Environmental Risk and Democratic Process: A Critical Review

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INTRODUCTION

Can a technological society remain a democratic one? The rapid pace of technological change in contemporary society has become almost a cliche. The nuclear power debate has been with us for years. Entirely new fields like genetic engineering pose substantial scientific uncertainties where a political consensus has not even begun to emerge. Affected publics demand a role in technically based decisionmaking, while administrators grope for ways to involve them constructively. Science and expert knowledge have not taken the politics out of technically-based policy issues, as many observers expected only decades ago. Instead, the increasing involvement of technical experts in policy disputes has politicized expertise.[1]

A major question is whether democratic institutions and processes can keep pace with these changes. This article argues that our thinking, research, and experience are lagging badly behind the demands that environmental risk policymaking presents in a democratic society. We face a participatory dilemma, in which people's expectations about their capacity to influence decisions are not matched by political and institutional realities. To the extent that public participation in risk policymaking occurs at the national level, it typically is mediated through interest groups or participation professionals. I argue that the solution lies in reassessing our institutions for managing risk and in designing

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1. For a discussion, see Nelkin, *The Political Impact of Technical Expertise*, 5 SOC. STUD. SCI. 35 (1975).

more effective procedures and mechanisms for citizen participation. Although my focus is on participation at the national level, the discussion applies at the local level as well, where participatory mechanisms may have an even greater probability of success.

Participation has been a recurring theme in American political history. Even today, American politics can be understood as a series of historical adjustments to demands for greater participation. Lowi explains these demands over the last century as a response to cycles of expansion in American government. Each expansion of government has created a "crisis of public authority," followed by "demands for expansion of representation."[2] The growth in federal regulatory powers that began with the Interstate Commerce Act of 1887 fueled the Progressive and Populist movements, which in turn led to Congressional rule reforms, direct election of Senators, and changes in nominating and voting procedures. Early in this century, the progressivist expansion of government was accompanied by women's suffrage; widespread adoption of the initiative, referendum, and recall; the commission form of city government; and the first steps toward formal interest representation at the national level (e.g., separate Departments of Labor and Commerce and the farm bureau movement). The New Deal and the aftermath of the Second World War accelerated the expansion of government, and with it demands for broader participation. Since then, the growth of federal power has been in the administrative sphere, where the demands for participation also have been strongest.

It is not hard to argue that institutions managing environmental risk in American society face a crisis of public confidence. Confidence in public and private institutions is low.[3] Approaches to solving environmental risk problems work through cycles of ineffectiveness and irrelevance; one set of solutions often only creates another set of problems.[4] Attempts to site hazardous

2. T. LOWI, THE END OF LIBERALISM: THE SECOND REPUBLIC OF THE UNITED STATES 61 (1979).

3. This lack of confidence is described in S. LIPSET & W. SCHNEIDER, THE CONFIDENCE GAP: BUSINESS, LABOR, AND GOVERNMENT IN THE PUBLIC MIND 13-40 (1983). The same authors discuss more recent data in Lipset & Schneider, *The Confidence Gap During the Reagan Years, 1981-1987*, 102 POL. SCI. Q. 1 (1987).

4. Cycles in hazardous waste policy are discussed in Mazmanian & Morell, *The Elusive Pursuit of Toxics Management*, 90 PUB. INTEREST 81 (1988).

waste facilities stall in the face of intense local opposition.[5] Efforts to set regulatory standards for toxic chemicals drag on in a spiral of legal challenge, political opposition, and analytical debate.[6] Cost-benefit analysis, the dominant analytical model that the federal government uses to make decisions about environmental risk, is criticized on ethical, philosophical, methodological, and political grounds.[7] Despite official efforts to establish the credibility and objectivity of the scientific analyses underlying risk decisions, methods for assessing risk remain a source of controversy.[8] Research demonstrates fundamental differences between lay perceptions of risk and the perceptions of the experts who shape public policy.[9] It seems that each attempt to take the politics out of regulatory science only expands the arena of political debate.

The risk community has focused its attention on the technical and economic aspects of policymaking. Yet the challenges to effective risk management may not be so much technical or economic as political. By political, I mean the ways people view their relationship to institutions making collective decisions about environmental risk and their capacities for influencing those decisions. Yet the literature on environmental risk—whether it assumes the label of risk assessment, management, or communication—often ignores this aspect of risk problems and their solutions. Much of the research on risk displays "an uneasy

5. Matheny & Williams, *Knowledge vs. NIMBY: Assessing Florida's Strategy for Siting Hazardous Waste Disposal Facilities*, 14 POL'Y STUD. J. 70 (1985); Ristoratore, *Siting Toxic Waste Disposal Facilities in Canada and the United States: Problems and Prospects*, 14 POL'Y STUD. J. 140 (1985); and Glasberson, *Coping in the Age of NIMBY*, N.Y. Times, June 19, 1988, § 3, at 1, col. 3.

6. For a discussion of litigation and its effects, see Harter, *Negotiating Regulations: A Cure for Malaise*, 71 GEO. L.J. 1 (1982).

7. The critical literature on cost-benefit analysis is substantial. For examples, see K.S. SHRADER-FRECHETTE, RISK ANALYSIS AND SCIENTIFIC METHOD: METHODOLOGICAL AND ETHICAL PROBLEMS WITH EVALUATING SOCIETAL HAZARDS (1985) and Zinke, *Cost-Benefit Analysis and Administrative Legitimation*, 16 POL'Y STUD. J. 63 (1987).

8. For a discussion of the effects of assumptions and inferences on the results of scientific risk assessments, see Whittemore, *Facts and Values in Risk Analysis for Environmental Toxicants*, 3 RISK ANALYSIS 23 (1983) and Nichols & Zeckhauser, *The Perils of Prudence: How Conservative Risk Assessments Distort Regulation*, 10 REG. 13 (1986). Similar issues are discussed from a cross-national perspective in R. BRICKMAN, S. JASANOFF & T. ILGEN, CONTROLLING CHEMICALS: THE POLITICS OF REGULATION IN EUROPE AND THE UNITED STATES 187-217 (1985).

9. Slovic, *Perception of Risk*, 236 SCIENCE 280 (1987) and Wilson & Crouch, *Risk Assessment and Comparisons: An Introduction*, 236 SCIENCE 267 (1987).

relationship with people, tending to treat them as a variable to be considered in analysis, but not as legitimate contributors to decisions."[10] We refine, polish, and perfect our formal models for determining acceptable levels of risk, despite evidence that the assumptions and methods bear little relationship to the lay public's conceptions of problems. We test techniques for communicating risk information to the public, but conduct almost no research on mechanisms for the lay public to communicate with government officials and technical experts. We should not be surprised, as one book on risk analysis has observed, that "Citizens in a democratic society will eventually interfere with decisions in which they do not feel represented."[11] Part I of this article reviews selections from the literature that consider the fit between risk policymaking and the democratic process.

A principal influence on our current conceptions of participation in the federal administrative process was the participation movement of the 1960s and 1970s. Yet that experience is of limited value in addressing the crisis of confidence that afflicts risk policymaking today. Although the public participation movement promoted substantive democratic values, it did very little to promote the procedural ends of democracy, and may even have corroded them, by reinforcing American tendencies toward adversarialness and confrontation. It substituted litigation for discussion, joint problem-solving, and a search for common ground. It reinforced the idea that effective participation occurred through the actions of organized interest groups that mobilize resources and concentrate influence. In sum, participation took the only form it could be expected to take in a society grounded firmly in the principles and political realities of interest-group liberalism, with consequences that shape our perceptions of the meaning and value of participation today. I consider our contemporary experience with participation and its legacy in Part II.

Is there an alternative conception of participation that can help to reconcile risk policymaking with democratic process? Part III draws upon the literature on democratic participation to suggest an alternative approach. This literature offers no easy way out of our participatory dilemma. It suggests that agencies take an ac-

10. Otway, *Experts, Risk Communication, and Democracy*, 7 RISK ANALYSIS 125, 126 (1987).
11. B. FISCHHOFF, ACCEPTABLE RISK 148 (1981).

tive rather than a passive approach to participation. It describes an ethic that will require agencies and risk researchers to treat individuals as citizens rather than as subjects. It is a risky approach in itself, because it would grant to citizens as amateurs a greater role in making policy. It suggests a role for analysis, but to inform the political process and not to replace it. It proposes that institutions seek ways to transform conflict rather than to expect and thus to reinforce it. The last section in Part III proposes a participatory ideal as a basis for adapting and designing institutional mechanisms and procedures.

In Part IV, I propose that we design participation programs as carefully as we now design our analytical programs. In theory, research, and practice, there is a need to reassess assumptions, conduct and evaluate experiments, and adapt existing institutions. The sooner we think as carefully and critically about political values as we do about scientific and economic ones, the better our capacities will be for coping with the participatory dilemma in risk policymaking.

I. Risk Policy and Democratic Process: A Survey of the Literature

How has the literature treated the relationship between risk policymaking and the democratic process? What can it offer in an effort to improve mechanisms for citizen participation? The literature on risk assessment, management, and communication is substantial. This review examines work that considers the relationship between democratic institutions and processes and public policies for analyzing and managing environmental risks. This section is partly a definition of the problem, because the problem has been defined in many ways: as a matter of resolving the tensions between experts and nonexperts; as a problem of informing the lay public on technically complex issues; as the need to resolve technical or scientific controversy in a way that is acceptable to affected parties, yet true to the standards of science; as the challenge of drawing community values into deliberations over scientific questions that cannot be answered scientifically; and as the dilemma of accommodating the rationality of formal risk assessment and evaluation with the political and ethical requirements of democratic process, among others.

This review of the literature is organized according to seven perspectives. These perspectives are proposed as a convenient

way to view the literature, and not as a general classification scheme. Each perspective is defined by a key question that I associate with each. The seven perspectives are:

A. *Public Deliberation:* How do risk managers engage the public in deliberations over risk issues so that social and community values will inform administrative decisions?

B. *Resolving Disputes Among Experts*: How should we resolve technically-based public policy disputes when the experts disagree?

C. *The Analytical and Ethical Critique*: How do we reconcile the methodological requirements and biases of risk analysis with the ethical and political values of a democratic society?

D. *Risk Perception*: How do people perceive risk, and what are the psychological, social, and cultural determinants of those perceptions?

E. *Risk Communication*: How can the uncertainties and complexities of risk analysis be conveyed clearly, objectively, and effectively to the lay public?

F. *System Responses to the Need for Participation*: How have political systems responded to growing demands for public participation in or control over technological decisions?

G. *Administrative Process and Culture*: How do other administrative systems reconcile scientific with political authority, and what are the lessons for American policy and practice?

A. *Public Deliberation*

1. Description

This perspective focuses on how risk managers engage the public in deliberations so that social and community values will inform administrative decisions. It is reflected in the institutional position of the Environmental Protection Agency since William Ruckelshaus returned as Administrator in 1983.[12] EPA was influenced by the National Academy of Sciences (NAS) report on risk assessment, issued that same year, especially its distinctions between risk assessment and management.[13] Like the NAS report,

12. *See* Ruckelshaus, *Science, Risk, and Public Policy*, 221 SCIENCE 1026 (1983); *Risk, Science, and Democracy*, ISSUES IN SCI. AND TECH., Spring 1985, at 19; and Russell, *Environmental Protection: Laying the Foundation for the Year 2000*, 4 ENVTL. F., Feb. 1986, at 7.

