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John S. Applegate

Indiana University Maurer School of Law, [jsapple@indiana.edu](mailto:jsapple@indiana.edu)

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# SPECIAL ESSAY

## COMPARATIVE RISK ASSESSMENT AND ENVIRONMENTAL PRIORITIES PROJECTS: A FORUM, NOT A FORMULA

by John S. Applegate<sup>1</sup>

### I. INTRODUCTION

Over the last decade, states and cities across the United States have established environmental priorities projects to identify and to rank their environmental problems.<sup>2</sup> Some of the projects are private organizations, some are part of a state or local environmental or public health authority, and some have other sponsorship.<sup>3</sup> Nearly all are financially supported by the

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1. James B. Helmer, Jr., Professor of Law, University of Cincinnati College of Law. I wish to express my deep appreciation to Hon. Robert Black, Jerry Lawson, and Pat Timm, my colleagues at the Hamilton County Environmental Priorities Project, for many valuable discussions of the theory and practice of environmental priorities projects. They did not know that I was making mental notes of our conversations for future use, so they must be held blameless for this essay. Also for the record, while I serve as vice-chair of the Project's board of directors, the views expressed herein do not necessarily reflect those of the Project or any of its participants.

2. As of October 1995, thirty-three states and tribes, and thirteen cities and counties had begun or completed environmental priorities projects. *Project News 5*, THE COMPARATIVE RISK BULLETIN (newsletter of the Northeast Center for Comparative Risk, Vermont Law School) Sept./Oct. 1995 at 9-11. EPA's Office of Policy, Planning, and Evaluation reports that it has supported forty-five projects. *Project Summaries* (last modified Mar. 7, 1997) <<http://www.epa.gov/docs/futures/risk/summaries>>.

3. Comprehensive overviews of state and local environmental priorities projects can be found in Richard A. Minard, Jr., *CRA and the States: History, Politics, and Results*, in *COMPARING ENVIRONMENTAL RISKS: TOOLS FOR SETTING GOVERNMENT PRIORITIES* 23-61 (J. Clarence Davies ed., 1996) [hereinafter *COMPARING ENVIRONMENTAL RISKS*]; RICHARD MINARD ET AL., *STATE COMPARATIVE RISK PROJECTS: A FORCE FOR CHANGE* (Northeast Center for Comparative Risk, Vermont Law School) Mar. 15, 1993 [hereinafter *FORCE FOR CHANGE*]. See also INT'L CITY/COUNTY MANAGEMENT ASSOCIATION, *RISK ASSESSMENT: THE ROLE OF LOCAL GOVERNMENT* (1997), at 41-55 (describing a number of local comparative priorities projects). EPA's comparative risk website contains a wealth of information on environmental priorities projects. See EPA, *Comparative Risk-Regional and State Planning Division* (last modified Mar. 7, 1997) <<http://www.epa.gov/oppeinet/oppe/futures/risk/>>.

United States Environmental Protection Agency (EPA) to replicate, on a state or local scale, its own internal efforts of about a decade ago to determine whether it was using its resources wisely.<sup>4</sup> Environmental priorities projects seek to engage government officials, industry representatives, environmentalists, and non-aligned citizens — environmental experts and lay persons — in organizations that allow them to collect data about the environmental threats to the health and welfare of the area under study, to deliberate over the findings, and then to evaluate the problems in terms of their severity. Most of the projects also consider and rank actions to address the identified problems. The analytical framework for evaluating severity is almost always a type of comparative risk assessment. That is, the project attempts to determine the “worst” of the identified problems in terms of the risks that they pose to human health and the environment. Within this framework, they also seek to reach consensus results that are supported by citizens, industry, and government officials. The hope is that the results will guide the allocation of environmental protection resources to the most urgent problems, where the effort will do the most good.

Environmental priorities projects have been controversial. State and local regulators see themselves confronting a range of problems that far exceeds their ability to handle them, so they are inclined to welcome risk comparison projects as a way to help make difficult resource allocation decisions. Industry often sees itself as the victim of irrational public fear, so it is drawn to risk comparison as a way to place industrial environmental risks in a more favorable perspective. However, environmental advocacy groups often oppose priorities projects vigorously.<sup>5</sup> The opposition is sometimes attributed to turf battles and this is undoubtedly sometimes the case, but in fact the opposition is far more substantial and more fundamental. Environmentalists challenge the use of risk as a common metric against which direct comparisons among environmental threats can validly be made, and they strongly oppose any implication that problems which do not score high on a risk scale are unworthy of governmental attention. In addition, they question whether environmental priorities projects

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4. See *infra* Part I.A.

5. The environmentalist critique of comparative risk assessment is set out in Part I.B, *infra*.

— or the public generally, or regulatory agencies — have enough information about environmental threats to make credible judgments about the relative seriousness of various environmental threats.

This essay posits a role for environmental priorities projects that responds to the need to address forthrightly the consequences of limited environmental protection resources, yet accounts for the inadequacies of risk as the metric for allocation decisions. The key is recognizing that the process of deciding how to approach an area's environmental problems can be separated from the analytical tools used to make the decision. Great value can be derived from a good decision making process, even if the specific results are quite limited.

Environmental priorities projects can be understood as the product of two developments in environmental law and policy. The first is the growth of comparative risk assessment as an analytical tool. Comparison of risks is the extension of the adoption of quantitative risk assessment as the justification for and measure of environmental regulation. Consequently, comparative risk is the logical methodology for setting priorities among environmental problems. The second development is the renewal of interest in developing deliberative democratic institutions. Deliberative democratic theory<sup>6</sup> is a reaction to the perceived poor quality of current public debate. It asserts that public decisions should reflect a common vision of the public good, which can best (or only) be reached by an inclusive, consensus-based process of thoughtful debate or deliberation. The decisionmaking processes of environmental priorities projects tend to be structured along these lines.

Comparative risk and deliberative democracy are not inexorably paired, however. Comparative risk does not imply any particular decisionmaking process at all.<sup>7</sup> Indeed, comparative risk is

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6. This essay uses the term "deliberative democratic theory" loosely to encompass communitarian, republican, and civic republican approaches to public decisionmaking. The competing approach is interest group pluralism, or adversarial (in the sense of competing interests, not in the narrow sense of the common law judicial system) decisionmaking. See *infra* Part II.A.

