Recasting Science

Consensual Procedures in Public Policy Making

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in certain zones, the tribes gained exclusive rights to fish in other areas, technical assistance, and more that $1.5 million dollars from the federal government and the state of Michigan for use toward improving their fishery management and developing an implementing an economic development program (*United States v. Michigan*). Enhanced fishery management capabilities will certainly strengthen the tribes' ability to marshall technical data supporting their political claims in future skirmishes over the fishery, which will undoubtedly arise during the 15-year life of the agreement, and in the renegotiation of the agreement scheduled for the year 2000.

Consequences for Power

As argued earlier, the ability to influence public decisions often correlates strongly with the ability to wield scientific arguments. The examples in the last section suggest that consensus-based procedures, by intent or otherwise, alter the manner in which scientific information and expertise is folded into decision making and can reconfigure the designs of influence in every phase of the process. Moreover, the three cases in this study also show that such procedures produce effects that alter the role of scientific argumentation and technical expertise in different ways, depending on the particular methods employed, and the effects on the distribution and dynamics of power vary accordingly.

Consensus-based procedures can enhance the abilities of less resource-rich groups to influence public decisions in each phase of the decision making process described earlier. Although the agenda is usually formed before a consensus-based procedure is introduced, the outcome of such procedures can essentially reset it. One might argue that through consensual devices such as information sharing and collaborative analysis, stakeholding parties initially acting in response to proposals raised by another party gain knowledge and insights that lead them to expand the agenda, raising new issues that are linked to but distinct from the original one(s). For example, although the main agenda item of the regulatory negotiation (emission standards for wood stoves) was fixed by the Environmental Protection Agency, minor issues (such as a user's manual) were added by negotiation participants as they developed a deeper understanding of the scientific basis and technical and political constraints of regulatory options, and were consequently better able to understand and articulate their interests. Groups other than the regulatory agency or ones without sufficient resources to litigate were hence enabled to add items to the agenda.

Consensus-based methods, such as information sharing and collaborative analysis, can similarly enable resource-poor groups to reformulate the policy problem under consideration as such groups become more aware of their interests and more effective at protecting and promoting them. The policy

dialogue, which did not involve the sharing of new information as much as the simple clarification of information already public, enabled groups not actively engaged in the dominant technical dispute to revise the way in which the policy question was conceived, raising questions about public safety and definitions of municipal wastes along with queries about waste disposal technologies.

Knowledge of technical and political parameters of policy questions also can be critical for generating feasible options for public action. Consensus-based procedures that incorporate efforts to identify and openly discuss such parameters provide participating stakeholders with a substantial advantage for developing policy alternatives that are acceptable to the decision makers but also meet their own concerns. The wood stoves regulatory negotiation provided all participants with a richer understanding of both technical and political components of regulatory actions and enhanced the ability of all to formulate regulatory alternatives that met technical as well as political constraints and objectives.

The facilitated policy dialogue helped to broaden the list of alternatives by clarifying the basis for the discrepant health risk estimates and confirming that neither of the alternative assessments was invalid. When the scientific controversy cooled somewhat, debate could be refocused on additional alternatives beyond the two linked to the disputed risk assessments. Importantly, groups articulating policy options not directly related to the risk estimates gained an opportunity to speak and be heard, since the decision makers were less preoccupied by the technical controversy. A less contentious use of science in public decision making can strengthen the voices and concerns of groups that lack technical expertise or the financial resources to acquire it. In effect, consensus-based procedures widen participation in a very meaningful way.

Finally, consensus-based procedures can strengthen the ability of parties to influence the decision maker's decision choice. In the New York City case, advocates of recycling, waste source reduction, and other waste management alternatives gained ground when incinerator proponents were unable to invalidate the higher health risk estimates at the policy dialogue. The outcome of the policy dialogue make it politically costly for the Board of Estimate members to approve the incinerator proposal without reservations and at considerable political expense. Participants in the regulatory negotiation essentially delivered the decision choice to the official decision making body, the EPA, by producing rules consistent not only with the interests of participating stakeholders but also with what was understood about the science of wood combustion and stove technology. To ignore the recommendations of the negotiating group would have cost EPA a tremendous loss of public credibility.

In contrast, the Michigan fishing dispute case shows that consensus-based procedures vary considerably in their handling of scientific components and that the benefit to stakeholding groups is not always clear nor awarded equitably or in any consistent pattern. Disagreements over data and the biology of the Great Lakes' fishery were not resolved during the negotiations. Instead, the technical issues were simply submerged by a concentrated effort on the part of the special master to keep attention focused away from controversial, biology-based rationales for fish allocations. This approach did not appear to preferentially benefit any of the stakeholding groups nor to noticeably alter the dynamics of power among the primary negotiators.

