvement, or lack thereof, in joint fact finding activities did impact stakeholder perspectives on credibility and legitimacy of decisions. However, agencies undertaking joint fact finding should be clear on the range of activities and how stakeholders will be involved in each of these cases. Further, moving from the conventional approach to public involvement to the joint fact finding model does not automatically grant credibility and legitimacy to an agency's resource management decision. However, the Guadalupe River case illustrated that stakeholder involvement in all joint fact finding steps can correlate to a decision-making process including a wide range of activities with the potential to positively impact stakeholder perceptions of credibility and legitimacy.

Stakeholder perceptions seemed to be affected by whether an individual participated "at the table," with those participating from the sidelines indicating much less satisfaction with the process. In the CSNM Working Group process, this is partially due to the fact that stakeholders on "extreme" ends of the spectrum were not included in the group. In the Collaborative, a lack of technical expertise may have prevented broader stakeholder participation at the time. This is an important point for resource management, particularly on public lands that involve local and national stakeholders but for which only a limited number of participants can be chosen to represent a wide array of interests due to agency resource constraints.

Even in the absence of complete stakeholder satisfaction, greater levels of involvement do seem to lead to increased transparency and accountability of decision-makers to stakeholder interests. There may be lingering credibility issues for the Collaborative in the eyes of some stakeholders, despite a high level of stakeholder participation in the scientific and technical

aspects of the decision-making process.[79] However, stakeholders have more opportunity to modify the project and assured mechanisms to review the project, through the adaptive management approach guaranteed in the Collaborative agreement between stakeholders, project sponsors, and resource agencies.

It seemed very important that both processes characterized as "joint fact finding" – the Working Group and the Collaborative – were not proactive but rather came in response to public criticism of science in their respective decision-making processes. While agencies should be commended for involving stakeholders in scientific and technical questions, bringing the public in too late can affect the legitimacy of the process. Even when stakeholders have an impact on other aspects that affect credibility (i.e. selection of experts, clarification of areas of scientific agreement disagreement, and uncertainty, information sharing, and use of boundary objects), the failure to involve the public early in framing the scientific questions may affect the entire remaining trajectory of the resource management decision-making process. Larry Johmann, Director of the GCRCD, suggested that an up-front design review should have been taken place to evaluate a suite of alternatives, rather than the limited list presented by the Corps. "If you really have a true design or peer review process for any document being put out, it will take more time up front, but you'll end up with a better document that people can live with."[80]

A key difference between the Guadalupe River Flood Control Project Collaborative and both Cascade Siskiyou National Monument Livestock Impact Study processes was that the former had a clear process by which to incorporate the outcomes of the joint fact finding process into the larger agency decision-making process. This is a critical final step of joint fact finding

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[79] Interview with Lisa Owens-Viani. April 21, 2005.
For an account of some criticisms with the project, see Lisa Owens-Viani. 2005. "Where the River Came Last." *Landscape Architecture.*

[80] Interview with Larry Johmann, April 20, 2005.

that is not always highlighted or considered by agencies to be a necessary public involvement step. In the Collaborative process, this served to both ensure stakeholder clarity about what scientific information was used to craft the project, but also that stakeholder objectives would be incorporated into the project and its long-term management. Though BLM seems to have very good intentions regarding public involvement, stakeholders in the CSNM did not gain this clarity or assurances through their public comment or participation in the Working Group process.

I would not classify the Working Group process as a true joint fact finding process. Rather, stakeholder involvement in scientific questions was largely superficial and seen as a "band-aid" response to stakeholder dissatisfaction. The Working Group's recommendations reflected their limited involvement, having few conclusive remarks regarding BLM's current course of action. As one Working Group member characterized recommendations as "pretty inconclusive and very bland."[81] Given the larger backdrop of land management in the Western U.S., and grazing-environmental tensions in particular, this process could have gone much further, but instead involved stakeholders in a very narrow fashion and did not promote creative solutions or joint gains for future management of the Monument. As the Working Group chair noted, "maybe a stalemate was good in this case – it doesn't set precedent one way or another."[82]

Science and Values

While a failure to establish a credible scientific inquiry tied to a legitimate policy or planning process can handicap resource management decisions, the resolution of scientific

[81] Interview with Ed Kupillas, April 25, 2005.
[82] Interview with Bob Horton, April 19, 2005.