7. U.S. EPA, *A Guidebook to Comparing Risks and Setting Environmental Priorities* [hereinafter *Guidebook*] (last modified Mar. 7, 1997) <<http://www.epa.gov/docs/futures/risk/roadmap/rmap/chap3.txt.html>> (accepting several methods, from negotiation to formulas, for ranking).

primarily a technocratic concept that emphasizes expert analysis of mostly quantified data.<sup>8</sup> Conversely, the deliberative democratic approach is a style of public decisionmaking that has no special attachment to environmental issues, and certainly not to risk assessment in particular. Yet it is the very disjunction of the two components of environmental priorities projects, which Parts I and II of this essay develop, that makes them such a useful way of evaluating the strengths and limitations of these efforts. It is my contention, based in part on my own experience with such projects,<sup>9</sup> that the limitations of the comparative risk assessment formula restrict the ability of environmental priorities projects to establish formal environmental priorities. Only modest claims for their substantive work product are appropriate. As argued in Part III, however, their real value lies in their ability to stimulate civic involvement and to create a forum for informed, deliberative public discussion of environmental issues.<sup>10</sup> The idea of setting priorities is not incidental to the forum-creation function. It is, in fact, key to its effectiveness in this role, but a priorities list is not the most important outcome of environmental priorities projects.

This essay has a second purpose, as well. It should be obvious that issues like the implementation of deliberative democratic theory, the relationship between democratic decisionmaking processes and the technical nature of environmental law, and the proper role of local institutions in environmental decisionmaking are not confined to the single setting of environmental priorities projects. Environmental priorities projects stand at the intersection of these questions, however, and so they provide an excel-

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8. Cf. THOMAS O. MCGARITY, *REINVENTING RATIONALITY: THE ROLE OF REGULATORY ANALYSIS IN THE FEDERAL BUREAUCRACY* (1991) (describing the incentives for regulatory analysis and its weaknesses). Justice Breyer's proposals for an elite corps of civil servants exemplify the technocratic approach. See STEPHEN BREYER, *BREAKING THE VICIOUS CIRCLE: TOWARD EFFECTIVE RISK REGULATION* 59-68 (1993).

9. In addition to participation in the Hamilton County Environmental Priorities Project, I chair the Fernald Citizens Advisory Board (*née* Task Force), which advises the U.S. Department of Energy on the environmental remediation of a former nuclear weapons production facility. One of the board's charges was to recommend clean-up priorities for the site. From these vantage points, I have had the opportunity to observe a number of other priority-setting efforts as well.

10. See Donald T. Hornstein, *Reclaiming Environmental Law: A Normative Critique of Comparative Risk Analysis*, 92 COLUM. L. REV. 562, 633 (1992). "The better answer to the question 'how safe is safe?' may be the improved question: 'how good is the social dialogue on safety?'" *Id.*

lent opportunity to study these fundamental issues of environmental decisionmaking in a concrete setting.<sup>11</sup>

## II. EPA, COMPARATIVE RISK, AND ENVIRONMENTAL PRIORITIES PROJECTS

### A. *From Risk to Priorities*

The early pollution control statutes were aimed primarily at acute health effects that would be avoided in most people by reducing their exposure to pollutants below a scientifically determinable level. To provide a margin of safety for uncertainties, unusually sensitive persons, or unforeseen circumstances, the "safe" level could be further reduced by a scientifically determined numerical factor. Thus the Clean Air Act,<sup>12</sup> promulgated in its modern version in 1970, required air pollution controls to be set at the level that "is requisite to protect the public welfare from any known or anticipated adverse effects."<sup>13</sup> However, some diseases, such as cancer, do not behave like the overt health effects of conventional air and water pollutants. Carcinogens have long latency periods, may have effects at extremely low doses, and affect a relatively small number of persons catastrophically.<sup>14</sup> Nevertheless, the same "safe" or "margin of safety" approach dominated the original enactments for carcinogens. The Clean Air Act required hazardous air pollutants (mainly carcinogens) to be regulated to a level that "provides an ample margin of safety to protect the public health."<sup>15</sup>

As understanding of the mechanism of carcinogenesis in-

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11. I plan to continue this exploration in a project tentatively entitled, *Acting Locally: The Deliberative Democratic Ideal and Environmental Decisionmaking*.

12. 42 U.S.C. § 7410(b)(2) (1970).

13. *Id.*

14. John S. Applegate, *The Perils of Unreasonable Risk: Information, Regulatory Policy, and Toxic Substances Control*, 91 COLUM. L. REV. 261, 264-65 (1991). See generally JOSEPH V. RODRICKS, CALCULATED RISKS: UNDERSTANDING THE TOXICITY AND HUMAN HEALTH RISKS OF CHEMICALS IN OUR ENVIRONMENT 38-144 (1992) (describing the characteristics of fast poisons, slow poisons, and carcinogens).

15. 42 U.S.C. § 7412(b)(1)(B) (1988) (amended 1990). In the *Vinyl Chloride* case, the D.C. Circuit interpreted the statute to require EPA to establish an emissions limitation that would result in an "adequate" level of safety and then, if feasible, to reduce the emissions limitation still further to achieve an extra margin of safety. See *Natural Resources Defense Council, Inc. v. EPA*, 824 F.2d 1146, 1164-65 (D.C. Cir. 1987) (en banc).

creased, however, confidence in the idea of a "safe" level of a carcinogen eroded.<sup>16</sup> The dominant supposition (it is not a certainty) that cancer is triggered by one chance "hit" of a molecule of a carcinogen on one receptive target cell suggests that there is theoretically no level of exposure above zero — no "threshold" — below which a carcinogen has no effect.<sup>17</sup> Lacking the ability to identify a safe/unsafe cut-off for regulation, regulators began to speak in terms of "unreasonable risk" to describe a greater-than-zero level of risk that would be permitted by regulation. In other words, EPA would not try to eliminate all risk from exposure to a chemical, because that would require eliminating all exposure to the chemical, which would usually require discontinuing its use. Elimination is possible (often desirable), but more expensive than EPA or Congress was willing to impose. Further, in the case of chemicals already in the environment, such as hazardous wastes, elimination of exposure is simply impossible to achieve. Thus, the later environmental statutes that focus primarily on toxic substances use various formulations to impose a greater-than-zero, "unreasonable" risk standard.