Understanding Power

Consensus-based procedures can be structured to create disincentives for adversarial uses of scientific argumentation and to encourage cooperation and collaboration that can lead to an increased understanding of scientific and technical elements for all participants. Such an enlightened attitude toward scientific information is disruptive to power (im)balances that are based on the ability to wield scientific arguments, which is often the case in conventional decision making, because groups that typically lack the resources necessary to effectively exploit scientific and technical arguments gain access to technical information, access to expertise and, what we may call, voice and standing. These three items are critical elements of power in public decision making, especially when scientific argumentation is exploitable. Consider each of these more closely.

Access to Technical Information. We are said to be living in an "information society." Whereas in earlier eras, finance capital or control of machine technology were considered the major critical elements of power, today control over or access to valuable information is also vital to establishing political economic prominence. In public decision making, from the simple awareness of the imminence of a decision to knowledge of the most minute details regarding a given technology, information strengthens one's ability to discern and articulate specific interests and concerns. In decisions that involve technology or environmental impacts, technical information is crucial.

Technical information, however, is typically not equally available to all stakeholding groups. Financially well-endowed groups, highly organized groups, and groups proposing specific, controversial actions often have unique access to technical data and analysis. Industry, for example, by virtue of its proprietary interests in developing a given technology (such as wood stoves) often has substantial data compiled through years of product development. Many large companies also keep health records of employees and understand long before public health professionals the adverse impacts of particular substances on the human body, as we have learned from the

history of the asbestos industry in the United States. Financially well-endowed groups can easily commission necessary data collection and analysis. Highly organized groups can readily mobilize members for information gathering and polling activities. In contrast, *ad hoc* groups frequently lack both organization and financial resources, and encounter substantial difficulty in locating technical information in forms pertinent to their concerns.

The sharing of information is a necessary component of consensus-based methods that include collaborative problem-solving, since all participants must work from a common understanding of the factual basis of a given situation in order to develop mutually acceptable options for resolution. Thus, groups with a private reservoir of data are more likely to bring forth this information in order to maximize the possibility for reaching an agreement. Moreover, since credibility is critical in consensus-based procedures, participants might be hesitant to withhold information, fearing adverse consequences of such bad faith behavior, namely the loss of effectiveness within the negotiating group or even dissolution of the process altogether.

The structure of these incentives does not mean that participants "take turns" in submitting information. Those holding more information may easily share more and even a greater proportion of the total information that they hold. These incentives also do not mean that participants will "tell all." It is naive to expect that the sharing of information will not be a calculated activity. However, a consensus-based procedure constructed to encourage information sharing is likely to result in greater disclosure of information than adversial procedures and hence lead to increased access for all participants.

Access to Expertise. Information access alone is an insufficient basis for launching an effective campaign to influence a particular decision. Equally important is the wherewithal to utilize the information. In the highly legalistic framework of government activity, legal expertise is invaluable in interpreting the significance of various regulatory notices. Similarly, in cases involving the impact of technology on sensitive ecosystems or human health, specialized technical expertise is critical in order to craft credible arguments pertaining to technological feasibility or scientific soundness in defense of favored decision options.

Again, financially well-endowed groups initially hold a significant edge over less well-endowed groups. Such groups would not only be more likely to hire appropriate expertise, they would also be more likely to support an organization to coordinate the input from experts. In contrast, less-endowed *ad hoc* groups, such as neighborhood action committees or environmental coalitions, may need to rely on volunteer consultations from civic-minded researchers, and may experience difficulty in sorting through and integrating advice from different specialties.

Consensus-based procedures can be designed to extend access to pertinent expertise in a number of ways. Joint sessions with technical specialists and non-technical stakeholder representatives enable groups unable to bankroll their own technical consultants to question specialists in person. To the extent that specialists are encouraged to avoid jargon and to be responsive to questioning, all participants will have the opportunity to acquire a clearer understanding of pertinent technical information and the technical constraints of decisions. A structure that allows the formation of coalitions also enables parties to pool their resources with respect to expertise. Finally, resources allocated to the decision making process can be appropriated to hire experts selected by the participants to reduce perceptions of partiality on the part of technical advisors.

Voice and Standing. Finally, a party in a science-intensive dispute is severely disadvantaged unless it has voice and standing. "Voice" is the ability to express concerns and interests in language that is comprehensible and credible to the decision makers. "Standing" is the necessary legitimacy, conferred either explicitly through statutory language identifying those groups holding legal recognition as affected parties, or less formally, through public consensus earned by generating widespread popular support.

Both increasing access to information and expertise can enhance the ability of resource-poor groups to state their concerns in ways that appear congruent with technical parameters and, hence, improve the ability to speak more persuasively to decision makers and others. By gaining knowledge and competency in technical aspects of decisions, groups can improve their voice and standing.