disputes does not resolve political conflict.[83] Further, it is generally political factors, rather than scientific developments, which drive policy change.[84]

In the case of the Cascade-Siskiyou National Monument, ranchers believe they have the right to graze and maintain their rural way of life, while environmentalists want cattle off the land. No amount of scientific information, however credible it is to different stakeholders, can resolve that value-based conflict. As noted by the Working Group facilitators, "The conflict on the Monument is only partly driven by the suspicion of biased studies. Both parties have serious interests at stake. Both parties are in a conflict that involves their very identities, that is, fundamentally who they are as people."[85]

Layzer discusses federal grazing policy and the "tug-of-war" between conservationists and ranchers that, in the past, has been characterized by great resistance to grazing restrictions.[86] However, unlike Layzer's depiction, the CSNM process gives environmentalists an upper hand from the scientific perspective. The fact that the presidential proclamation directed BLM to study the impact of livestock on objects of biological interest framed the entire subsequent debate. With studies focused on everything from snails and small mammals to vegetation and riparian habitat, it is likely that a suite of negative impacts will be identified. BLM is not, however, considering potential positive impacts of livestock, such as fire reduction and positive interactions with plant or animal species. Further, they have no mandate to balance science with broader political or value-based issues such as ranching as a way of life in rural Oregon.

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[83] Connie P. Ozawa. 1991. *Recasting Science: Consensual Procedures in Public Policy Making.* Boulder, CO: Westview Press. (106)

[84] See
Paul A. Sabatier. 1988. "An Advocacy Coalition Framework of Policy Change and the Role of Policy-Oriented Learning Therein." *Policy Sciences* 21.
Judith Layzer. 1999. *Sense and Credibility: The Role of Science in Environmental Policymaking.* Doctoral Dissertation.

[85] Postscript: January 18, 2005. Terry Morton and Jon Lange.

[86] Judith A. Layzer. 2000. T*he Environmental Case: Translating Values into Policy.* Washington, DC: CQ Press. (p 127-154).

This is a welcome change to environmentalists, who have for decades struggled to match the political clout of the livestock industry. However, as a result of the narrow mandate of the presidential proclamation, there is a mismatch between the CSNM process and the real issues. While the Livestock Impact Study did benefit from public involvement, the "nonobjective" aspects of the livestock impact study (e.g. choice of experts, public involvement methods, framing of study questions, etc.) were not on the table. According to a scientist observer,

> "The presidential proclamation says that BLM must determine if continued grazing is compatible with natural ecosystem dynamics and protection of objects of interest. They have never said, 'So, what does that really mean? What are natural ecosystem dynamics? What would be an 'unacceptable' impact? Would declines in grazed versus ungrazed areas in these species be unacceptable?' That's never been laid out. It's always been wishy-washy . . . BLM has never said, a priori, what would be an unacceptable impact for any parameter."[87]

Thus, while a focus on science may lead to greater credibility, the legitimacy of a resource management process may be hurt by excluding all discussion of values. These cases indicate that focusing on science, to the complete exclusion of larger political interests, can do more harm than good for decision-makers. The Working Group represented a good faith effort by BLM, stakeholders, and facilitators, and the process succeeded in building some consensus among the more middle-of-the-road environmental and ranching interests. However, the value-based questions were the "elephant-in-the-room" that no one was allowed to discuss. The failure to link science to broader consensus-based policy-making process and value-based questions may have wasted a lot of time and money. Interviewees have no clear sense of how their involvement will impact BLM's eventual grazing decision. Further, while the best management solution, in terms of aligning ranching and environmental interests, may be the buyout, the

[87] Interview with Hans Stroo. April 14, 2005.

Working Group's strict focus on science meant that stakeholders were not allowed to work with this option.

When instituted early in the decision-making process to involve stakeholders in scoping, and when seen through to the incorporation of science into the broader policy process, joint fact finding has great potential to address not only scientific but political or value-based questions. Of the three cases, the Guadalupe Flood Control Project Collaborative demonstrated the broadest range of stakeholder involvement. This process also did the best job of addressing stakeholder values by building them into management objectives, adaptive management, and therefore the long-term commitments by lead agencies. Even though project may not have turned out as some hoped, stakeholder involvement will have long term impact on evaluation, maintenance, and potential modification of the project.