13. NATIONAL RESEARCH COUNCIL, RISK ASSESSMENT IN THE FEDERAL GOVERNMENT: MANAGING THE PROCESS (1983). For an EPA statement of this approach, see EPA, RISK ASSESSMENT AND RISK MANAGEMENT: A FRAMEWORK FOR DECISION MAKING (1984).

however, the EPA position recognizes that scientific and methodological assumptions and inferences can greatly affect the results of a risk assessment. EPA's strategy has been to handle these variations in two ways—by establishing guidelines that explain and standardize the risk assessment process as much as possible, and by subjecting the assumptions and range of uncertainties underlying a risk assessment to public scrutiny.[14]

EPA's approach to managing risk has stressed public education, participation, and deliberation. Public risk managers have an obligation to conduct the scientific assessment, present the evidence with all of the uncertainties and limitations, lay out the policy choices and the implications of each, and bring the affected community into the process of choice. Inherent in this approach is a Jeffersonian faith in the capacity of the public to take part or be taught to take part in decisions about risks.[15] The role of public officials and their expert advisors is to inform public judgment, but not to replace it. The major characteristics of this approach, then, are maintaining the distinctions between risk assessment and risk management, while recognizing and conveying the uncertainties; communicating risk information to the public, both to build citizen competence and to draw the public into specific risk management decisions; and involving the affected public as early and openly as possible in the decision process.

An excellent statement of a public deliberation perspective is Robert Reich's essay on "Public Administration and Public Deliberation."[16] Reich examines two decision models that have dominated administrative theory and practice in recent decades. The first model, "interest-group mediation," descends from pluralist political science and was more influential in the 1960s and early 1970s. In this conception, the administrator is a referee who brings affected interests together to reconcile their demands and preferences. The second, "net-benefit maximization," descends from decision theory and has been more influential in the late 1970s and 1980s. The administrator is an analyst who defines policy options, estimates their consequences, compares them

14. Russell & Gruber, *Risk Assessment in Environmental Policy-Making*, 236 SCIENCE 286 (1987).

15. Russell, *Environmental Protection for the 1990s and Beyond*, 29 ENVIRONMENT, 12 (1987).

16. *See* Reich, *Public Administration and Public Deliberation: An Interpretive Essay*, 94 YALE L.J. 1617 (1985).

given a set of objectives, then selects the one offering the greatest net benefit or social utility.

Although he accepts their place in the administrative process, Reich criticizes both models. Neither, he argues, can legitimize administrative decisions by sustaining public confidence in the accountability and responsiveness of administrators. By accepting public preferences as given, merely to be revealed through group interaction or the operations of analytical models, neither approach allows the public to deliberate about shared values or the future of the community. Administrators can promote and lead this process of public deliberation by acting as teachers and guides—by articulating visions of the future and exposing people to an array of issues and problems. This is an ambitious task, as Reich acknowledges. Genuine deliberation is not easy; it demands time, attention, and facing up to painful choices. By promoting social learning and debate, administrators may generate rather than reduce controversy. So deliberation should be a conscious strategy, one reserved for "decisions that are especially bound up with social values, or that are likely to have important effects on future generations."[17]

2. Analysis

The public deliberation perspective presents the clearest vision of a participatory process in the risk literature. It resembles, in many aspects, the arguments of the participation theorists discussed in Part III. It presents the government risk manager as more than a passive mediator of interest group interactions or an analyst adopting the results of analytical calculations. The task of the administrator is to lead: to educate, inform, listen, and draw out community values. What this work does not offer is practical solutions. We get a vision, but not an institutional infrastructure for implementing it.

B. *Resolving Conflicts Among Experts*

1. Description

This refers to a broad category of work. Some examples illustrate its relevance to the discussion of democratic process. Nelkin examines two controversies in which experts were drawn into technical policy disputes—the siting of a nuclear power plant in

17. *Id.* at 1640.

upstate New York and the proposed construction of a new runway at Boston's Logan International Airport.[18] In both cases, she concludes that while expert advice can clarify technical constraints and choices, it also can increase conflict. The experts' disagreement stimulated political activity among interested parties. Perceptions of technical credibility were based less on technical competence or validity of the testimony than on which position an expert supported. Put simply, she found that people trusted the experts who supported their position.

In another example of this perspective, Brooks considers two ways of viewing the relationship between technical issues and policy decisions. One assumes that the technical/scientific and political/value components of disputes can be separated. The science court proposal reflects this view.[19] A second view, which he adopts, recognizes that such disputes are "inherently value-laden" and can be resolved only by "mixing together experts and generalists and forcing a continuing dialogue among them."[20] Experts must take part in these decisions, because they have the knowledge and methods to estimate the likely range of consequences. However, participation by the lay public is necessary "to represent societal values to the experts and to clarify the necessary choices that the political process must make."[21] Lay participation is desirable both to sustain legitimacy and public acceptance for policies and as "an intrinsic political value."[22]

The challenge to society, Brooks argues, is to devise institutional mechanisms for reconciling technical and value considerations. These mechanisms should enable representatives of the lay public to become immersed in the issues and be insulated from lobbying and media pressures. They should permit access to technical experts and allow reasoned discussion with them. And these mechanisms should be applied only to selected issues. Popular referenda clearly fail these criteria. Two mechanisms that could prove valuable, Brooks suggests, are lay juries or citizens' commissions. The jury model deserves special consideration, be-

18. *See* Nelkin, *supra* note 1.

19. Brooks, *The Regulation of Technically Intensive Public Policy Disputes*, 46 SCI., TECH. & HUM. VALUES 39, 40 (1984). For an earlier example of this perspective, see Mazur, *Disputes Between Experts*, 11 MINERVA 243 (1973).

20. Brooks, *supra* note 19, at 40.

21. *Id.* at 46.

22. *Id.*

cause it offers some guarantee of representativeness, the opportunity for reasoned deliberation and interaction with experts, and insulation from outside pressures. In the end he suggests that a hybrid of the jury and citizens' commission models could be appropriate. Yet he remains cautious about appeals to the lay public, who should be consulted only when "appeal from the experts becomes necessary."[23]

2. Analysis

Where the public deliberation perspective articulates a vision, this perspective poses a problem: What do we do when the experts disagree? Posing the question this way makes two important assumptions. One is that expert consensus exists independently of political circumstances. Yet the definition of technical consensus is itself a political question. Expert disagreements can simply reflect the degree and nature of political controversy on an issue. Nelkin's two case studies describe the interrelationships between science and values on intensely controversial issues. When scientific credibility depends more on the position the expert takes than on the perceived validity of the scientific argument itself, then it is difficult to argue that politics begins where technical consensus ends. A second problem with this perspective is the assumption that public values are relevant only on the residuals that remain after the experts have done their work. Often the important questions relate to the design of technical analyses and the assumptions and inferences that the experts use in reaching their conclusions.[24]

C. *The Ethical and Methodological Critique*

1. Description

Another set of writers has explored how to reconcile the assumptions in risk analysis with the ethical and political values of a democratic society. An example is Shrader-Frechette's critique of the scientific, logical, epistemological, and ethical presupposi-

23. *Id.* at 49.

24. For discussions of these issues from different perspectives, see Lynn, *The Interplay of Science and Values in Assessing and Regulating Environmental Risks*, 55 SCI. TECH. & HUM. VALUES 40 (1986); Majone, *Science and Trans-Science in Standard Setting*, 46 SCI. TECH. & HUM. VALUES 15 (1984); and Slovic, *Informing and Educating the Public About Risk*, 6 RISK ANALYSIS 403 (1986).

tions[25] of formal models for defining acceptable risk. Although she accepts and defends the use of these analytical models, she argues that the dominance of risk analysis by experts who view it as a wholly scientific enterprise has allowed a number of methodological and ethical biases to enter into risk policymaking. She conceives of risk analysis not as a principally scientific or objective process, but a "normative, policy-oriented, enterprise with significant scientific elements."[26] She aims not to reject risk analysis but "to accommodate democratic values within analytic assessment."[27]

Shrader-Frechette proposes two possible approaches to reconciling the scientific and value elements in risk issues. One is an analytical approach that weighs risks, costs, and benefits to account for public values not normally incorporated in formal models—such as the importance attached to high consequence/low probability events that are catastrophic or socially disruptive. Her second proposal is to bring experts and the lay public together into a "technology tribunal" to consider both science and value questions in a risk controversy.[28] Procedurally, the tribunal would function like a science court. The difference is that the tribunal would include lay as well as expert participants and would not separate science and value questions. Composed of anywhere from a few dozen to a few thousand people, the tribunal would issue a decision that was binding in itself or could be used by government authorities as the basis for a decision.[29]

Flores and Kraft also use ethical, political, and methodological criteria to assess what they term "synthetic" approaches to determining the acceptability of risk.[30] Synthetic approaches use analytical models and empirical data within an interpretative framework, and include risk/cost/benefit analysis, the revealed and expressed preferences approaches, and the natural standards approach to making risk decisions. Despite the advantages of these approaches as decision tools, they fail to account for several ethical and political issues. Similarly, Zinke argues that cost-ben-

25. K.S. SHRADER-FRECHETTE, *supra* note 7, at 197.

26. *Id.* at 202-203.

27. *Id.* at 204.

28. *Id.* at 209-213.

29. *Id.*

30. A. Flores & M. Kraft, Determining the Acceptability of Risk in Regulatory Policy: Ethics, Politics, and Risk Analysis (1987) (draft paper).

efit approaches tend to "undermine the legitimacy of administrative and regulatory processes."[31] By eliminating several ethical, moral, and political factors, he argues, a cost-benefit approach reduces the credibility of agencies and their decisions. It also reduces opportunities for public debate and increases the likelihood that experts will manipulate public choices.

2. Analysis

This category of work is characterized by its reservations about the use of formal analytic models. More than other risk literature, it deals explicitly with the need to reconcile formal analysis (such as cost-benefit methodology) with the requirements of democratic process. It emphasizes that it is not only scientific experts who are framing public choices but experts in decision models as well. These writers argue that the political and ethical rationality of decisions are as important as their technical and economic rationality. Although they accept that formal analytic models should play a role, their criticisms suggest conflicts between formal analysis and democratic values. At a minimum, formal models make decisions less accessible by imposing another layer of specialized method on top of the scientific assessments of risk. But there may be an even more basic problem: Formal analytic models purport to resolve the value rather than the factual issues in a risk controversy. In addition, formal models substitute analytic calculations for the discussion and debate that I later argue are important features of a democratic process.