The problem with the unreasonable risk standard is that it defies precise *ex ante* definition in two respects. First, the idea of risk means potential, not actual harm; therefore, the regulation is based on preventing, not actual illness, but the chance of the illness occurring. As the basis for imposing thousands or millions of dollars of costs on the economy, this is not the firmest of grounds. Second, it is indefinite as to the *level* of risk that it denotes. Assuming that risk is expressed as the excess lifetime risk of death from cancer caused by the chemical,<sup>18</sup> the term

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16. The developments traced in this and in the following paragraphs are described in greater detail in Applegate, *supra* note 14, at 264-84. See Al Alm, *Why We Didn't Use "Risk" Before*, 17 EPA J. 13, 13-14 (Mar.-Apr. 1991) (describing growing importance of risk from the perspective of a former Deputy Administrator of EPA); Paul A. Locke, *The Limitations of Comparative Risk Assessment*, 2(1) SHEPHARD'S EXPERT AND SCIENTIFIC EVIDENCE 75, 77-81 (1994).

17. See RODRICKS, *supra* note 14, at 145-157 (discussing theories of the mechanism of carcinogenesis).

18. Each one of these qualifications is a choice: we tend to focus on fatalities instead of all illnesses, cancer instead of non-cancer effects, individual risk instead of expected number of deaths, etc. See generally J. Clarence Davies, *Ranking Risks: Some Key Choices*, in *COMPARING ENVIRONMENTAL RISKS*, *supra* note 3, at 14-21. Finkel dismisses this kind of risk comparison as "fatality comparison." Adam M. Finkel, *Comparing Risks Thoughtfully*, 7 RISK: HEALTH, SAFETY & ENVIRONMENT 325, 330 (1996); Locke, *supra* note 16, at 83-90.

“unreasonable” does not tell us whether a one in ten risk is acceptably low, or whether a one in one hundred thousand is unacceptably high. Nor, indeed, does it tell us how to make that judgment. Generally speaking, however, “unreasonable” is taken to mean that a number of non-health factors may be considered, notably cost and technical feasibility in determining the risk level.<sup>19</sup>

Paradoxically, the indefiniteness of the unreasonable risk formulation resulted, not in a tendency to rely on narrative or qualitative descriptions of the hazard and the residual risk level, but rather in a great deal of pressure to quantify the risk before regulation and the residual risk after controls were imposed.<sup>20</sup> This was the result of several overlapping developments: a general effort to rationalize disparate approaches to toxic substances, a demand for more rigorous justification of regulatory restrictions, and a repeated judicial demand for justification through quantification.<sup>21</sup> The upshot was that courts and regulators, and ultimately Congress, settled on a technique known as quantitative risk assessment to be the primary measure of environmental harm and of remedial efforts.<sup>22</sup> Quantitative risk assessment responded to the uncertainties of the unreasonable risk standard with apparently scientific, objective, and precise numbers reached through a well-defined and rational methodology.<sup>23</sup>

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19. Applegate, *supra* note 14, at 268-277.

20. The distinction between “before” and “after” risk levels is developed in John S. Applegate, *Worst Things First: Risk, Information, and Regulatory Structure in Toxic Substances Control*, 9 YALE J. ON REG. 277, 305-306 (1992). The Supreme Court’s “Benzene” decision exemplifies the difference. The Court required OSHA to demonstrate a definite and unacceptably high level of existing risk as the prerequisite to taking any regulatory action. Once restrictions were justified by a finding of the unacceptable risk, OSHA was permitted to require the lowering of the risk to the lowest “feasible” level. See generally *Industrial Union Dept., AFL-CIO v. American Petroleum Inst.*, 448 U.S. 607 (1979).

21. See Applegate, *supra* note 14, at 281-284 (criticizing the demand for quantification and expressing concern about the data demands of quantitative risk assessment); Hornstein, *supra* note 10, at 569-75; Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 COLUM. L. REV. 1613 (1995).

22. Congress was, interestingly, the last to fall in line. Its initial foray into toxic substances regulation, the Delaney Clause, which banned any carcinogen at any level in food additives, required only a qualitative assessment that a substance was a carcinogen. By 1990, however, the Clean Air Act Amendments expressly regulated air toxics to a residual risk level of one in one million. 42 U.S.C. § 7412(f)(2)(A) (1989).

23. The uses and methods of risk assessment were authoritatively described in the 1983 Red Book, NATIONAL RESEARCH COUNCIL, RISK ASSESSMENT IN THE FEDERAL

Quantitative risk assessment also responded to a broader interest in regulatory rationality, that is, the desire to make regulatory actions consistent with each other and efficient in objective, quantifiable terms. Rationality is a bulwark against judicial challenge and also against political dissatisfaction with the costs that regulation imposes on the constituents of elected officials. If quantitative risk assessment held out, in Donald Hornstein's words, the "allure of science" for courts reviewing agency action under indefinite legal standards, it also held out the "allure of rationality" and the "allure of synopticism" for EPA's own policy analysis.<sup>24</sup> Quantitative risk assessment provides one of the numerical inputs to cost-benefit analysis, some version of which is the overarching analytical structure of regulatory rationality and the implicit counterweight to human health in making the "unreasonableness" determination. Because risk appears to be a common characteristic of many different environmental programs in different areas, it provides a way to make comparisons across those programs to evaluate the consistency and relative cost-effectiveness of regulatory interventions. Risk was thus attractive to regulators as a powerful tool for internal management as well as external justification.<sup>25</sup>

In roughly this way risk became established as the principal measure of EPA's activities. At that point, risk took on a life of its own, and it came to be perceived as the *raison d'être* for the agency. By the end of William Ruckelshaus' second stint as Administrator of EPA, risk reduction defined EPA's mission.<sup>26</sup> If

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GOVERNMENT: MANAGING THE PROCESS (1983). Subsequent NRC publications have refined but not replaced the underlying paradigm. See NATIONAL RESEARCH COUNCIL, SCIENCE AND JUDGMENT IN RISK ASSESSMENT (1994); NATIONAL RESEARCH COUNCIL, UNDERSTANDING RISK: INFORMING DECISIONS IN A DEMOCRATIC SOCIETY (1996) [hereinafter UNDERSTANDING RISK].

24. Hornstein, *supra* note 10, at 565-584.

25. Frederick R. Anderson, *CRA and Its Stakeholders: Advice to the Executive Office*, in COMPARING ENVIRONMENTAL RISKS, *supra* note 3, at 66-68.