Application of Joint Fact Finding to Resource Management Decisions

I believe the process used by the Guadalupe River Flood Control Project Collaborative would be appropriate in many settings. Ehrmann and Stinson identified a number of instances in which joint fact finding can be particularly useful.[88] When plans or policies are highly technical or science-intensive, joint fact finding explores an appropriate role for experts and opportunities for involving non-technical stakeholders, while providing more clear mechanisms for incorporating science into the policy process. Joint fact finding is also helpful in policy decisions for which there is a dearth of scientific and technical information. When there are significant data gaps that impede a decision, joint fact finding helps stakeholders work with experts to create a common base of knowledge by collaboratively gathering and evaluating scientific information

[88] John R. Ehrmann and Barbara L. Stinson. 1999. "Joint Fact Finding and the Use of Technical Experts." *The Consensus Building Handbook: A Complete Guide to Reaching Agreement.* Lawrence Susskind, Sarah McKearnan, and Jennifer Thomas-Larmer, eds. Thousand Oaks, CA: Sage Publications.

that all parties find credible. Additionally, joint fact finding helps to address charges of inaccuracy or disagreements about information. When limited technical information is available, but stakeholder groups have different opinions about its credibility and how it should be used in the decisions, joint fact finding can help build a scientific consensus around this existing data.

Joint fact finding is not appropriate in all cases. Ehrmann and Stinson note that joint fact finding should not be used if a larger collaborative decision-making process is not feasible. Joint fact finding should be integrated into larger consensus-based decision-making process, so if collaboration is not appropriate, neither is joint fact finding. For example, if parties are unwilling to work together productively, it is unlikely that joint fact finding will lead to mutually beneficial and credible information. Further, joint fact finding should not be undertaken if adequate resources are not available. If the sponsoring agency, other convenor, or a combination of participants cannot provide the staff or funds to support novel research and a full joint fact finding process, they should explore other ways to involve stakeholders in a process focused on a review of existing data.

Minimum Conditions for Stakeholder Involvement in Resource Management Decisions

Based on observations from these cases and literature reviewed in previous cases, I have outlined several "minimum conditions" that agencies should consider when designer public involvement processes for resource management decisions:

1. Involvement of a diverse set of stakeholders representing a range of interests and self-selected representatives.

As discussed in Chapter 2, there are many potential benefits to the involvement of a diverse group of stakeholders in policy-making. These cases also showed evidence of the importance of not only bringing together a group of stakeholders, but in allowing constituency groups to choose their own representatives to participate in the decision-making process. For example, while the Livestock Impact Study is aimed at making a determination about the future of grazing on the CSNM, no ranchers with land on the CSNM were included on the Working Group. I believe this contributed to distinct differences in the satisfaction of those "at the table" and the represented constituencies. BLM's limiting of stakeholders to existing PAC membership resulted in a more "middle-of-the-road" group that was described as "polite" and "civil," but which did not truly represent the range of viewpoints. If agencies are to conduct a stakeholder process, they must give stakeholder groups the opportunity to determine their own representation in the decision-making process.

2. Early stakeholder involvement in the framing of scientific inquiry to support the policy-making process.

The Collaborative process does provide a good model for joint fact finding. However, its timing – following years of Army Corps planning and in response to a citizens' complaint – seems to have impacted the range of possible outcomes. Stakeholders would not necessarily dispute that the Collaborative worked together to choose a best alternative among the three choices, but rather that the very alternatives under consideration did not sufficiently address stakeholder concerns. Earlier involvement of a broader range of stakeholders and a greater attention to resource management and recreational objectives would likely have led to the design of different alternatives and therefore a different project build-out. Stakeholder involvement

should begin early enough to allow for input in the early stages of framing, so that stakeholder interests and concerns are integrated in the scientific inquiries aimed at informing a policy decision.

3. Recognition, management, and stakeholder involvement in nonobjective judgments in scientific inquiry.

As discussed in Chapter 1, resource management decisions involve many judgments based on nonobjective criteria, such as expert selection, framing research questions, and methods of dealing with scientific uncertainty. The cases studied showed that stakeholder involvement or exclusion from these same steps was a distinguishing factor between the conventional, consensus-based, and joint fact finding approaches to public involvement. As advised by Susskind and Dunlap, agencies must recognize that there are value-based judgments within resource management decisions.[89] When agencies or experts encounter value judgments in their work, the public should have a role in making these nonobjective decisions to help ensure that assumptions embedded in the research process are consistent with the needs and expectations of the larger decision-making process.