D. *Risk Perception*

1. Description

This approach includes studies of perceptions of risk and of the psychological, social, and cultural determinants of those perceptions. Although it originally stressed psychological aspects of risk perceptions, it more recently has begun to consider social and cultural factors. Principal conclusions that relate to this discussion include:

a. Risk means different things to different people. Experts rely on formal assessments of risk as a statement of probability times magnitude, with the result stated in measurable terms, such as expected fatalities. The lay public thinks more intui-

31. Zinke, *supra* note 7, at 63.

tively about risk, based on a more complex set of social and cultural influences.[32]

b. People invoke a subjective immunity to understate and screen out familiar, low-frequency risks. This is a rational coping mechanism in modern society, if only because we know so much more about risk than we did even a few decades ago. This sense of subjective immunity is expressed in such attitudes as personal invulnerability (It can't happen to me), fatalism (Whatever happens was meant to happen), or skepticism (*X* smoked for forty years and never developed cancer).

c. People tend to ignore or discount discrete, familiar, voluntary, and low-probability risks. Unknown, dread, catastrophic, or socially-disruptive events, or those posing consequences for future generations, inspire much higher levels of concern, especially in contrast to the experts' emphasis on expected fatalities or other measurable consequences. An event such as Three-Mile Island caused no immediate fatalities and is not expected to result in any cancers, but through its "signal potential" can have significant social consequences.[33]

d. Feelings of control influence perceptions about the acceptability of risk. Attribution theory and research on stress suggest that "a generalized expectation of being in control reduces the experience of stress."[34] People are less likely to invoke their sense of subjective immunity if hazards are seen to be imposed by outside forces over whom they have no control (e.g., a hazardous waste siting decision vs. a concern about radon). Negative reactions are even higher when the perceived source of the risk is seen to benefit from the action.

e. Initially, people will react strongly to information that is inconsistent with their existing views, just as they are more likely to accept information that is compatible with those views. Research suggests, however, that under certain circumstances people can move beyond their initial reactions and deal more openly with additional information.

f. People react to risk as members of a community, where norms about the acceptability of risk "are debated and so-

32. This discussion draws on M. DOUGLAS, RISK ACCEPTABILITY ACCORDING TO THE SOCIAL SCIENCES (1985); Fischhoff, Slovic & Lichtenstein, *Lay Fables and Expert Foibles in Judgments About Risk*, 36 AM. STATISTICIAN 240 (1982); M. DOUGLAS & A. WILDAVSKY, RISK AND CULTURE: AN ESSAY ON THE SELECTION OF TECHNOLOGICAL AND ENVIRONMENTAL DANGERS (1982); Kasperson, *Six Propositions on Public Participation and Their Relevance for Risk Communication*, 6 RISK ANALYSIS 275 (1986); and Slovic, *supra* note 9.

33. Slovic, *supra* note 9, at 284.

34. M. DOUGLAS, *supra* note 32, at 34, (citations omitted).

> cially established."[35] In addition to reflecting cultural influences, reactions to risk may be serving other social ends, such as "to control uncertainty about human behavior, to reinforce norms, and to facilitate coordination."[36]

Rayner and Cantor use research on cultural and social factors to challenge two assumptions that dominate the literature—that risk exists as a measurable and definable phenomenon, and that the job of the societal risk manager is to minimize the probability and/or magnitude of unwanted consequences, at socially acceptable costs. The key question, they assert, is not " 'How safe is safe enough?' " but " 'How fair is safe enough?' "[37] People are concerned about matters of process and fairness, such as the procedures for obtaining the collective consent from people bearing the consequences of an action; or the principles used to apportion the liabilities; or whether or not the "institutions that make the decisions that manage and regulate the technology [are] worthy of fiduciary trust."[38]

2. Analysis

This research documents striking differences between expert and lay attitudes toward risk. While the experts were thinking in technocratic terms, the public was thinking in terms of social and political values. While the experts were treating the public as subjects, the lay public was asserting its identity as citizens. The risk perception research underscores the narrowness of the formal assessments of risk and the analytic models that are based upon it. Indeed, I would argue that these apparently "nonrational" attitudes about risk—about the concern for such values as fairness, social stability, control over people's lives, due process, social consent, the ethics of a decision to expose a group of people to risk—are as important an assertion of democratic values as more visible signs of organization and protest. The persistence of these procedural and substantive political values in lay judgments about risk are an important theme in later sections of this article.

35. *Id.* at 69.

36. *Id.* at 92.

37. Rayner & Cantor, *How Fair is Safe Enough? The Cultural Approach to Social Technology Choice*, 7 RISK ANALYSIS 3 (1987).

38. Rayner & Cantor, *supra* note 37 at 4.

E. *Risk Communication*

1. Description

From this perspective, the important question is how to communicate risk information clearly, objectively, and effectively to the lay public. Some of the research on risk communication relates public beliefs and attitudes to categories of risk problems, channels of communication, and strategies for presenting information. Other work presents case studies of particular hazards—of how they were communicated to the lay public, and with what effect.[39]

In many forms, risk communication has been with us for years. Often, it has been the principal strategy for reducing exposures to risk: to warn of hurricanes, floods, or other natural disasters; to provide directions on the safe use and handling of pesticides or solvents; or to persuade people to behave in ways that will reduce their vulnerability to hazards (cigarette label warnings or seat belt campaigns).[40] More recently, EPA and other agencies have recognized the role that information and education can play in influencing people to reduce exposures to such risks as radon, lead in home plumbing, ultraviolet sunlight, or home use of pesticides. For these problems, risk communication can offer a more effective risk reduction strategy than can more traditional regulatory approaches.

The other objectives of risk communication research relate more directly to the subject of citizen participation. Clearly, if people are going to take part in decisions about risk, they need information on issues, positions, and choices. To the extent that risk communication research is directed toward participation in policy deliberations, it can contribute to citizen participation. One deficiency in the literature, however, is its nearly exclusive focus on communication *from* experts and government officials *to* the affected public. Communication can occur two ways, and research and practice should also consider how the lay public can

39. For examples, see the case studies in S. KRIMSKY AND A. PLOUGH, ENVIRONMENTAL HAZARDS: COMMUNICATING RISKS AS A SOCIAL PROCESS (1988).

40. S. HADDEN, READ THE LABEL: REDUCING RISK BY PROVIDING INFORMATION (1986); Covello, von Winterfeldt & Slovic, *Communicating Scientific Information about Health and Environmental Risks: Problems and Opportunities from a Social and Behavioral Perspectives*, in RISK COMMUNICATION 109 (1986).

convey to the decisionmaker and experts a sense of public sentiments, concerns, preferences, and values.[41]

Much of the work on risk communication reflects the tendency in the risk literature to view the lay public as subjects rather than as citizens. In one recent article, for example, the authors assert that "Two problems with the public [are] their desire for 'zero risk' and their 'thirst for certitude.' "[42] More recent work, however, has viewed the public not as a problem to overcome, but as a legitimate source of judgment and information for experts and policymakers. Plough and Krimsky in particular argue that we should broaden conventional definitions of risk communication to account for its symbolic, cultural, and experiential dimensions.[43] Adopting a popular epidemiology perspective, Brown describes a case in which the lay public communicated risk information to scientific experts and government officials, thus challenging an elite-centered view of risk communication.[44] Kasperson examines the relationship between risk communication and public participation, stresses the role of community and group influences, and observes that participation and communication programs are rarely the subject of careful evaluation.[45]

2. Analysis

Effective risk communication can build capacities for citizen participation. By defining categories of communication problems based on the message, the source, the channel, and the recipients of the information, the literature provides a framework for understanding the process of risk communication and diagnosing the causes of problems. It describes the uncertainties, ambiguities, and complexities of risk problems and the need to account for them when presenting information. The case studies offer a growing body of experience on which strategies and techniques succeed or fail in different contexts. But this body of work is valu-

41. EPA's Science Advisory Board recently made a strong case for research on "effective, multi-way communication" and on its "social and cultural contexts." *See* "Appendix E: Strategies for Risk Reduction Research," the report of the subcommittee on Risk Reduction of the Research Strategies Subcommittee 32 (September 1988).

42. Keeney & von Winterfeldt, *Improving Risk Communication*, 6 RISK ANALYSIS 417, 420 (1986) (footnote omitted).

43. *The Emergence of Risk Communication Studies* 12 SCI. TECH. & HUM. VALUES, 6-8 (1987).

44. Brown, *Popular Epidemiology: Community Response to Waste-Induced Disease in Woburn, Massachusetts*, 12 SCI. TECH. & HUM. VALUES 78 (1987).

45. Kasperson, *supra* note 32.

able only if it recognizes the legitimacy of lay perceptions and the values they reflect, builds firmly on the risk perception research, and incorporates the need for communication to, as well as from, experts and risk managers. The normative principles that guide this research, especially the conception of "citizen" on which it is based, will determine its value to the study of democratic process in risk policymaking.

F. *System Responses to Demands for Participation*

1. Description

Some of the risk research has examined how political systems respond to growing demands for democratic participation in technical decisions. This work adopts a system-wide, comparative perspective, focusing on the Western democracies. It places the issue of environmental risk in the larger context of technology and society, recognizing the issue not only as one of the acceptability of specific technologies, but of fundamental values regarding technological change and social processes for coping with that change. In one of the better statements of this perspective, Nelkin and Pollak observe:

> Contemporary resistance to technological change, however, reflects broader questions: it is marked by hostility to public bureaucracies and resentment of impersonal, expertise-dominated policies. The issue is no longer simply the impact of technology, but the locus of control over major public decisions. . . . Given this shift from technical concerns to questions of values 'too important to be left to experts,' competence is suspect and is no longer accepted as a sufficient basis for decision-making authority.[46]

Because this research is comparative, it documents how political traditions and institutions affect national responses to demands for broader participation in technical decisions. The Swedish experience with study circles illustrates this point. Operating within a tradition of consensus and compromise on social and political issues, the government assumed that increased public understanding of energy and nuclear issues would reveal an underlying consensus in favor of a proposed expansion in nuclear generating capacity. When the government's nuclear program

46. Nelkin & Pollack, *The Politics of Participation and the Nuclear Debate in Sweden, the Netherlands, and Austria*, 25 PUB. POL. 333, 353 (1977). *See also* D. NELKIN, TECHNOLOGICAL DECISIONS AND DEMOCRACY: EUROPEAN EXPERIMENTS IN PUBLIC PARTICIPATION (1977).

became a major social issue in the early 1970s, one response was to invite major social and political institutions to organize energy study circles. The study circles began in late 1973 and lasted for about a year. Altogether, some 10,000 circles were organized and included an estimated 80,000 participants. Although the government viewed this as a means of broadening the awareness of blue-collar and other groups who had not been active on the nuclear issue, the participants generally were well-educated, well-informed, and politically active.

An evaluation of the effects of the study circles by the National Board of Civic Information in the Fall of 1974 revealed very slight differences between participants and non-participants in their attitudes toward nuclear power. In addition, the circles do not appear to have led to noticeable improvements in public understanding. The Board's survey suggested that "many participants were more confused after they took part in the study circles than they were before."[47] Another set of surveys, following a series of four public hearings held late in 1974 and 1975, showed a modest shift toward public support for the government's policies.

The study circles were a particularly Swedish approach to the problem. The leadership expected that the social conflict over nuclear power would decline once information and education allowed an underlying consensus to emerge. That the consensus did not emerge suggests something important about nuclear power and the scientific and political controversies it reflects. The two other systems Nelkin and Pollak studied—the Netherlands and Austria—reveal different kinds of system responses. In the Netherlands, there is greater experience with the management of social and political diversity. Political institutions are designed to deal explicitly with multiple demands of different interests by recognizing and incorporating them into policy formulation. The Austrian response shows more of a balance in expectations and institutional responses.

Nelkin and Pollak document many of the same experiences as the OECD report, "Technology on Trial."[48] It surveys the mech-

47. Nelkin & Pollack, *supra* note 46, at 344. The Swedish case is also discussed in K.G. NICHOLS, TECHNOLOGY ON TRIAL: PUBLIC PARTICIPATION IN DECISION-MAKING RELATED TO SCIENCE AND TECHNOLOGY 29 (1979). A useful overview and classification of participatory mechanisms is Nelkin & Pollack, *Problems and Procedures in the Regulation of Technological Risk*, in MAKING BUREAUCRACIES WORK 259 (1980).