26. Hornstein, *supra* note 10, at 585-586; Gilbert S. Omenn, *Making Use of Cancer Risk Assessment*, 12:4 ISSUES IN SCIENCE AND TECHNOLOGY 29, 29 (Summer 1996) ("Risk is the coin of the realm in environmental, health, and safety regulation . . ."); F. Henry Habicht II, *EPA's Vision for Setting Environmental Priorities*, in WORST THINGS FIRST, at 33-38 (Adam M. Finkel & Dominic Goldings eds., 1994); Charles W. Kent & Frederick W. Allen, *An Overview of Risk-Based Priority Setting at EPA*, in WORST THINGS FIRST, *supra* at 47-50.

A small but telling example of this can be found on EPA's web page. The link on the page entitled "Risk Reduction", *Browse EPA Topics* (last modified Jan. 21, 1998)

risk reduction in the various media for which EPA is responsible (air, water, solid waste, industrial chemicals, etc.) is the goal, then the logic of making risk comparisons across EPA's programs is well nigh irresistible. EPA wanted to know if it was applying the same standards to air, water, and radiation, for example. EPA also wanted to know whether it was targeting the most serious threats and whether its efforts in various programs were equally effective in reducing risk. Given the chronic and substantial gap between EPA's actual resources and the number of environmental threats that EPA might usefully address, these questions are not just interesting, they are essential to responsible management.<sup>27</sup> The acceptance of the basic risk metric, in other words, opened up whole new vistas of useful analysis within and across EPA's many programmatic areas, and it was not long before EPA vigorously pursued these possibilities.<sup>28</sup>

Ruckelshaus' successor, Lee Thomas, began an aggressive program of comparative risk assessment.<sup>29</sup> The initial effort, entitled *Unfinished Business*,<sup>30</sup> gathered EPA officials from across the agency's programs to identify and rank the environmental problems that each faced, and then to make comparisons across programs. The results were necessarily tentative (EPA was explicit about this),<sup>31</sup> but some were striking. For example, it appeared that EPA allocated relatively large amounts of its resources to hazardous waste in comparison to their relatively modest risks, and allocated little in relation to indoor air pollution, pesticides, and worker risks.<sup>32</sup>

Subsequently, three EPA regions undertook comparative anal-

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<<http://www.epa.gov/epahome/browse.htm>>, takes the reader to *Office of Policy, Planning, and Evaluation* (last modified Sept. 16, 1997) <<http://www.epa.gov/oppe>>. In other words, risk reduction is what EPA's strategic planners think they are doing.

27. The case for paying close attention to allocating scarce regulatory resources is made in Applegate, *supra* note 20, at 282-289.

28. Minard, *supra* note 3, at 27-33. More generally, the history and problems of comparative risk assessment are considered in two excellent collections of essays published by Resources for the Future. See *COMPARING ENVIRONMENTAL RISKS*, *supra* note 3; *WORST THINGS FIRST*, *supra* note 26. See also Hornstein, *supra* note 10.

29. See generally Kent & Allen, *supra* note 26; Minard, *supra* note 3.

30. U.S. EPA, 1 *UNFINISHED BUSINESS: A COMPARATIVE ASSESSMENT OF ENVIRONMENTAL PROBLEMS* (1987) [hereinafter *UNFINISHED BUSINESS*].

31. *Id.* at 2-4 (preface by Administrator).

32. *Id.* at 91-95. See also NATIONAL ACADEMY OF PUBLIC ADMINISTRATION (NAPA), *SETTING PRIORITIES, GETTING RESULTS: A NEW DIRECTION FOR EPA* 156 [hereinafter *A NEW DIRECTION FOR EPA*] (graph comparing spending and risk levels).

yses,<sup>33</sup> and EPA's Science Advisory Board ("SAB") undertook a more detailed and broadly based effort to examine EPA's priorities.<sup>34</sup> Its report, *Reducing Risk: Setting Priorities and Strategies for Environmental Protection* (the title suggests the extent to which risk had come to dominate EPA's thinking), the SAB strongly endorsed comparative risk assessment, an endorsement that EPA leadership eagerly promoted.<sup>35</sup> However, it declined to issue precise rankings or to compare directly between human and ecological and welfare effects, or even to make direct comparisons within human effects, recognizing the vast difference between known risk endpoints. It advocated for the first time a role for the public.<sup>36</sup>

EPA's comparative risk activities culminated with the establishment of a division of the Office of Strategic Planning and Environmental Data, which not only used the internal comparative risk exercises for its planning purposes, but also encouraged states and localities to undertake their own priority setting activities through grants and guidance.<sup>37</sup> Outside EPA, comparative risk assessment attracted a great deal of academic, policy, and Congressional interest as well.<sup>38</sup> It is as a result of EPA's sponsorship that state and local environmental priorities projects were begun and sustained.<sup>39</sup> The state and city projects have differed in many ways from the EPA models and from each other — in organization, membership, risk categories, ranking strategies, role of non-risk considerations, and decisionmaking procedures — however, they are uniform (or nearly so) in adopting the SAB's recommendation that the process include the general public instead of being an internal, expert effort like *Unfinished Business*.<sup>40</sup>

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33. U.S. EPA, *COMPARING RISKS AND SETTING ENVIRONMENTAL PRIORITIES: OVERVIEW OF THREE REGIONAL PROJECTS* (1989).

34. The opening sentence of *UNFINISHED BUSINESS* had declared, "The fundamental mission of the Environmental Protection Agency is to reduce risks to health, ecosystems and welfare," *supra* note 30, at 1.

35. Jonathan Bender, *Societal Risk Reduction: Promise and Pitfalls*, 3 N.Y.U. ENVTL. L. J. 255, 259-62 (1995).

36. SCIENCE ADVISORY BOARD (SAB), U.S. EPA, *REDUCING RISK: SETTING PRIORITIES AND STRATEGIES FOR ENVIRONMENTAL PROTECTION* app. B at 32-34 (1990) [hereinafter *REDUCING RISK*].