4. Capacity building on technical issues for stakeholders.

A lack of understanding of technical issues can be a major barrier to meaningful stakeholder involvement in key aspects of resource management decisions. As Johmann discussed, "I wasn't familiar with all the technical issues at the time [of the Collaborative meetings]. Because of that, when I started to attend technical meetings, I wasn't too in tune, and

[89] Lawrence Susskind and Louise A. Dunlap. "The Importance of Nonobjective Judgments in Environmental Impact Assessments." *Environmental Impact Assessment Review* v2, n4. 335-366.

I wasn't knowledgeable enough to see the red flags I would today. I couldn't ask the right questions or challenge the experts." Whether through frequent interaction with experts or more formal training opportunities, agencies should build in some level of capacity building in technical issues for stakeholders.

5. Tie scientific inquiry back into the policy-making process.

Many scientists are very hesitant to deal with the link between science and policy, preferring to present findings and leave discussions of policy implications to the policy experts. However, stakeholders and decision-makers tend not to have experience dealing with issues such as how to proceed with policy-making in the face of scientific uncertainty. As modeled in the Collaborative's joint fact finding process, experts should return following scientific inquiry to discuss how their findings relate to the question at hand.

Making an explicit link between science and policy can also help to increase agency accountability. In the Collaborative case, management objectives were set early on by the group, and the technical consultant evaluated each project alternative for its ability to meet these objectives. These evaluations were reviewed and agreed to by TFFS experts and Collaborative participants, and the choice of project alternative relied on these technical analyses. Rather than simply making the policy recommendation, the Collaborative's final agreement requires that the built project continue to be evaluated for its fulfillment of management objectives. Thus, despite dissatisfaction with the built project, Johmann believes that "we still have a shot at doing something better" and that the GCRCD "can hold [the sponsor agencies'] feet to the fire."[90]

[90] Interview with Larry Johmann, April 20, 2005.

6. Stakeholder involvement in the selection and role definition of a neutral process manager.

Agencies do have a stake in the outcomes of policy processes, and must consider the feasibility of alternatives, including staffing, time, cost, and other resource needs for implementation. The use of a neutral facilitator allows agencies to participate in such a way that they can hear the range of stakeholder needs and concerns while also keeping an eye to their own concerns.

In the Working Group and Collaborative cases, the facilitation teams impacted the process not only through their perceived neutrality but through their contributions to process design and expertise. For example, the Working Group facilitation team proposed and conducted the situation assessment, which outlined areas of agreement and disagreement of a wide range of stakeholders. The facilitator of the Collaborative made a crucial process suggestion by proposing the involvement of a Technical Fact Finding Subcommittee.

Facilitators are an added cost, and the question of who pays for facilitation is a key question for some stakeholders. The fact that neutral facilitators are generally hired and funded by agencies can be a source of distrust. In the Collaborative case, stakeholder involvement in the selection and role definition of the facilitation seemed to address concerns about the question of who paid for their services.

Institutional Barriers and Opportunities

Joint fact finding has the potential to impact policy-making not only through more credible scientific information, but by a more legitimate process that considers stakeholder values. However, to capture these benefits to policy and the public, federal agencies must

recognize and support the use of consensus-based approaches such as joint fact finding in their policy-making processes and in procedural requirements.

All collaborative processes face institutional barriers, with FACA often cited as a significant challenge to stakeholder interaction with federal government and decision-making processes.[91] The amount of paperwork and many other requirements agencies must fulfill and "red tape" they must overcome to convene an advisory body often discourages agencies from initiating stakeholder processes. In the case of the Livestock Impact Working Group, concerns about FACA compliance caused BLM to create a stakeholder group from two existing advisory committees. This likely made initiating the stakeholder process more feasible for BLM, but it resulted in a group stakeholders who did not necessarily represent the range of concerns and interests regarding the question of grazing in the CSNM.