48. K.G. NICHOLS, *supra* note 47.

anisms and procedures that OECD countries have used to promote participation in technical decisionmaking, based on whether the objective was to inform the public, inform policymakers, reconcile competing interests, or achieve more collaborative decisionmaking. Although the OECD report was published over a decade ago, its conclusions remain valid: "Government agencies have generally reacted to participatory demands," it concludes, "not anticipated them."[49] The report adds that "the need for new approaches and more flexible institutions for public participation in the development and formulation of policies related to science and technology appears to be especially crucial."[50]

Although this work has focused on risks from nuclear power and other large-scale energy technologies, it illuminates other environmental risk issues as well. The nuclear controversy highlights the same kinds of value conflicts we can observe in other risk controversies—preservation versus development, intangibles versus tangible goods, democracy versus technology. It has pitted experts against experts, experts against the lay public, governments against citizens, industry against communities. The controversy over nuclear power has introduced ideological fault lines that will structure the debate over risk issues for years to come. The issues are not just risk, or public health, or environmental quality, but a combination of these and other more fundamental concerns, as Douglas and Wildavsky have argued.[51]

2. Analysis

This literature illustrates how institutional and cultural factors can shape national responses to highly visible, technically-based controversy. The conflict over nuclear power can be seen as a challenge to control by political, administrative, and technical elites. Even in Sweden, with its tradition of consensus and compromise, the nuclear issue introduced social divisions that could not be accommodated within the normal political structure. The same was the case in other Western democracies. This research

49. *Id.* at 113.

50. *Id.*

51. *See* M. DOUGLAS & A. WILDAVSKY, *supra* note 32. For a detailed analysis of elite perceptions of nuclear power and the effects of political ideology on them, see Rothman & Lichter, *Elite Ideology and Risk Perception in Nuclear Energy Policy*, 81 AM. POL. SCI. REV. 383 (1987).

also emphasizes that the boundary of scientific consensus on a given issue is itself a political question. Krimsky's discussion of guidelines for research on recombinant DNA makes the same point: What began as a scientific matter whose resolution would be left to technical experts quickly evolved into an issue requiring political solutions. The creation of the Cambridge Experimentation Review Board (CERB) was only one manifestation of this metamorphosis from a technical to a political issue.[52]

G. *Administrative Process and Culture*

1. Description

This area of research also adopts a comparative approach, whose objective is to describe how scientific and political authority are reconciled in different national administrative systems, and to explain what effects these differences have had on decisions to regulate toxic chemicals. Unlike the nuclear power issue, these decisions have been made largely within existing political processes. They have not presented the kinds of demands for system responses that we can observe on the nuclear power issue.

This research documents the generally acknowledged characteristics of national administration in the United States.[53] These characteristics include a popular distrust of bureaucratic power, fragmented administrative authority, and skepticism toward experts. Agencies must contend with vigorous Congressional oversight, active intervention by the courts, and a public and adversarial decision process. Because they lack a clear basis for their authority, administrators turn to science and expert knowledge as a source of legitimacy. Yet scientists cannot make value judgments, which are reserved for the political process. So the scientific process of risk assessment is separated from the political process of risk management. Because regulatory science involves assumptions, choices, and uncertainties, administrators seek to make the process of scientific assessment as neutral and value-free as possible.

52. A discussion of the CERB can be found in Krimsky, *Regulating Recombinant DNA Research*, in CONTROVERSY: POLITICS OF TECHNICAL DECISIONS 251 (D. Nelkin ed. 1977).

53. This discussion is based upon Brickman, *Science and the Politics of Toxic Chemical Regulation: U.S. and European Contexts*, 9 SCI. TECH. & HUM. VALUES 107 (1984); S. JASANOFF, RISK MANAGEMENT AND POLITICAL CULTURE: A COMPARATIVE STUDY OF SCIENCE IN THE POLICY CONTEXT (1986); D. VOGEL, NATIONAL STYLES OF REGULATION: ENVIRONMENTAL POLICY IN GREAT BRITAIN AND THE UNITED STATES (1986); and Majone, *supra* note 24.

In the United States, administrators use science to bolster their authority and to define the choices they and the affected public must make. European administration takes place within a different context, in which there is greater centralization of administrative power and more public deference to bureaucratic authority and expert knowledge. Access to the courts is more restricted. Parliaments have less reason to interfere in administrative deliberations than does Congress. Administrators defer to scientific expertise as expressed in elite, standing bodies, such as the French Ecotoxicity Advisory Committee. Processes for making decisions about toxic chemicals are relatively closed to participation by non-elites, both scientific and administrative, and access to information is far more restricted than in the United States. The consensus of scientists is more likely to be accepted on its own terms, and thus less likely to be drawn into the political debate.

An illustration is Jasanoff's analysis of how three kinds of administrative cultures identify chemical carcinogens.[54] She associates one approach with West Germany and the International Agency for Research on Cancer, where scientific issues are delegated to expert panels who apply the technical evidence to their own criteria and explain their conclusions based on that evidence. In this approach, both science and value questions are resolved by expert panels. Canada and Great Britain exemplify a second approach. Conclusions about cancer risk result from a mixed scientific and administrative process, "in which uncertainty is not always publicly analyzed."[55] The government acts when political pressures and the evidence seem to require it. The United States illustrates a third approach, in which the distinctions between scientific evidence and political judgment are drawn most clearly. Scientific assessments are the product of a public process and follow explicit guidelines. Political officials resolve issues that remain after the scientific analysis is complete. The third approach, she observes, is least likely to lead to closure on decisions about identification of carcinogens. Yet she concludes that the United States approach is more open and accountable, allowing more extensive public scrutiny and participation.

54. S. JASANOFF, *supra* note 53.
55. *Id.* at 80.

The differences in approach, she observes, suggest a trade-off between "administrative efficiency and scientific credibility" in the European systems and "analytical rigor and informed public participation" in the American.[56] She concludes: "The indecisiveness of the U.S. approach, for example, may be bearable to many because what matters most in risk management is the process, not the outcome."[57]

2. Analysis

The American process clearly is more open and participatory than its European and Canadian counterparts. It is plausible to argue that the more open and participatory process in the U.S. impedes consensus and delays regulatory action on toxic chemicals. Closed decisions generally are made more efficiently than open ones. But is delay inevitably the consequence of a more participatory process? Can a more democratic process promote consensus rather than impede it? In the next part of this article, I argue that the problem we face may not be too much participation, but the wrong kind of participation—participation that is too adversarial, too subject to legal maneuver and challenge, too dependent on the actions of organized interest groups, with too little opportunity for constructive discussion and cooperative problem-solving. What this group of writers may help to demonstrate is that participation in the contemporary American setting has had its costs. The question is whether delay and open conflict are the inevitable consequences of broad participation in risk decisionmaking. This question is taken up in the remaining sections of this article.

H. *Conclusions*

One purpose behind the preceding discussion was to present a review and critique of the literature as its bears on the challenge of reconciling risk analysis with democratic values and process. Several conclusions can be drawn at this point. One is that this challenge is a recurring theme in the literature. Whether it is one writer invoking a Jeffersonian faith in public understanding, or another exploring the interaction between science and politics, or a third proposing a technology tribunal made up of lay as well as

56. *Id.* at 81.
57. *Id.*

expert representatives, an awareness of the technical and political dichotomies in risk analysis is always present. A second conclusion is that there are no easy answers. The literature is long on definitions of the problem but short on practical institutional solutions. Although we see some speculation on possible institutional mechanisms—such as in the parallel with the lay jury or in the technology tribunal—it is at a general level rather than at the level of tested, implementable mechanisms. Third, the clearest vision of what a democratic model of risk analysis should look like comes through in the public deliberation perspective. Those writers' visions comes closest to the democratic ideal of the participation theorists presented in Part III.

The second purpose behind the literature review was to define the basis for the discussion in the following sections on citizen participation and democratic theory. The argument is that there are two possible sources of direction in attempting to reconcile risk analysis with democratic values and process. The first is our experience with citizen participation in administrative decisionmaking, especially in the environmental area. The second is contemporary democratic theory. Parts II and III address these two sources of direction in turn. These two sections and the concluding one suggest that a technological society can remain a democratic one only by remaining conscious of democratic values and by searching for institutional measures that will promote those values in social decisionmaking.

II. Citizen Participation in the Administrative Process

The term "citizen participation" conjures up diverse images. To some people, it is synonymous with computer mailing lists, outreach meetings, well-publicized hearings, and slickly-packaged information brochures. To others, the term evokes images of raucous public meetings, rising costs, lawsuits, and delay. To still others, the term is a symbol for rallying opposition to government and corporate insensitivities, or a strategy for mobilizing otherwise disinterested publics. To the government administrator, participation can mean a nuisance or a strategy, to the public affairs staff an opportunity, to the public interest group a tactic, and to newly-organized groups a symbol. Few terms in our contemporary political lexicon have been used with so little semantic precision.

Citizen participation in the administrative process will be only as good or useful as the meanings we give to it. I argue that the meanings we have given the term in recent decades have served neither our democratic ideals nor the goals of effective policymaking. At a theoretical level, our conceptions of participation depend on interest-group, pluralist thinking. At a practical level, our conception of participation is narrow, superficial, and biased. Until we can devise new approaches, based on sounder theoretical and practical foundations, it will be difficult to achieve more effective lay participation in risk policymaking. As one source for such a foundation, I turn to the literature on democratic participation. This literature offers both a diagnosis of the roots of our participatory dilemma and a set of principles for reinvigorating our approach to citizen participation.

A. *Citizen Participation: The Concept That Lost Its Way*

As the scope of national administration expanded over the last several decades, so has the need for participation. In Lowi's terms, the administrative state required new institutions and processes to accommodate demands for greater participation. A useful way to review the recent history is to follow Walter Rosenbaum's distinction between old, new, and newer forms of participation.[58]

The "old" or traditional standard is exemplified in the Administrative Procedure Act of 1946 (APA).[59] The APA expressed a lawyer's vision of due process, with its emphasis on public notice, right to comment, opportunity for hearings, and other procedural requirements. It defined a structure and set of procedures, while leaving the initiative for participation with private entities. Participation was a privilege available to parties with the organization and resources needed to exercise it. More recent legislation, such as the Freedom of Information Act of 1966, reflected a similar

58. Rosenbaum, *The Politics of Public Participation in Hazardous Waste Management*, in THE POLITICS OF HAZARDOUS WASTE MANAGEMENT 176 (1983). This discussion also draws upon CITIZEN PARTICIPATION IN AMERICA (S. Langton ed. 1978); Kloman, *A Mini-Symposium: Public Participation in Technology Assessment*, 35 PUB. ADMIN. REV. 67 (1975); and Sewell & O'Riordan, *The Culture of Participation in Environmental Decisionmaking*, 16 NAT. RESOURCES J. 1 (1976). A valuable discussion of participation and technological risk can be found in M. Kraft, Managing Technological Risks in a Democratic Polity: Citizen Participation and Nuclear Waste Disposal (March 1987) (prepared for presentation at the Annual Meeting of the American Society for Public Administration, Boston).