37. See *GUIDEBOOK*, *supra* note 7.

38. See Bender, *supra* note 35, at 259-62.

39. See Minard, *supra* note 3, at 33.

40. See *MINARD ET AL., FORCE FOR CHANGE*, *supra* note 3, at 10-12. The excep-

The relatively early California Comparative Risk Project involved three expert ranking committees for human health, social welfare, and ecological health; public committees on environmental justice and education; and a statewide community advisory committee on policy questions.<sup>41</sup> The later Ohio project used a technical assessment group to provide information and a public advisory group to take the lead in risk ranking.<sup>42</sup> It was in the state rather than the federal projects, then, that the democratic decisionmaking element of environmental priorities projects really took shape.

### B. *The Comparative Risk Debate*

Commentators have distinguished two versions of comparative risk assessment.<sup>43</sup> The "hard" version emphasizes quantitative comparisons of risk, ideally resulting in a unified ranking of risks from highest to lowest. This usually includes a large element of technical or expert assessment of risk, and it requires a very substantial amount of information to be successful. The "soft" version is less quantitative, and its environmental data and results are more narrative (*i.e.*, conveyed in words and descriptions rather than in numbers). In practice, most priorities projects use a soft methodology. The EPA and California projects not only distinguished among human risk, social welfare effects, and ecological effects (*Unfinished Business* even distinguished between cancer and non-cancer health risks), but they also avoided direct comparisons across the types of risks.<sup>44</sup> Moreover, they grouped problems into high, medium, and low categories to describe the seriousness of the risks (though *Unfinished*

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tion is the Michigan project, which was comprised of government officials only. *Id.*

41. CALIFORNIA COMPARATIVE RISK PROJECT, CALIFORNIA EPA, TOWARD THE 21ST CENTURY: PLANNING FOR THE PROTECTION OF CALIFORNIA'S ENVIRONMENT (May 1994). [hereinafter TOWARD THE 21ST CENTURY].

42. OHIO COMPARATIVE RISK PROJECT, OHIO EPA, OHIO: STATE OF THE ENVIRONMENT REPORT 8-13 (Dec. 1995) [hereinafter OHIO: STATE OF THE ENVIRONMENT REPORT].

43. See Hornstein, *supra* note 10, at 585; Finkel, *supra* note 26 at 7-8; Jonathan Lash, *Integrating Science, Values, and Democracy Through Comparative Risk Assessment*, in WORST THINGS FIRST, *supra* note 26, at 74-76. See also A NEW DIRECTION FOR EPA, *supra* note 32, at 141-42 (using the terms "narrow" and "broad," respectively, for "hard" and "soft").

44. UNFINISHED BUSINESS, *supra* note 30, at 5-8; REDUCING RISK, *supra* note 36, at 8; TOWARD THE 21ST CENTURY, *supra* note 41, at 5.

*Business* ranked within the categories), instead of developing specific numerical risk designations.<sup>45</sup> Ohio took a similar approach, but developed a system for rough comparisons across areas.<sup>46</sup> Actual priorities projects chose the soft approach for two reasons. First, they did not have nearly enough firm data available to make credible quantitative evaluations of risks across all of the programmatic areas or environmental media that were being compared.<sup>47</sup> Second, narrative description avoided the problem of comparing unlike problems, such as drinking water and workplace safety, or radon and hazardous waste sites.<sup>48</sup>

The logic of comparative risk and quantitative risk assessment, however, treats soft comparisons as a second-best to quantitative comparison.<sup>49</sup> If one is serious about determining which problems are worst and which solutions are most cost-effective, the thinking goes, one should attempt to understand exactly how the hazards and remedial programs rank.<sup>50</sup> Given limited re-

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45. UNFINISHED BUSINESS, *supra* note 30, at 26, 42, 55; REDUCING RISK, *supra* note 36, at 13-14; TOWARD THE 21ST CENTURY, *supra* note 41, at 83-84.

46. OHIO: STATE OF THE ENVIRONMENT REPORT, *supra* note 42, at 15-21; A NEW DIRECTION FOR EPA, *supra* note 32, at 142. The Ohio system for comparing across risk types involved an implicit ranking of human health and ecosystem risk higher than quality-of-life risks. Items that scored high in more than one risk category would risk highest overall. *Id.* A more elaborate, but still primarily narrative approach is described in CHRISTINA CHOCIOLOKO & W.G.B. SMITH, SETTING ENVIRONMENTAL MANAGEMENT PRIORITIES: RETHINKING RISK ANALYSIS (Working Paper Series 96-3, 1996).

47. *E.g.*, UNFINISHED BUSINESS, *supra* note 30, at 535-41; REDUCING RISK, *supra* note 36, at 8; TOWARD THE 21ST CENTURY, *supra* note 41; OHIO: STATE OF THE ENVIRONMENT REPORT, *supra* note 42, at 8-13.

48. *E.g.*, UNFINISHED BUSINESS, *supra* note 30, at 5; REDUCING RISK, *supra* note 36, app. B at 32; TOWARD THE 21ST CENTURY, *supra* note 41; OHIO: STATE OF THE ENVIRONMENT REPORT, *supra* note 42, at 8-13.

49. As Hornstein points out, the hard version is no straw man; it has plenty of adherents. Hornstein, *supra* note 10, at 584-87. Moreover, despite frequent disclaimers of reliance on a hard version, the institutional pressures to quantify, described above, remain. A good example of these mixed signals can be found in the NAPA report. On one hand, NAPA recommends that EPA "[m]ake risk analysis and comparisons of risk-reduction approaches a central feature of EPA regulation and priority setting." On the other hand, it warns (in smaller type) that EPA should "use a broad definition of risks, costs, and benefits, consistent with public values." A NEW DIRECTION FOR EPA, *supra* note 32, at 67.

50. Howard Latin has criticized the whole idea of "fine-tuning" environmental law. While his criticisms are directed to a different type of fine-tuning (using market mechanisms to allocate pollution restrictions more efficiently), they are relevant here. See Howard A. Latin, *Ideal Versus Real Regulatory Efficiency: Implementation of*

sources and a goal of risk reduction, such an analysis would reveal definitively how best to allocate the resources. Hence, the existence of a hard version exerts a constant pressure to make more definitive quantitative comparisons across greater numbers of activities.<sup>51</sup> Ironically, though, it is in the hard, quantitative version of risk comparison that the weaknesses of the technique are most apparent and most serious.<sup>52</sup> Despite the apparently ineluctable logic of setting environmental priorities and of uti-

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*Uniform Standards and "Fine-Tuning" Regulatory Reforms*, 37 STAN. L. REV. 1267 (1985) (arguing that overemphasis on precision in regulation results in overly timid responses to environmental problems).