NEPA also serves as a hurdle to resource management agencies in their public involvement processes. Current regulations focus agencies on procedural requirements such as public notification and documentation rather than providing guidance on effective models of public involvement. While NEPA was a first step toward recognizing the importance of the environment and the public's input, many years of experience and evaluation illustrate that federal decision-making needs a more comprehensive participation tool than current minimum NEPA requirements. Ultimately, CEQ should consider new regulations based on the learning of three decades' of experience with NEPA. In the absence of an updated policy with a more comprehensive public involvement mandate, federal agencies should modify their own guidance to encourage and support an expansion of public involvement in resource management decisions.

[91] Julia M. Wondolleck and Steven L. Yaffee. 2000. *Making Collaboration Work.* Island Press: Washington, DC. (p 56)

Appendix A: SAMPLE INTERVIEW QUESTIONS

Structure of the Project

1. Describe your participation – about how many meetings did you attend, what was your role?

2. Were the key influential stakeholders represented in the Working Group? Who was not involved that should have been, if anyone?

3. Who led the meetings? How was the facilitation team chosen? Was the team strictly in charge of running the process, or did they also influence decisions that were made? If so, in what ways did they influence the decisions?

4. Who (agency/decision-makers, stakeholders, experts) was involved during the following stages?
    - Deciding the scope (geography, landscape, and level of analysis) of the problem to be addressed or researched
    - Research (gathering new information)
    - Review of research findings and existing sources of information
    - Decision-making – incorporating scientific information into the policy-making

5. To what degree did the final plan reflect an agreement between all of the stakeholders? If not, how did it reflect agreement between some of the stakeholders?

Scientific/Technical Information

6. How and by whom was scientific and technical information brought into the process, such as studies, data, and other reports?

7. Were scientists (biologists, wildlife habitat experts) or other experts involved? How were they identified and selected? What were their roles?

8. Was new research conducted or new data gathered? If so, to what extent were non-experts (stakeholders) involved in choosing the research questions and designing the study?

9. Were there times when people had difficulty discussing issues that were highly scientific or technical? What was done about this, if anything?

10. When people had different opinions about scientific information, how were these disagreements addressed?

11. In what ways did your understanding of technical issues (such as landscape suitability or impacts of grazing or effects of oil and gas exploration and development) change because of your participation? How did the process work to change your understanding? If there was no change, what could have been done to increase your understanding of the technical issues?

12. Was it clear what scientific information (e.g., biology, habitat, species behavior, relationship to environmental factors) was used in designing BLM's final management plan?

13. Were stakeholders involved in producing any tools, such as maps or models, or "single-text" documents (e.g., negotiated documents that outline key policy points across a set of issues) to help apply technical information to the policy decision? If so, please explain that process and how it affected the outcome.

14. Did the experts come back to stakeholders after they worked with the scientific data to explain how their findings related to the policy decision? How did this participation of biologists and other experts affect the decision-making process?

Appendix B: Stakeholder Involvement in Joint Fact Finding Activities

	CSNM Public Involvement	CSNM Livestock Impact Study Working Group	Guadalupe River Flood Control Project Collaborative
Assess the need for joint fact finding	**No**	**Yes** ▪ Facilitators conducted an assessment, interviewing a range of stakeholders to identify concerns, common ground, and process suggestions.	**Yes** ▪ Facilitator proposed dual track of policy-level Collaborative and a Technical Fact Finding Subcommittee (TFFS) accountable to the Collaborative. Stakeholders agreed with this approach. (This occurred after convening.)
Convene the process	**No**	**Yes** ▪ Provincial advisory committee (PAC) members self-selected to participate in Working Group **No** ▪ BLM chose facilitation team. ▪ BLM chose experts to conduct study and peer review of draft study.	**Yes** ▪ Stakeholders proposed negotiation to resolve citizen's complaint ▪ Stakeholders interviewed and selected neutral facilitator ▪ Stakeholders established ground rules and operating procedures ▪ Stakeholders chose experts to represent their interests on TFFS.
Scope the study	**Yes** ▪ There was a public comment period on scoping, and a public hearing – BLM revised parts of study based on feedback.	**No** ▪ Scoping the Livestock Grazing Impacts Study took place before the Working Group was convened	**Yes** ▪ Stakeholders and TFFS worked with lead investigator to establish management objectives and clarify areas of agreement, disagreement, and uncertainty.
Conduct the study	**No**	**No**	**Yes** ▪ Stakeholders, TFFS, and lead investigator reviewed information and models, refining studies in an iterative manner ▪ Investigator responded to stakeholder questions and concerns through memos and attendance at meetings
Evaluate the results	**No** ▪ The public was able to comment and file protests of the Final Management Plan, but not of the Livestock Impact Study	**Yes** ▪ This was the primary purpose of the Working Group ▪ Working Group chose expert panel to attend one meeting **No** ▪ Peer review panel chosen by agency	**Yes** ▪ Worked with TFFS experts to evaluate alternatives ▪ Side-by-side comparison of tables ▪ Worked to narrow areas of uncertainty ▪ Applied jointly created criteria to choose preferred alternative ▪ Establishment of Adaptive Management Team (AMT) for long-term project evaluation