59. Administrative Procedure Act of 1946, 5 U.S.C. § 551-558 (1982).

philosophy. With its detailed procedures granting access to decisions and information, American national administration is one of the most open among the Western democracies.

The "new" participation emerged with the social programs of the 1960s. Under the Economic Opportunity Act of 1964, the Office of Economic Opportunity was instructed to achieve "maximum feasible participation" in communities affected by its programs. The Demonstration Cities and Metropolitan Development Act of 1966 directed the Department of Housing and Urban Development to effect the "widespread" participation of the community.[60] In this conception, participation was a right, rather than a privilege, and it was directed toward target groups who tended to be the programs' beneficiaries.

These programs did not always have their intended effects. In both the urban renewal and anti-poverty programs, participation served the needs of agencies and clientele groups more than the target groups in the community.[61] In their review of the participation literature in the late 1970s, Checkoway and Van Til[62] note that agencies often used participation as a strategy for achieving organizational ends, without effecting any transfer of power. Their review of the relevant research also demonstrated two other tendencies in participation programs—the need for groups to organize to be able to assert influence, and the emergence within these organizations of leaders and contrasting interests, with the leadership often asserting its own interests over those of the followers. Participation assumed strategic or tactical value as a means of promoting bureaucratic and professional interests.

The "newer" form of participation emerged in the 1970s, in response to several forces. One major force was the National Environmental Policy Act of 1969 (NEPA). NEPA was not a participation statute *per se*. But two of its provisions, used together, transformed the role that noneconomic, environmental factors played in agency decisionmaking. One was the requirement that agencies prepare detailed environmental impact statements (EIS)

60. Economic Opportunity Act of 1964, Pub. L. No. 88-452, 78 Stat. 508 (1964); Demonstration Cities and Metropolitan Development Act of 1966, Pub. L. No. 89-754, 80 Stat. 1255 (1966).

61. Krause, *Functions of a Bureaucratic Ideology: "Citizen Participation,"* in PARTICIPATORY DEMOCRACY 420 (1971).

62. Checkoway & Van Til, *What Do We Know About Citizen Participation? A Selective Review of Research*, in CITIZEN PARTICIPATION IN AMERICA 25 (S. Langton ed. 1978).

for major actions having an effect on the environment. The second was a provision authorizing judicial review of agency compliance with the EIS requirement. The first established a decision rule and the second gave it bite. The strategy was not new, because analytical requirements had long been a means of controlling agencies. The difference with NEPA was that it "served as an instrument of popular rather than executive control over agency decisions."[63]

Environmental advocates used the law and a sympathetic federal judiciary to oppose public works projects as well as private projects that depended on federal action.[64] NEPA provided access for a new category of interests, and eventually it redefined the premises on which agencies made decisions affecting the environment. Although NEPA may have been important in promoting substantive democratic values, I argue that it did not promote the procedural values of democracy. It reinforced a conception of participation as confrontation and opposition. It strengthened the reliance on litigation as a political tool. It established the precedent for elaborate written documentation that became "an instrument of legal and political warfare."[65]

A second force was a "reformation" of administrative law in the late 1960s and early 1970s. Led by the Court of Appeals for the District of Columbia Circuit, the federal courts articulated the conception of administrative law as, in Stewart's words, "a surrogate political process to ensure the fair representation of a wide range of affected interests in the process of administrative decision."[66] Stewart explains this new conception as an effort to protect new classes of interests that required protection under an expanded government. By redefining the rules of standing to include noneconomic interests, broadening access to agency decision procedures, and demonstrating a greater willingness to intervene in agency actions, the courts laid the legal groundwork

63. Andrews, *Economics and Environmental Decisions, Past and Present*, in ENVIRONMENTAL POLICY UNDER REAGAN'S EXECUTIVE ORDER 43, 51 (V.K. Smith ed. 1984). *See also* the National Environmental Policy Act, 42 U.S.C. § 4321 (1982).

64. R. LIROFF, A NATIONAL POLICY FOR THE ENVIRONMENT: NEPA AND ITS AFTERMATH 142-152 (1976).

65. Bardach & Pugliaresi, *The Environmental Impact Statement vs. The Real World*, 49 PUB. INTEREST 22, 24 (1977).

66. Stewart, *The Reformation of American Administrative Law*, 88 HARV. L. REV. 1667, 1670 (1975). These changes in administrative law are also discussed in DeLong, *Informal Rulemaking and the Integration of Law and Policy*, 65 VA. L. REV. 257 (1979).

for the participation movement. Although this reformation extended across all categories of administrative action, it was probably most pronounced in the environmental field.[67]

Statutory innovations helped to make the 1970s the decade of participation. Some sixty percent of the participation provisions contained in existing federal legislation were enacted in this decade, including many in environmental statutes.[68] A prime example was Section 101(e) of the Federal Water Pollution Control Act (FWPCA) of 1972 , which established procedures for EPA and the states to prepare and implement plans for controlling sources of water pollution. This provision directed that "public participation . . . shall be provided for, encouraged, and assisted by the Administrator and the States." This section of the FWPCA, popularly known as the "208 program," was described at the time as "one of the strongest requirements for participatory democracy in the entire federal statute book."[69] The 208 programs often established an elaborate apparatus for public involvement. North Carolina's program encompassed three phases, five major products, and seventeen participatory methods, from newsletters and slide shows to reviews of draft plans and "goal-setting workshops."[70]

But the increased participation was limited to a select group: over one-half of those who took part in the North Carolina program represented an organized interest group, and the participants as a whole were above average in socioeconomic status. Other research has noted the atypical nature of participants in such programs and the high levels of interest group involvement. Studies have also found differential rates of participation, with political activity related directly to income, education, and status.[71]

67. *See* H. Leventhal, *Environmental Decisionmaking and the Role of the Courts*, in ENVIRONMENTAL LAW REVIEW—1975 545 (H.F. Sherrod ed. 1975).

68. *See* Rosenbaum, *supra* note 58, at 182.

69. CONSERVATION FOUNDATION, TOWARD CLEAN WATER: A GUIDE TO CITIZEN ACTION 27 (1976).

70. Godschalk & Stiftel, *Making Waves: Public Participation in State Water Planning*, 17 J. APP. BEHAV. SCI. 597, 603 (1981). *See also* S. KAMIENIECKI, PUBLIC REPRESENTATION IN ENVIRONMENTAL POLICYMAKING: THE CASE OF WATER QUALITY MANAGEMENT (1980).

71. The evidence is discussed in Sewell & O'Riordan, *supra* note 58; Godschaik & Stiftel, *supra* note 70; and Checkoway & Van Til, *supra* note 62.

B. *The Decline of the Participation Movement*

The fortunes of the participation movement declined dramatically after 1981. The Reagan Administration systematically reduced resources and dismantled participation programs. With the "New Federalism" as a rhetorical justification, responsibility for involving the public fell to state and local governments. Programs that appeared to have been embedded in law and public expectations came "to epitomize administrative marginality."[72]

There are several explanations for the sudden decline. Congressional support for the participation programs was often rhetorical, and it could evaporate quickly when it conflicted with other Congressional interests or objectives. In addition, the statutory directives typically were so vague that Congress had difficulty holding the agencies accountable. The Office of Management and Budget had long opposed the participation programs, and with the new administration's backing they were able to cut funding. The energy crisis of the 1970s also undermined support for the programs, which often were seen as a source of delay and paralysis, especially for developing such hard technologies as nuclear power.[73]

Another explanation for the decline is that "citizen participation" had come to be equated with involvement by environmental and other public interest groups. The participation provisions in statutes often were the result of agreements between environmental groups and their Congressional allies, designed to guarantee the former's access to agency decisions. The list of plaintiffs that prevailed in the major administrative law rulings of the era includes several public interest organizations: Citizens to Preserve Overton Park, Calvert Cliffs' Coordinating Committee, and Scenic Hudson Preservation Conference.[74] The administration equated support for the participation programs with support for the political opposition. "Participation" was viewed less as an ideologically-neutral reference to a democratic process than a

72. Rosenbaum, *supra* note 58, at 177.

73. For a discussion of participation in energy policymaking and its relationship to issues of size, control, and decentralization, see Orr, *U.S. Energy Policy and the Political Economy of Participation*, 41 J. POL. 1027 (1979).

74. The cases are Citizens to Preserve Overton Park v. Volpe, 401 U.S. 402 (1971); Calvert Cliffs' Coordinating Comm., Inc. v. United States Atomic Energy Comm'n, 449 F.2d 1109 (D.C. Cir. 1971); and Scenic Hudson Preservation Conference v. Federal Power Comm'n, 354 F.2d 608 (2d Cir. 1965), *cert. denied*, 384 U.S. 941 (1966).

strategy for asserting noneconomic, nontraditional interests in administrative processes.

Other factors reinforced the political vulnerability of participation. The Reagan Administration arrived in 1981 committed to reducing the burdens and costs of federal regulation. Its view was that environmental standards were too strict, imposed excessive costs on the economy, and hampered economic development and technological innovation. These views coincided with rising academic and political interest in cost-benefit analysis. With Executive Order 12291, issued in February of 1981, the administration adopted the net-benefit model as the preferred basis for setting health and environmental standards.[75] Participation was at best irrelevant to such an approach, and at worst inimical to it. Regulatory reform advocates came to view active interest group participation as politically and philosophically inconsistent with a net benefits approach. If the 1970s were the decade of participation, the 1980s have been the decade of analysis.

Whatever the cause of its demise, the participation movement of the 1960s and 1970s left its legacy. Our conceptions of participation at the national level today reflect the practices and experiences of the last few decades. The most important element in that legacy is that it reflects and reinforces the tenets of interest-group pluralism. Effective participation requires organization, resources, and professional representation. Participation at the national level typically is indirect, because it is mediated through voluntary associations organized to assert related interests. Often participation is equated with opposition. The public is placed in a reactive posture: comments are noted, views are heard, opportunities are presented. But we rarely see a sharing of power or the codetermination of policy. The process concedes a marginal role to the individual citizen. Genuine influence is granted reluctantly, minimally, and to interests with the capacity to obstruct decisions later. Participation is biased, because it draws on groups with the needed information, competence, and resources. It is skewed in the way that it solicits the participation of those with the most to lose or the greatest intensity of feeling on an issue. As Barber observes of a liberal polity generally, our model

75. For discussion of the Executive Order and the regulatory relief program of the early 1980s, see SMITH, ENVIRONMENTAL POLICY UNDER REAGAN'S EXECUTIVE ORDER *supra* note 63; Andrews, *Deregulation: The Failure at NEPA*, in ENVIRONMENTAL POLICY IN THE 1980S: REAGAN'S NEW AGENDA (1984).

of participation assumes conflict.[76] And so people expect that participation will increase rather than transform conflict.

III. PARTICIPATION THEORY AS DIAGNOSIS AND PRESCRIPTION

This and the following section outline an alternative approach to participation, one based upon the writing of what I will call the "participation theorists." Before discussing these writers' vision of participation, however, I want to discuss the roots of the participatory dilemma to which each of them reacts.

A. *The Roots of a Participatory Dilemma*

Political participation has not always been highly valued in modern democratic theory. Writing in 1970, Carole Pateman painted a picture of a mainstream theory that justified a limited conception of participation.[77] The selection of leaders through elections was seen as sufficient for ensuring democratic control over decisions. Pateman attributes this view to two influences. The first was the rise of totalitarianism in Europe, and in particular the collapse of the Weimar Republic in Germany. The second influence on theorists was behavioral research that revealed low levels of political awareness, information, and support for democratic principles among certain groups. These tended to be groups that were less active politically. Mainstream theory justified their lack of participation, because it viewed their involvement as a threat to democratic stability.