51. The environmental priorities projects make risk comparisons across several programs or environmental media. However, there is a different kind of comparative risk analysis which compares the risk consequences of choices within a particular program or environmental activity. For example, the decision to clean-up a hazardous waste site may reduce risk to the site's neighbors over the long term, but it will also increase the risk to remediation workers in the short term. See John S. Applegate & Steven M. Wesloh, *Short Changing Short-Term Risk: A Study of Superfund Remedy Selection*, 15 YALE J. ON REG. (1998). Some risk scholars have developed very elaborate analytical systems for making such comparisons, and they are invariably quantitative or aspire to quantification. See, e.g., Frank B. Cross, *Paradoxical Perils of the Precautionary Principle*, 53 WASH. & LEE L. REV. 851, 900-906 (1996); RISK VERSUS RISK: TRADE-OFFS IN PROTECTING HEALTH AND THE ENVIRONMENT 16-17 (John D. Graham & Jonathan Baert Wiener eds., 1995) [hereinafter RISK VERSUS RISK]; W. Kip Viscusi, *Risk-Risk Analysis*, 8 J. RISK UNCERTAINTY 5, 12-13 (1995); W. KIP VISCUSI, FATAL TRADE-OFFS: PUBLIC AND PRIVATE RESPONSIBILITIES FOR RISK (1992); STEPHEN BREYER, BREAKING THE VICIOUS CIRCLE: TOWARD EFFECTIVE RISK REGULATION (1993). In some ways, these intraprogram comparisons are more analytically sound and useful in policymaking, but they also suffer from some of the same limitations that interprogram comparisons do. See John S. Applegate, *When the Cure is Worse Than the Disease* (abstract of presentation at Symposium on Risk, Science & Law, Society for Risk Analysis Annual Meeting (Dec. 10, 1996)) (describing Superfund remediation risk as a problem in comparative risk analysis). In any event, this essay does not address such analysis.

52. It should be noted, however, that the soft version of comparative risk assessment is not immune from criticism by environmentalists. See Finkel, *supra* note 18, at 347-50. The environmentalist critique of comparative risk assessment appears in several of the chapters in COMPARING ENVIRONMENTAL RISKS, *supra* note 3, and WORST THINGS FIRST, *supra* note 26; Hornstein, *supra* note 10; Finkel, *supra* note 18; Symposium, *Setting Environmental Priorities: The Debate About Risk*, 17 EPA J. 13 (Mar.-Apr. 1991); Ellen K. Silbergeld, *The Risks of Comparing Risks*, 3 N.Y.U. ENVTL. L.J. 405 (1994); Adam M. Finkel, *A Second Opinion on an Environmental Misdiagnosis: The Risky Prescriptions of Breaking the Vicious Circle*, 3 N.Y.U. ENVTL. L.J. 295 (1994) [hereinafter *A Second Opinion*]; David A. Wirth & Ellen K. Silbergeld, *Risky Reform*, 95 COLUM. L. REV. 1857 (1995) (book review); Locke, *supra* note 16, at 84-98; Richard N.L. Andrews, *Long-Range Planning in Environmental and Health Regulatory Agencies*, 20 ECOLOGY L.Q. 515, 550-58 (1993); Anderson, *supra* note 25, at 72-75. This section is a very brief synopsis of the main points made in this voluminous literature.

lizing comparative risk to set them, comparative risk has substantial and fundamental limitations which are suggested by many projects' choice of a soft version of comparative risk.

At the most practical level, the problem is information. The data to support credible quantitative descriptions of a broad range of environmental problems simply does not exist.<sup>53</sup> This "data gap" could be remedied to some extent by massive spending on data generation and gathering, though this begs the question whether comparative risk is where that money should be spent.<sup>54</sup> However, that spending would still leave a substantial area of uncertainty that results from our incomplete scientific understanding of the effects of pollutants in the environment.<sup>55</sup> Filling these gaps and uncertainties with assumptions and default values is antithetical to the kind of rigorous quantitative conclusions to which the hard version of comparative risk aspires.<sup>56</sup> Moreover, the existing information is not uniformly distributed or available to all. Many commentators have noted that industry holds much of the relevant data, especially on its

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53. On the lack of data generally, see Applegate, *supra* note 14, at 284-98; Mary L. Lyndon, *Information Economics and Chemical Toxicity: Designing Laws to Produce and Use Data*, 87 MICH. L. REV. 1795 (1989). EPA was acutely aware of the problem in its comparative risk studies, UNFINISHED BUSINESS, *supra* note 30, at 14, 35-41, REDUCING RISK, *supra* note 35, at 8, and it is a persistent theme of comparative risk critics. See Bender, *supra* note 36, at 259-62; Robin Shifrin, Note, *Not by Risk Alone: Reforming EPA Research Priorities*, 102 YALE L.J. 547, 559-65 (1992); Locke, *supra* note 16, at 84-90. EPA's Science Advisory Board (SAB), for example, recently concluded that it could not properly measure environmental performance by various sectors of industry, because it had no meaningful data on exposure, and without exposure data it was impossible to "say anything definitive about the risk." See *Enforcement: Lack of Exposure Information in SFIP Hinders Risk Assessment*, SAB Panel Says, 28 ENVT. REP. 999 (Sept. 26, 1997). The board went on to suggest that toxicity or hazard information alone might be useful for setting priorities. *Id.* Although that suggestion is probably correct, it is a far cry from the hard version of comparative risk.

54. In comparative risk terms, it is almost certain that the risk reduction achieved by spending limited resources on analysis would be less than spending that money, even inefficiently, on attacking environmental problems themselves. See John S. Applegate, *A Beginning and Not an End in Itself: The Role of Risk Assessment in Environmental Decision-Making*, 63 U. CIN. L. REV. 1643, 1648-51 (1995) (criticizing regulatory reform legislation for itself imposing inefficient costs); Shifrin, *supra* note 53, at 559-65, 569-75 (expressing concern that risk-based priority setting will take on a costly life of its own).

55. See Applegate, *supra* note 14, at 285-89.

56. Adam Finkel argues that risks due to uncertainty and variability can only be described as ranges, noting that once the risk range is considered, rankings are likely to be less definite and even reversed. Finkel, *supra* note 18, at 335-38.

processes and the hazards of its activities and products.<sup>57</sup> This is to be expected, of course, but environmentalists are justifiably concerned that priority setting based on selectively revealed information will be not only inaccurate, but skewed.