Often, *ad hoc* community groups lack a voice in public decision making because their concerns, while real, are not expressed in terms that are relevant to the decision makers. There are at least two reasons why this is so. First, the group's concerns may simply not be included on a decision maker's list of decision criteria. For example, while a resort development proposal may be evaluated with regard to its impact on the physical environment and local and regional economies, the effect of an influx of profligate and well-clad vacationers on the psyche of the local adolescent population is often beyond the scope of concerns recognized in evaluative documents such as the environmental impact statement. Decision makers look to such documents to frame the issues they consider in their decision. Thus, even though a community representative may attempt to bring such issues to the attention of the decision makers, their comments may pass virtually unheard.

Second, when decision makers are bound by statutes to ensure that their decisions are technically feasible and scientifically sound, they may tend, consciously or not, to listen more attentively to concerns and resolutions that are expressed in correspondingly appropriate technical language or

backed by prestigious credentials. Not only will one speaking Greek not be understood, one speaking plain English may be effectively unheard when the listeners are tuned in only to policy options rationalized with specialized terminology.

The underlying presumption in this discussion is that scientific information, knowledge, and expertise are important sources of power in decision making by virtue of the authority popularly awarded to science. They are used to identify and define a problem and its solutions, and to persuade potential political allies and decision makers to support and choose among alternative actions.

The three cases studied here suggest different ways in which consensus-based procedures can affect the dynamics and redistribute power among the players in science-intensive public decision making. The degree and type of "power" that was affected ranged from the opportunity to speak, to a shared grip on scientific information and technical tools. The effects varied according to the particular methods employed in the procedures and, hence, no clear and consistent paterns in the use of science and its implications for decision making power emerged except that a consensual approach did not permit the monopoly of scientific information and analysis by one group.

It is commonly feared that when science is deemphasized in discussions, brute force and political arm twisting by the more powerful actors take over and control decision making. This analysis of consensus-based procedures suggests contrary conclusions. Instead, by neutralizing the advantages awarded those with the financial resources able to purchase scientific information and expertise, consensus-based procedures may allow for more democratic decision making. Groups excluded from discussions because of their inability to utilize scientific argumentation gained entry into the process. Groups less fluent in relevant specialized languages gained competency and strengthened their voice.

At the same time, what resource-rich groups gave up with respect to their edge on technical matters, they may have recouped by learning more about the reservations and objections of the opposition, by helping to shape a decision that will be durable and implementable, as well as by gaining other benefits. Of course, the ability to exert real influence is contingent not only on the command of these three elements. It is also determined by an actor's relative qualities as measured against those of competing parties. That is, my ability to influence your decision regarding the purchase of a new car probably depends as much on my ability to muster up a persuasive argument as on the absence or presence of competing views. Similarly, the effectiveness of pro-life activists in influencing national abortion policy is tempered by the strength of the pro-choice movement and how well such views are articulated.

In the next and final chapter, we consider the advantages and disadvantages of consensus-based procedures for stakeholding groups, scientists or experts, and decision makers. After all, despite potential benefits of consensus-based procedures with respect to the role of scientific information and argumentation, decision making occurs in a wider context involving many other factors. The overall desirability and wisdom of engaging in a consensus-based procedure must be evaluated with respect to both the benefits and the costs of these other considerations.

Notes

1. Although, increasingly, governments of third world countries are attempting to link environmental quality with economic aid in discussions with international lending institutions and development agencies, as in the "debt-for-nature swap" discussions.

2. Note that an active policy actor may also successfully promote its interests by *preventing* the listing of an issue onto the public agenda. See Peter Bachrach and Morton S. Baratz (1962) "Two Faces of Power" *American Political Science Journal*. 56(4): 947–952.

3. Based on a personal interview with Barry Commoner at the Center for the Biology of Natural Systems, Flushing, New York in October 1986.

4. In an 80-page report, the Environmental Defense Fund claimed New York City could recycle 40 percent of its solid wastes by 1992 at far lower economic cost than incinerators (*New York Times*, August 4, 1985).

5. The proposal for the BNY facility that was approved by the BOE in the summer of 1985 included stricter monitoring provisions (to avert human and mechanical failures) and was coupled with a commitment by the DOS to more vigorously pursue recycling as a method of reducing municipal solid waste. The extent to which the policy dialogue itself contributed to this change can not be determined, but the decision choice evidently was broadened beyond the prior "build or block" framework. Interestingly, the state of New York issued a report in 1987 that recommends steps to reduce municipal solid wastes by 50 percent over the next decade (*New York Times*, January 7, 1987). The report also recommends continued reliance on incinerators.

Despite the modifications to the BNY proposal, opposition to the plant continued, which suggests the still incomplete accommodation of conflicting political interests. State hearings for necessary permits were delayed more than a year by a lawsuit. Incineration became a major issue in the 1989 mayoral election of Mayor David N. Dinkins, who called for a moratorium on incinerator development. In November 1989, New York State's environmental commissioner denied the project a necessary permit pending submission of an adequate ash disposal plan (*New York Times*, November 16, 1989).

6. Their out-of-court agreement stipulated that EPA would address PM10 and POM emissions through regulating wood stoves under New Source Performance Standards of the Clean Air Act.