The expansion of the administrative state challenged this conception of participation as limited to electoral control. I argued in the previous section that participation in American administration has both reflected and reinforced the pluralist model. As government expanded into new areas of social policy, new forms of political representation emerged to fill what Lowi describes as the inevitable crisis in public authority. This representation took the only form it could be expected to take in an administrative system firmly grounded in the interest group model. The rise of environmental, consumer, and other public interest groups can be seen simply as a balancing of the historical scales. For de-

76. B. BARBER, STRONG DEMOCRACY: PARTICIPATORY POLITICS FOR A NEW AGE 3 (1984).

77. C. PATEMAN, PARTICIPATION AND DEMOCRATIC THEORY 1 (1970). *See also* R. COBB & C. ELDER, PARTICIPATION IN AMERICAN POLITICS 1 (1972); P. BACHRACH, THE THEORY OF DEMOCRATIC ELITISM: A CRITIQUE (1967) (see particularly ch. 2).

cades, groups with a tangible economic stake in administrative decisions had enjoyed access. Now, with substantive levers such as NEPA, and with the reformation of administrative law that redefined rules of standing and other doctrine, representatives of diffuse interests are asserting noneconomic values. Citizen participation came to be equated with interest group participation. Litigation became an effective tool in the competition among interests. Citizens did not participate—they joined or otherwise supported interest groups that participated on their behalf. When individuals did have the opportunity to take part in decisions, it was typically in the context of a public hearing or meeting, in which effective influence and genuine participation were unlikely.[78]

The participatory theorists react to these conceptions of democratic influence and control. Pateman reacts to mainstream democratic theory, its fears about democratic stability, and its reliance on electoral control. Thompson proposes "citizen theory" as an antidote to "elite theory," which focuses on leaders rather than citizens and "reinforces the potent historical pressures toward centralized bureaucratic power that makes citizens feel remote from politics and that discourage citizenship."[79] Barber challenges traditional liberal institutions and philosophy on several grounds—from its assumption of conflict as the basis of all political relations to its overreliance on representation.[80] Mansbridge outlines a model of "unitary" democracy as a complement to "adversary" democracy and its expression through secret voting, majority rule, and equality defined as equal protection of the laws.[81] Olsen's "participatory pluralism" is presented as an alternative to "sociopolitical pluralism."[82]

Participatory theorists argue that new forms of participation are needed in a world in which people increasingly lack control over

78. For a discussion of the limitations of the public hearing as a participatory mechanism, see Checkoway, *The Politics of Public Hearings*, 17 J. APPL. BEHAV. SCI. 566 (1987); Heberlein, *Some Observations on Alternative Mechanisms for Public Involvement: The Hearing, Public Opinion Poll, the Workshop and the Quasi-Experiment*, 16 NAT. RESOURCES J. 197 (1976); and Milbrath, *Citizen Surveys as Citizen Participation Mechanisms*, 17 J. APPL. BEHAV. SCI. 478 (1981).

79. D. THOMPSON, THE DEMOCRATIC CITIZEN: SOCIAL SCIENCE AND DEMOCRATIC THEORY IN THE TWENTIETH CENTURY 25 (1970).

80. B. BARBER, *supra* note 76, at xi-xv.

81. J. MANSBRIDGE, BEYOND ADVERSARY DEMOCRACY (1980).

82. M. OLSEN, PARTICIPATORY PLURALISM ch. 2 (1982).

social decisions that affect them. Even in their work and social lives, people typically are part of large organizations that offer little opportunity for access to decisionmakers or influence over policy. Historical trends toward broader participation intensify the problem; participation by greater numbers of people reduces the relative influence any one of them may have. It also increases reliance on elected representatives, because the size of the population being represented has expanded. Other reform measures designed to improve the competence of government as its functions expand further remove the individual from control over decisions. The institution of a career civil service, for example, established merit and "neutral" competence as the basis for appointing administrative officials. By creating a new appointed elite, however, some participation theorists would argue that the civil service further concentrated power and reduced the opportunities for citizen influence.[83]

We can formulate a version of the participatory dilemma as it applies specifically to risk policymaking: The increasing complexity of government policy issues, in particular the reliance on scientific method and data, reinforces broader trends that reduce individual influence. Now a scientific and technical elite plays an influential role in making social decisions.

Quantitative models are commonly-used elements in the decision process. Policy issues, including environmental risk, are cast in technical terms. Resolution of technical controversy is entrusted to experts, because the lay public cannot grasp the basis for decisions and their consequences. "Expert" perceptions of problems (e.g., the nature of environmental risk) are judged to be more rational and more consistent with society's interests than the "subjective" judgments of the less technically sophisticated public. It is not long before the citizen is depicted as more of an obstacle to overcome than an interest or collective judgment to serve.

In a political culture that placed a low value on citizen influence—where people viewed themselves more as subjects than citizens—this concentration of power might not present a problem. But American society is one in which the need for participation

83. T. COOK & P. MORGAN, PARTICIPATORY DEMOCRACY 3 (1971). One can also argue that the civil service expands participation for those who become career officials. For this point of view, see Rourke, *Bureaucracy in the American Constitutional Order*, 102 POL. SCI. Q. 217, 230 (1987).

and citizen influence is high. In *The Civic Culture,* Almond and Verba studied the political cultures of five democratic nations—the United States, Britain, Germany, Italy, and Mexico. Political culture is defined in this study as "the particular distribution of patterns of orientation toward political objects among the members of the nation."[84] A central element in the political culture is how people view their relationship to political authority and their capacity for influencing it. When people feel that they can influence government decisions affecting them, they are described as high in "subjective competence." The data from the survey suggest a strong relationship between perceptions of subjective competence, high levels of actual participation, and effective democracy.

Almond and Verba note that "the general pattern of authority in American social systems, including the family, tended to stress political competence and participation rather than obedience to legitimate authority." Similarly, "the opportunity to participate in political decisions is associated with greater satisfaction with that system and with greater loyalty to that system."[85] The *Civic Culture* data describe a pattern in which feelings of competence, opportunities for participation, actual participation, and the legitimacy and stability of the political system are related and mutually reinforcing. The data also suggest problems when political realities do not match people's expectations. A sense of cynicism and powerlessness is likely to be stronger in the participatory political culture than the one in which people share less of a sense of subjective competence.

Environmental policy research presents interesting comparisons with these survey data, especially regarding the importance of feelings of competence and control. For example, research on public attitudes toward siting of hazardous waste facilities suggests a link between support for siting decisions, information about institutional controls, and the opportunity to influence siting decisions and control measures.[86] One study tested the effectiveness of compensation in altering people's perceptions of the

84. G. ALMOND & S. VERBA, THE CIVIC CULTURE: POLITICAL ATTITUDES AND DEMOCRACY IN FIVE NATIONS 14-5 (1963).

85. *Id.* at 38, 253.

86. *See, e.g.*, Matheny & Williams, *supra* note 5; Kraft & Kraut, *The Impact of Citizen Participation on Hazardous Waste Implementation: The Case of Claremont County, Ohio,* 14 POL'Y STUD. J. 52 (1985).

risks and benefits of accepting waste facilities in a community.[87] Based on a survey of five Massachusetts towns, the study concluded that economic incentives (i.e., various forms of compensation) had almost no effect in the community's willingness to accept a waste facility. The proposal having the greatest effect on attitudes was one allowing local public officials and citizens to conduct regular safety inspections. A survey of Wyoming residents found that compensation proposals were less effective in persuading them to accept a facility than good information and the opportunity to participate in decisions.[88] In another study, Elliott found that community control of a facility through a safety board with substantial authority helped in gaining public acceptance of a waste site.[89]

The theorists' depiction of the participatory dilemma in modern society can be summarized in these terms: The scope of government expands, and with it the need to broaden opportunities for participation in political decisions. The expansion in government responsibilities creates the need for a professional, career service that invests power in an appointed elite. Broader political participation reduces individual influence while it expands the influence of an elected elite. Finally, issues become more complex as they rely more on scientific method and must cope with the effects of new and rapidly changing technologies. This further reduces the capacity of the lay public and of elected representatives to affect decisions. Inevitably, society must rely on technical experts and administrative authority to make political decisions. And the spiral of alienation, apathy, distrust of politicians and political institutions continues. Rising education levels and mass communications make people more aware of their lack of power, so that they "are powerless relative to what they think they should be in an ideal democracy."[90]

87. Portney, *The Potential of the Theory of Compensation for Mitigating Public Opposition to Hazardous Waste Treatment Facility Sitings: Some Evidence From Five Massachusetts Communities*, 14 POL'Y STUD. J. 81 (1985).

88. Davis, *Public Involvement in Hazardous Waste Siting Decisions*, 19 POLITY 296, 302-303 (1986).

89. *See* Elliott, *Improving Community Acceptance of Hazardous Waste Facilities Through Alternative Systems for Mitigating and Managing Waste*, 1 HAZARDOUS WASTE 397 (1984).

90. M. OLSEN, *supra* note 82, at 5.

B. *The Participatory Theorists' Response*

Participation theory responds to this dilemma by offering a vision of participation that is broader than the traditional mechanisms of elections and interest groups. Yet these theorists are also realists. However romantic Rousseau's vision of Swiss peasants gathering under an oak to transact public business may appear, modern participation theorists recognize the implausibility of pure democracy, and they look to institutional forms that can be adapted to the demands of a modern state. "There is little wrong with liberal institutions," Barber has written, "that a strong dose of political participation and reactivated citizenship cannot cure."[91] Barber's criteria for more participatory "institutional forms" are that they be realistic, workable, and compatible with existing institutions; offer appropriate safeguards (*e.g.*, protect minority rights); and contend with the obstacles posed by modernity—scale, technology, complexity, and the concentration of effective power in national institutions.[92] Margolis' notion of "viable democracy" aims to establish institutions "capable of dealing with twentieth-century problems in democratic fashion."[93]

Participation theory is optimistic about individual capacities to develop political skills, interests, and competence in democratic society. The two presuppositions underlying Thompson's citizen theory are "autonomy" and "improvability." Autonomy means that citizens are treated as the best judge of their own interests. Political, administrative, or technical elites may argue at times that people do not understand what is in their own interest. But their judgments cannot displace those of citizens; they can only assert that at some point in the future people will agree with a different point of view, and persuading people to come to that point of view is the function of leadership. The related notion of improvability is the "belief in the capacity of citizens in general to improve their judgment about what is in their interest . . . ."[94] Low political awareness, low levels of information, and lack of interest in issues are taken as a sign of deficiencies in social and

91. B. BARBER, *supra* note 76, at xi.
92. *Id.* at 262.
93. M. MARGOLIS, VIABLE DEMOCRACY 157 (1979).
94. D. THOMPSON, *supra* note 79, at 14.

political institutions, rather than as limitations inherent in individual capacities.