	CSNM Public Involvement	CSNM Livestock Impact Study Working Group	Guadalupe River Flood Control Project Collaborative
Communicate the results	**No**	**Yes** ▪ Through negotiated single-text document	**Yes** ▪ Through negotiated single-text documents ▪ Results periodically conveyed in briefings to senior officials (e.g. Senior Corps staff in DC, Santa Clara Valley Water District Board of Directors)
Incorporate results into policy process	**No**	**No** ▪ This was outside the charge of the working group	**Yes** ▪ Agreement fed into NEPA/CEQA review of the Collaborative's suggested alternative ▪ Preparation of multiple drafts of the GRR/EIR/EIS which the Collaborative reviewed and critiqued at multiple meetings. ▪ AMT established to revisit project and revise as necessary to achieve agreed-upon objectives.

Appendix C: Activities Expected to Affect Credibility and Legitimacy

	Activity	CSNM Livestock Impact Study Public Involvement Process	CSNM Livestock Impact Study Working Group	Guadalupe River Flood Control Project Collaborative
Credibility	**Stakeholder involvement in framing of scientific questions**	Yes: public scoping process	No: scoping took place prior to Working Group	Yes: Stakeholders worked with TFFS and lead investigator
	Stakeholder involvement in selection of experts	No: BLM chose scientists to conduct study and peer review panel	Yes: Stakeholders invited experts to science panel No: BLM chose scientists to conduct study and peer review panel	Yes: Each party nominated a member to the TFFS
	Clarification of scientific agreement, disagreement, and uncertainty	No: BLM has not shared data, so there has been no opportunity to clarify areas of agreement, disagreement, or uncertainty in the study results.	Yes: Through initial assessment and subsequent discussions No: BLM has not shared data with the public.	Yes: Through an iterative process, participants and experts worked to document agreements as well as to clarify and narrow areas of disagreement and uncertainty
	Information sharing	No	Yes: Consideration of additional studies (WWF, Klamath Bird Observatory) No: BLM has not shared study data	Yes: All stakeholders had the option to bring information to the table, through the TFFS or otherwise. Project sponsors, resource agencies, and the lead investigator pooled data.
	Use of jointly constructed documents and tools	No	Yes: Through the single-text recommendations.	Yes: Through single text documents and summary tables

	Activity	CSNM Livestock Impact Study Public Involvement Process	CSNM Livestock Impact Study Working Group	Guadalupe River Flood Control Project Collaborative
Legitimacy	**Use of a consensus-based approach**	No	Yes: Working Group agreed to operate by consensus	Yes: Collaborative agreed to operate by consensus
	Capacity building around technical issues	No: Stakeholders consulted with experts they trusted, but this was not facilitated by BLM.	Yes: Through interaction with science panel and field trip to study site	Yes: Through interaction with TFFS
	Stakeholder involvement in selection of neutral process manager	No: BLM staff served as process managers	No: BLM chose facilitators, and some were concerned about facilitators' ability to remain neutral in the face of perceived BLM biases, particularly as they were chosen and paid by BLM.	Yes: Stakeholders participated in an interview process to choose a neutral facilitation team, as well as drawing up a contract to define the role of the neutral in the process.
	Transparency in use of science for policy decision	No: Nearly all interviewees noted a lack of transparency. BLM has not made data available and has not been clear about criteria for decision-making.	No: Nearly all interviewees noted a lack of transparency. BLM has not made data available and has not been clear about criteria for decision-making.	Yes: While all stakeholders did not feel all necessary research was conducted, it was clear what information was used in the choice of project alternatives.
	Discussion of policy implications of science/technical issues	No	No	Yes: Participants discussed data and its implications regarding each project alternative's potential to achieve management objectives.

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