Risk itself has a distinct technical and political "allure" to beleaguered regulators and industries. It offers an apparently scientific justification for regulatory action (or inaction) that considers other dangers and, through cost-benefit analysis, the benefits of a particular activity.<sup>58</sup> The choice of quantified risk as the measure of environmental danger is itself a policy choice and a value judgment. To some degree, risk is problematic because it has its own potential for inaccuracy — where information is scarce and judgment must fill the gaps,<sup>59</sup> misperception or biased perception undermine claims to objectivity. More important, quantification distracts attention from the underlying value choices,<sup>60</sup> and it obscures fundamental changes that might avoid the trade-offs altogether.<sup>61</sup> Also, by focusing on adjusting risk consequences, we may be discouraged from examining underlying causes.

Fundamentally, risk is a grossly incomplete way of looking at environmental problems. It does not, without more, describe the distribution of risk (is it fairly uniform across the population or is it focused on a small geographic or demographic group?), nor

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57. See, e.g., Lyndon, *supra* note 53 (generally arguing that environmental policies should be designed to encourage the development of toxicity information by industry). Alternatively, they "choose ignorance" of toxic hazards. See Wendy Wagner, *Choosing Ignorance in the Manufacturing of Toxic Products*, 82 CORN. L. REV. 733 (1997).

58. In fairness, regulators and industry are not the only outcome-based users of science, as Wendy Wagner has recently reminded us. Wagner, *supra* note 21, at 1650-73.

59. UNFINISHED BUSINESS, *supra* note 30, at 2-4; NATIONAL RESEARCH COUNCIL, SCIENCE AND JUDGMENT IN RISK ASSESSMENT 80-84 (1994).

60. This is a universal concern about comparative risk assessment. See, e.g., M. Granger Morgan, *Quantitative Risk Ranking: More Promise than the Critics Suggest*, in WORST THINGS FIRST, *supra* note 26, at 116-42; Finkel, *A Second Opinion*, *supra* note 52, at 330 ("The gulf is not between facts and values, but between value-laden facts and fact-laden values."); Wirth & Silbergeld, *supra* note 52, at 1875-77; Michael S. Baram, *Use of Comparative Risk Methods in Regulatory and Common Law*, 13 COLUM. J. ENVTL. L. 1, 12 (1987); Bender, *supra* note 36, at 259-62.

61. Donald T. Hornstein, *Lessons from Federal Pesticide Regulation on the Paradigms and Politics of Environmental Law Reform*, 10 YALE J. ON REG. 369 (1993); Finkel, *A Second Opinion*, *supra* note 52, at 323-24; Shifrin, *supra* note 53, at 559-62, 569-75; see also Wirth & Silbergeld, *supra* note 52, at 1871 (describing such trade-offs as "Sophie's choice").

the source of the risk (is it a well-operated steel mill or a midnight dumper?). In both cases, the distribution of the risk and its source raise the question of the "equity" or fairness of the risky activity. Voluntarily assumed risks or risks over which the exposed persons exercise some control are understood differently from those imposed involuntarily, especially if they are wrongfully imposed. Risk also does not consider the relative ease or difficulty of reducing or eliminating the risk. In deciding which environmental problem is "worst," one might well find a highly avoidable but numerically low risk less justifiable than a numerically high but difficult to control risk. Likewise, a risk reduction activity that brings with it collateral benefits (for example, reducing car travel also reduces our dependency on foreign oil)<sup>62</sup> might well be preferred to an action that more substantially reduces health risks. Finally, a small risk of a catastrophic result is mathematically the same as a larger risk of a less dire outcome. But people are justifiably more concerned with the possibility of a catastrophe to themselves through a fatal illness like cancer or a catastrophe to the population generally through an environmental disaster like Chernobyl.

The underlying problem with risk as the metric for comparison is that there are many kinds of risks, and they affect many different groups of people and the environment in different ways. The first question must be: risk of what? For toxic substances, EPA uses risk of death from cancer as the primary endpoint, but as noted above that is really very narrow.<sup>63</sup> Cancer is not the only disease of concern to us. Other health effects about which science understands very little, such as endocrine disruption and genetic mutation, may seem equally sinister. Moreover, since environmental priorities projects are not limited to toxic chemicals or to human health, the cancer death measure seems even more constraining. As one commentator on a cost-benefit analysis of smog reduction said, "how do you put a value on an asth-

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62. Some comparative risk advocates, for example, John D. Graham, *Saving Gasoline and Lives*, in RISK VERSUS RISK, *supra* note 51, at 87-103, would treat dependency on foreign oil as a "risk" as well, to be compared to the risks of pollution. But the risks associated with dependency on foreign oil, such as constraints on foreign policy, high costs of manufacturing and higher commuting costs, are so different from health and environmental risks that this use of the term stretches it to meaninglessness. In that sense, every bad consequence is a "risk."

63. See Finkel, *supra* note 18, at 330-31.

ma attack?"<sup>64</sup> In the occupational setting, serious and debilitating injuries are far more common than fatalities, and are thus arguably the more serious concern. Occupational injury also raises the question whether risks to workers, which we to some extent voluntarily assumed and compensated, should be treated the same or differently from risks to the general populace.<sup>65</sup> Should risks to children be evaluated on a par with population risks? What about risks to the elderly? And how are harms to the natural or physical environment to be measured against human health risk? Unless it can place a numerical value on the distinction (for example twenty-five dollars for an asthma attack, or a fifty percent discount of voluntary workplace injuries), quantitative analysis alone cannot reflect these differences.

The foregoing is often referred to as the "apples and oranges" problem with comparing risks. As Adam Finkel has pointed out, however, there is no difficulty in comparing apples and oranges, as long as the criteria for comparison are clearly understood and are material to the decision to be made.<sup>66</sup> The problem is that risk per se does not constitute an all-inclusive basis for comparison among environmental problems. Yet such comparisons are at the heart of the comparative risk assessment enterprise, which, by its own terms, treats all human health risks as interchangeable with each other and with effects on the natural environment and social welfare. General comparisons cannot be avoided in environmental priorities projects because they are the *purpose* of the projects, but precise risk rankings that emerge from environmental priorities projects should be viewed with skepticism and used with caution.