Discussion is highly valued in the participation literature. Its function in Thompson's citizen theory is "to help citizens to recognize their own political interests; to create and reveal common interests; and to maintain peace and stability."[95] With political talk, Barber asserts, "we can invent alternative futures, create mutual purposes, and construct competing visions of community."[96] Mansbridge observes that face-to-face contact can "correct inaccuracies of perception, iron out differences, and create a spirit of community."[97] Research on small group processes documents that discussion is far more effective than other, more passive forms of communication in changing attitudes, stimulating problem-solving thought, and influencing action. The risk perception research suggests that time, interaction, and information can help people overcome their predispositions and adopt a more open stance on risk issues. Discussion emphasizes social interaction and strengthens associations with other groups in the political community. It reinforces the sense of autonomy and improvability of citizens, because it promotes individual reason, judgment, and choice.

The theorists assert that participation engenders civic competence by building democratic skills, overcoming feelings of powerlessness and alienation, and contributing to the legitimacy of the political system. Pateman bases much of her case on the argument that "we do learn to participate by participating and that feelings of political efficacy are more likely to be developed in a participatory environment."[98] To build interest and capacities on a regional and national scale, she argues that people first need opportunities to build skills and confidence at more modest levels—in their neighborhoods, workplaces, and small institutions. Participation will breed participation, not only in politics but in other aspects of life as well.

C. *Toward a Participatory Ideal*

The work of the participation theorists suggests the outline of a participatory ideal. It is an ideal because it defines characteristics

95. *Id.* at 86.
96. B. BARBER, *supra* note 76, at 177.
97. J. MANSBRIDGE, *supra* note 81, at 270.
98. C. PATEMAN, *supra* note 77, at 105.

that rarely would be met in practice, especially given current attitudes and legal arrangements. But even if we devised institutional mechanisms and procedures that fit some of these characteristics, if only in part, then we would have made progress toward resolving the participatory dilemma.

In this participatory ideal, institutions, administrators, and their technical experts would recognize the lay public as citizens rather than as subjects. This change in attitude accepts that people are the best judge of their own interests and can acquire the political skills and knowledge to take part in collective decisions about environmental risk. Science and technical expertise would inform citizens' judgments, but not replace them. Societal risk managers would attempt to educate public judgments and to lead citizens to a more "rational" or "enlightened" conception of their interests. The perspective in the risk literature that comes closest to reflecting this vision is that on public deliberation.

Second, we would design institutions and procedures to allow for the direct participation of amateurs. At the national level, most participation now takes the form of individuals acting in their capacities as elected representatives, appointed administrators, interest group professionals, or technical experts. Even elected representation has become a career. Both the career civil service and the reliance on technical expertise are necessary adjustments to the expanding scope and complexity of public action. But they diminish the opportunities for citizen influence. Participation theory seeks to involve people as amateurs rather than in their professional or career roles. "Direct" participation simply refers to the opportunity to influence decisions without having to rely on organized interest groups or professional intermediaries, except in a staff capacity. An example would be the citizen on a commission recommending criteria for siting a waste facility. Brooks' discussion of the jury model and Shrader-Frechette's technology tribunal both incorporate forms of direct participation.

Third, in a participatory ideal, citizens share in making collective decisions. The ideal envisions participation that is more than therapeutic, oppositional, or pleading, but in which "citizens share in governing . . . ."[99] Citizens act as authorities who deter-

99. D. THOMPSON, *supra* note 79, at 3. For a critique of participation as therapy, see Arnstein, *A Ladder of Citizen Participation*, 35 J. AM. INST. PLANNERS 216 (1969).

mine policy or as collaborators with government officials who codetermine policy. Participation in risk policymaking typically falls short of this ideal. It often occurs too late and is designed merely to identify potential opponents. At most, participation allows members of the public to protect their interests but not to share in the responsibilities and obligations of collective choice. Under this ideal, participation is not purely defensive or a last point for responding to administrative proposals, but a process for setting priorities and shaping decisions as they emerge.

Fourth, a participatory mechanism or procedure should allow for face-to-face discussions over some period of time. Constructive talk, deliberation, discovery of shared values, the search for common visions—these are not the acknowledged virtues of the American administrative process. When people with different points of view talk, it is usually through their lawyers, who already are marking out positions for litigation. Or they communicate in writing, through a formal public comment period, where the most telling points are the ones exposing a legal vulnerability the opposition can exploit later.[100] The ideal envisions settings that allow people to talk, listen, debate, persuade, and be persuaded. This implies communications that are face-to-face and recurring. This view comes through strongly in the public deliberation work. It is one of the conditions Brooks defines for institutional mechanisms that can allow a synthesis of technical and value issues. The risk literature also recognizes that the opportunity to focus on issues, interact with others (including technical experts), and search for shared values can produce better decisions and perform important psychological and social functions for participants.

Finally, under the ideal, citizens participate on some basis of equality with administrative officials and technical experts. A participatory process or mechanism can accomplish this in several ways. One is in the terms of the relationship with authorities and experts. Do participants have the opportunity to define issues, question technical authorities, dispute evidence, and influence the agenda? Are they dealing directly with administrative officials who can exercise decision authority, or with staff who can only represent authoritative decisionmakers? A second basis for equality is in preparation and resources. Do participants have in-

100. *See* Fiorino, *Regulatory Negotiation as a Policy Process*, 48 PUB. ADMIN. REV. 764 (1988) (discussing conventional rulemaking).

dependent capabilities for gathering and assessing technical and analytical information and for acting on that information?[101] A third way that we can allow citizens to participate on a more equal basis involves reassessing our use of formal models for evaluating risks; cost-benefit and other models make risk decisions less accessible to non-experts. They also attempt to substitute technical judgment for political judgment and analytical technique for debate and discussion. Analysis is necessary and is fully compatible with democratic process when it informs political judgment, but not when it replaces such judgment. The greater the reliance on such models, the less that citizens can act on a basis of equality with administrative officials and experts.

D. *Illustrative Applications of the Participatory Ideal*

Three brief examples illustrate how we can use these criteria to assess institutional mechanisms and procedures. The first, the *ASARCO* case, was Administrator Ruckelshaus' effort to apply the public deliberation perspective I discussed in Part I.[102] The issue was environmental standards for controlling emissions of inorganic arsenic from a smelter owned by the American Smelting and Refining Company near Tacoma, Washington. EPA had concluded that approximately four new cases of lung cancer could be expected annually at existing emission levels. Installation of "best available" control equipment at the smelter would reduce the estimate to about one case per year. The dilemma was that requiring the facility to install best available technology would close the plant, which was an economic lifeblood of the community. EPA took the issue to the community by announcing a series of three public workshops in the summer of 1983. The Agency began each workshop with an explanation of health risks and the procedures for estimating them. The audience then was divided into three discussion groups, with Agency officials facilitating the discussions. The issue became moot in 1985, when the smelter closed anyway for economic reasons.

101. Kasperson stresses that effective participation depends on people developing "indigenous" technical and analytic resources as well as the institutional means for acting on that knowledge. *See* Kasperson, *supra* note 32, at 278.

102. For discussions and assessments of *ASARCO*, see Reich, *supra* note 16, at 1632; Baird, *Tolerance for Environmental Health Risks: The Influence of Knowledge, Benefits, Voluntariness, and Environmental Attitudes*, 6 RISK ANALYSIS 425 (1986); Call, *Arsenic, ASARCO, and EPA: Cost-Benefit Analysis, Public Participation, and Polluter Games in the Regulation of Hazardous Air Pollutants*, 12 ECOLOGY L. Q. 567 (1985); S. KRIMSKY & A. PLOUGH, *supra* note 39, ch. 5.

The second example is regulatory negotiation. This is a process of policy formulation that brings representatives of affected interests together to reach consensus on the content and sometimes the language of a proposed rulemaking. EPA has completed seven such negotiations to date, and other federal agencies have completed about the same number. The negotiations take place within the notice-and-comment format of the Administrative Procedure Act. Well in advance of any negotiations, the Agency conducts a thorough convening effort to identify affected parties, define the issues and whether or not they are negotiable, and determine the feasibility of a negotiation. EPA participates as a party-at-interest in the negotiations; like any other party, it can block agreement or withdraw without prejudice at any point. Once constituted (under the Federal Advisory Committee Act), the committee has substantial control over its mode of operation, composition, use of resources, and the terms and timing of its dissolution. Decisions are made by consensus, which typically has meant "the concurrence of all interests represented" on the committee. The Agency commits in advance to publishing the committee's consensus as a proposed rule, so long as it is consistent with the Agency's statutory authority.[103]

The third example is exploratory efforts with "citizens panels."[104] Modeled after the lay jury, citizens panels convene representatives of the lay public to hear testimony, question technical and administrative experts, deliberate over the issues, and reach a conclusion. Participants are selected through stratified random sampling, although in some cases representatives of affected interest groups may also take part. A steering committee representing a cross-section of affected interests determines which experts will present evidence and views so the panel will receive a balanced treatment of the issues. The panel devotes two or more days to studying the problem, hearing testimony, questioning experts, and evaluating the evidence. It then debates and discusses issues and reaches a decision or recommendation. The

103. A growing literature describes and assesses regulatory negotiation in detail. It includes: Fiorino, *Regulatory Negotiation as a Policy Process*, *supra* note 100; Harter, *Negotiating Regulations: A Cure for Malaise*, *supra* note 6; Fiorino & Kirtz, *Breaking Down Walls: Regulatory Negotiation at EPA*, 4 TEMP. ENVTL. L. & TECH. J. 29 (1985); Susskind & McMahon, *The Theory and Practice of Negotiated Rulemaking*, 3 YALE J. ON REG. 133 (1985); and Perritt, *Negotiated Rulemaking in Practice*, 5 J. POL'Y ANALYSIS & MGMT. 482 (1986).

104. Crosby, Kelly & Schaefer, *Citizens Panels: A New Approach to Citizen Participation*, 48 PUB. ADMIN. REV. 170 (1986).

panel is a flexible tool that could include interaction with decisionmakers in preparing its decisions or recommendations. The major use of a citizens panel on an environmental issue occurred in 1984, when the Center for New Democratic Processes convened five regional citizens panels for policy recommendations on the impacts of agriculture on water quality in Minnesota. Three members from each regional panel then took part in a state-wide panel that offered policy recommendations to the state legislature.

The three examples meet the participatory characteristics in varying degrees. In *ASARCO*, the Administrator tried to inform public judgment and build citizens' capabilities for understanding and making policy choices. EPA went directly to citizens in their private capacities, rather than only to interest group intermediaries. Given the structure of the workshops and hearings, there was only limited opportunity for the public to engage in deliberations among themselves and with Agency officials. Reich cites evidence, however, that the residents of Vashon Island, who were exposed to emissions but not economically dependent on the smelter, developed more sympathy with the Tacoma residents, so that "a feeling of citizenship began to infiltrate even the expressions of advocacy."[105]

The Tacoma experience was not effective in granting decision authority and in allowing citizens to participate on a basis of equality with administrative and technical professionals. The Administrator was criticized for bringing the issue to the community the way he did; a greater effort to share authority for the decision would have run into any number of legal and political obstacles. The workshops were insufficient to bring citizens to the point that they could fully grasp and debate the issues. Baird's survey found that the participants were not especially well-informed on the health risk assessment even after the workshops.[106] More time, a more structured format, and better use of group learning techniques probably would have been necessary to have substantially affected citizens' capacities.

Regulatory negotiation presents a different case. It does not involve citizens as amateurs, because the members of the negotiating committees typically are professionals who represent organ-

105. Reich, *supra* note 16, at 1635.
106. Baird, *supra* note 102, at 434.

ized interests. But when it is assessed under the other characteristics, negotiation appears to offer important benefits as a participatory process. Most of the parties give the process high marks as a forum to explore and discuss issues, discover shared concerns or objectives, trade off preferences, and understand the interests underlying the other parties' positions. They also appreciated the opportunity to work with senior EPA managers on the committee and in the smaller subgroups. They noted striking differences between the negotiation process and the typical ineffectiveness of the written public comment period. Having equal access to information available to the other parties and operating on the principle of consensus allowed them to deal with each other and the Agency on some basis of equality. The parties observed reasoned discussion, lively debate, and a sense of collective responsibility for their product—all of which are rare in the conventional rulemaking process.[107] Negotiation meets several but not all of the characteristics of the participatory ideal.

A properly designed citizens panel comes closest to meeting the ideal. It permits the direct participation of amateurs who can discuss and debate issues over a period of days. Panelists can have access to technical experts who advocate different points of view. Participants are likely to be treated as citizens, because they are assumed to have the capacity to understand issues and the implications of the available choices for their own and the community's interests. The opportunity to exercise or share decision authority will depend on the design of the panel. It would be neither legally possible nor desirable to delegate decision authority to a randomly-selected citizens panel. But citizens can gain the opportunity for access and influence through discussions and deliberations with the people having the decision authority. One creative application of the citizens panel concept would be for risk policymakers, such as an EPA assistant or regional administrator or a state environmental commissioner, to take part in the deliberations and discuss recommendations with the panel.

The above examples apply to the formulation of policy, but there also are ways to promote procedural democratic values in the implementation of risk programs. For example, the safety panel that Elliott proposes in his study of public acceptance of waste facilities embodies a participatory approach to implement-

107. *See* Fiorino, *supra* note 100, at 768-770.

ing policy.[108] The system of state and local emergency planning committees established under Title III of the Superfund Reauthorization Act also offers a structure for greater citizen control of risk policies at the community level. Experience at the state level suggests that citizen access to information about industry practices and emissions can create a structure for achieving community-level agreements that reduce potential risks.[109] One of the challenges of implementing the Title III program in coming years will be to use it to achieve greater citizen participation in managing environmental risks at the local level.

IV. Toward Democratic Process in Risk Policymaking

The obstacles to greater participation appear almost to be insurmountable. There is first the nature of risk policymaking itself. Often the problems are invisible and exist only as scientific constructs. Effects of exposure to chemicals or other hazards may not appear for decades. When they do appear, cause and effect relationships are difficult to establish. The factual premises of decision depend on the uncertainties of science. The assumptions underlying the assessment of risk are a subject of controversy and can have a profound effect on the results. Agencies and their scientific advisors must hedge their conclusions and communicate complex information in terms that clarify, but do not oversimplify. The methods for assessing risk are complex, specialized, and require their own terminology. Formal analytic models add another layer of specialization and complexity as well as a set of prepackaged value premises for determining acceptable risk. Even when decisions appear to have been made, legal challenges upset the conclusions and send agencies back to ponder a more acceptable approach.[110]

These problems are inherent in risk policymaking. In addition, there are the obstacles to effective participation in administrative policymaking generally. From the agency perspective, participation typically occurs on an "as needed" basis, so that influence over a decision tends to occur in direct proportion to the power

108. *See* Elliott, *supra* note 89.

109. The national community right-to-know program is established in the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 U.S.C. §§ 11001-11005, 11021-11023, 11041-11050 (Supp. IV 1986).

110. For an analysis of the effects of judicial review in the air pollution program, see R.S. Melnick, Regulation and the Courts: The Case of the Clean Air Act (1983).

of an interest group to challenge it later. The most common mechanism for involving nonexperts and nonelites is the public meeting or hearing, which embodies most of the liabilities of our current approach to participation. Public involvement is left largely in the hands of public relations professionals who define the task in terms of public information, education, or persuasion and lack the leverage to adapt institutions and allow the lay public a more substantive role. Participation is seen in narrowly procedural or tactical terms—as a way of complying with the law, or of granting necessary concessions to organized interests, rather than as an expression of fundamental democratic values.

There clearly are significant obstacles to achieving more citizen participation. Modern technological societies are poorly-suited to participatory democracy, as the participation theorists have been telling us. The problem, however, may be not that the challenge is insurmountable, but that people have not thought hard enough about how to overcome it. Risk professionals seem willing to accept the improvability (to use Thompson's term) of toxicity testing, exposure modeling, or benefits estimation techniques, but not of mechanisms or procedures for more participatory decisionmaking. In our capacities for risk assessment and net-benefits analysis, we have made great strides over the last two decades. With some exceptions, such as the growing use of mediation and negotiation, one can say that the capacities for participation have fallen well behind the challenges posed by environmental risk problems.[111]

One thesis worth considering is that of the participation theorists, who assert that current levels of low involvement are more the result of institutional deficiencies than an inherent lack of citizen interest or capacities. A recent analysis of voter turnout in nineteen industrial democracies provides some support for this view. Variations in turnout are related not to cultural factors (which in the United States would support a high level of participation), but to the effects of institutions and electoral laws. "Where institutions provide citizens with incentives to vote," Jackman concludes, "more people actively participate; where in-

111. *See* G. BINGHAM, RESOLVING ENVIRONMENTAL DISPUTES: A DECADE OF EXPERIENCE (1986). The case for mediation of technical policy disputes is made in Ozawa & Susskind, *Mediating Science-Intensive Policy Disputes*, 5 J. POL'Y ANALYSIS & MGMT. 23 (1985).

stitutions generate disincentives to vote, turnout suffers."[112] The same may hold for administrative policymaking: If institutions and incentives were designed not to discourage but to encourage participation, then perhaps we would find more of it. Surely the current institutional infrastructure for participation, with its instrumental focus, assumption of conflict, bias toward organized interests, and procedural orientation, does not present a sufficient test of citizens' willingness to take part in collective risk decisions.

The existing literature on risk does not provide answers, but it defines issues and establishes an empirical foundation. The public deliberation perspective offers a vision of participatory decisionmaking and an appreciation of the need to sustain the credibility of risk institutions. From the perspective of resolving disputes among experts, we can see the importance of the synthesis of expert and generalist competencies and the interrelationships between the two. The critical writing on formal models demonstrates the need to reconcile those models with procedural and substantive democratic values. Research on risk perception can help in explaining public attitudes and beliefs about risk and in understanding the influence of social and political factors. Recent research appreciates the cultural, experiential, and subjective influences on peoples' judgments about risk.[113] Because risk policymaking is so dependent on scientific method and language, effective risk communication is an essential tool for citizen participation. Comparative studies of demands for participation and of how administrative systems balance scientific with political authority demonstrate different patterns of democratic adaptation to technical controversy.

The participation movement of the 1970s may have been a necessary stage in our administrative development, but it is not the only model available for solving the participatory dilemma today. Participation theory offers an alternative vision of citizen participation and a set of criteria for adapting existing institutions or designing new ones. Democratic theorists still will need to establish a firmer grounding for a reinvigorated concept of citizen participation, in particular as it is applied to risk policymaking. I

112. Jackman, *Political Institutions and Voter Turnout in the Industrial Democracies*, 81 AM. POL. SCI. REV. 419 (1987).

113. *See, e.g.*, Fessenden-Raden, Fichton & Heath, *Providing Risk Information in Communities: Factors Influencing What Is Heard and Accepted*, 12 SCI. TECH. & HUM. VALUES 94 (1987).

have suggested the outlines of that grounding here: The value placed on participation should depend on more than the latest political or administrative fashion. Its aims should be broader than the instrumental objectives of the agency or key clientele groups. Its ethical basis should reflect democratic values and the intellectual contributions of democratic theory, not just the need to satisfy opposition demands as they arise. Participation theory is not offered as a substitute for current approaches to participation at the national level, but as a basis for moving beyond the interest group, adversarial, pluralist conception and for stimulating institutional innovation and experimentation.

At a practical level, we need more institutional policy analysis, which is "the study of government reform and its consequences." Although it takes many forms, in institutional policy analysis "the focus is always on government reform as an independent variable."[114] Agencies could design participatory experiments that establish a sounder empirical basis for research and institutional innovation. Research should document not only the consequences of these experiments for policy, but also for people's sense of citizen competence and for the legitimacy of institutions.[115] Agencies will need to take the design of participatory institutions as seriously as they take the design of their analytical documents. This will require intellectual rigor, resources, and the capacity to learn through experience.

At the level of individual programs, administrators should not assume that broad participation will translate directly into support for policies. In its often exemplary, open planning programs of the 1970s, the Army Corps of Engineers probably had its expectations raised by the "participation thesis" of the social psychologists and organization theorists, who asserted that effectively involving people in a decision would ensure their agreement with the substantive result. But people gave high ratings to the Corps' process while they continued to disagree with its projects.[116] Even a longer-term participation program might have had a limited effect on evaluations of development projects,

114. *See* Gormley, *Institutional Policy Analysis: A Critical Review*, 6 J. POL'Y ANALYSIS & MGMT. 153 (1987).

115. For an evaluation of citizen participation programs, see Rosener, *Citizen Participation: Can We Measure Its Effectiveness?*, 38 PUB. ADMIN. REV. 457 (1978).

116. D. MAZMANIAN & J. NIENABAR, CAN ORGANIZATIONS CHANGE? ENVIRONMENTAL PROTECTION, CITIZEN PARTICIPATION, AND THE CORPS OF ENGINEERS, 30-32, 166-67 (1979).

but it could have affected the public's views of the Corps as an institution and achieved a higher measure of confidence in the result. Either way, we can only guess, because the Corps lost much of its interest in open planning when the results failed to live up to its expectations.

More broadly, administrators will need to be more realistic in their expectations about what participation can accomplish. It will not offset the effects of bad decisions, unresponsive policies, or poor governmental performance. Survey data demonstrate that the declining confidence in American institutions over the last two and one half decades has largely been a response to events, especially a poor economy, Vietnam, Watergate, and the energy crisis.[117] People still care about results and substantive performance. Participation is just one element in the complex relationship between citizens and their political institutions. But it is an important element that in the area of risk analysis has been neglected. In a political culture in which citizens value participation and are reluctant to delegate collective decisions to administrative and technical elites, it is difficult to separate process from substance, or to assume that an analytically rational outcome will obviate the effects of deeply-held democratic values. The principle should be to avoid a "one-dimensional" conception of democracy in which, as Bachrach explains, interest is defined solely as a matter of end results, or of "gains in material well-being, power, or status," and not also as a matter of process, or of "the personal satisfaction and growth attained from active engagement in the political process."[118]

It is easy to assume that the issues are too complex, the science too uncertain, the need for objective rationality too great to allow the lay public a substantive role in making risk decisions. But easy assumptions only beg hard questions. At some point, we will need to develop mechanisms for achieving more effective citizen participation, because only then can we find a democratic solution to the challenges of a technological society. To accomplish this, we first must recognize that the function of government is not only to reduce exposure to risks but to allow people as citizens to share in the tasks of governing.

117. S. LIPSET & W. SCHNEIDER, THE CONFIDENCE GAP: BUSINESS, LABOR, AND GOVERNMENT IN THE PUBLIC MIND, *supra* note 3, at 375-412.

118. P. BACHRACH, *supra* note 77, at 38.