### *C. More Modest Claims for Risk Comparison*

Even if one could find or generate adequate data to give comparative risk assessment some semblance of precision, there are too many non-numerical considerations, such as public values,

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64. See James M. Lents, *Letter to the Editor*, 253 SCI. 607, 608 (1991) (rejecting the valuation of an asthma attack at twenty-five dollars in Alan J. Krupnick & Paul R. Portney, *Controlling Urban Air Pollution: A Benefit-Cost Assessment*, 252 SCI. 522 (1991)).

65. See RISK VERSUS RISK, *supra* note 51, at 16-17 (noting that occupational risks are voluntarily undertaken and so may be evaluated differently from other risks).

66. See Finkel, *supra* note 18, at 332-35.

risk distribution, differing characteristics of different risks, and the like, to permit a fair analysis of environmental problems in quantitative terms. Does this mean that comparing environmental hazards and setting priorities is impossible or pointless? No — it means that the claims for comparative risk and environmental priority setting need to be more modest (“softer”) than its strongest proponents allow, and, interestingly, closer to the actual practice of comparative risk projects.

As an initial matter, we must recognize that priority setting itself is not an obscure, arcane process with nefarious aims. The concern is often expressed that environmental priority setting is simply an excuse to take some problems off the table because low-ranked problems will be ignored. Based on this concern, many environmental organizations have eschewed involvement in environmental priorities projects. But priority setting is something we all do every day, because none or very few of us have the resources that allow us to live our lives as if we can do everything now, as much as we want. We have to decide what we need, and then what we want most. The same thing also happens every day in every regulator’s office: what are the most pressing out of the whole universe of problems that they would like to be able to deal with? Without setting priorities, they simply react to momentary crises, wasting resources and ignoring important long-range problems.<sup>67</sup> The extremely serious threats of global warming and ozone depletion, for example, are ignored for this reason.

Priority setting even happens in environmental organizations. Environmental organizations cannot possibly file every lawsuit or fund every research project that they would like to; they make hard choices about what they regard as the greatest needs. A recent Nature Conservancy newsletter, for example, reported on its priority-setting efforts with the United States Agency for International Development as follows:

In late 1993 the U.S. Agency for International Development (USAID) realized it could no longer give equal attention to biodiversity in all parts of the world. It needed a methodology for determining those areas where proportionately greater investment in conservation should be made. USAID requested that the

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67. See Applegate, *supra* note 20, at 287-89, 319-24; DANIEL FIORINO, MAKING ENVIRONMENTAL POLICY 3-7 (1995).

Biodiversity Support Program, a consortium consisting of The Nature Conservancy, World Wildlife Fund, and the World Resources Institute, provide this methodology. The program invited five other leading conservation organizations to serve on a non-governmental organization working group to assist in developing an approach to determining biodiversity conservation priorities in Latin America and the Caribbean.

The principles developed at the Miami workshop are already yielding some important and surprising results . . . .

The investment methodology [that resulted] included three levels of analysis: biological importance; conservation threat and opportunity; and policy and institutional capacity for conservation. These three levels of analysis were then integrated to determine investment priorities. And the results were profound.<sup>68</sup>

These organizations could have simply told USAID that biodiversity is too important to put a price tag on it, and so USAID should simply do better in coming up with resources. But instead of spurning the offer to get involved, the organizations not only made a decisive difference in what was funded, they also shed important new light on the problems facing them. The article goes on to note, in fact, that “[n]umerous new priority areas emerged that have not received significant attention in the past.”<sup>69</sup> Instead of asking simply which problems are worst or which pose the greatest risk, they asked where investment would be most effective. Thus the organizations’ conclusion, that certain areas ought to receive “proportionately greater investment,”<sup>70</sup> was hardly an endorsement of abandoning the rest. The USAID process set priorities on *actions*, not problems.<sup>71</sup>

But there is priority setting and priority setting, so to speak, and claims for it must be modified accordingly. First, a priorities project should beware of, which is not to say that it should completely abjure, specific risk rankings and comparisons across risk endpoints. The hard version that relies on quantified risk clearly asks too much of extant risk data and of technical rationality. It is simply misleading to suggest that the data are available that

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68. NATURE CONSERVANCY, INTERNATIONAL UPDATE, SETTING PRIORITIES FOR CONSERVATION INVESTMENTS: GETTING THE MOST FOR THE MONEY (Spring 1995).

69. *Id.*

70. *Id.*

71. This strategy is recommended in MINARD, FORCE FOR CHANGE, *supra* note 3, at 4-5. It was also adopted by the Hamilton County Environmental Priorities Project.

would support a precisely calibrated hierarchy of environmental problems or actions. Moreover, scientifically defensible methods for comparing risk types do not yet exist.<sup>72</sup> General categories of severity have provided useful and sometimes surprising results in several projects, and narrative categories avoid the excesses of overquantification. The maintenance of separate risk types, even if they are ultimately combined (as in Ohio)<sup>73</sup>, reinforces the idea that different risks implicate different distributional and ethical concerns. In other words, there is also risk and risk, so to speak, and priorities projects must not obscure the distinctions.

Second, a broader conception of the basis of priority setting means that the relevant considerations cannot be limited to items that are quantifiable, even in theory.<sup>74</sup> Values and policy choices are not only an inescapable part of environmental decisionmaking, they may in fact dominate it. To turn the process into a technocratic exercise misses the ethical basis of environmental regulation, and it certainly undercuts the political viability of the results. The chair of the Presidential/Congressional Commission on Risk Management has observed:

[The] descriptive and evaluative features are more important than the quantitative estimate of the magnitude of the risk or probability of occurrence. Likewise, description of the sources and significance of the assumptions and uncertainties is at least as important as any quantitative modeling of those uncertainties.<sup>75</sup>

This requires not only the addition of values and other non-quantitative criteria to the analysis of each problem, but it makes comparison among problems a complex, imprecise undertaking. Again, this does not render comparisons useless. It simply means that our way of describing the comparisons must be more narrative and detailed: the "x > y" model will not do the

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72. Locke, *supra* note 16, at 98.

73. See *supra* note 42 and accompanying text.

74. See generally ENVIRONMENTAL RISK, ENVIRONMENTAL VALUES, AND POLITICAL CHOICES: BEYOND EFFICIENCY TRADE-OFFS IN PUBLIC POLICY ANALYSIS (John Martin Gillroy ed., 1993) (a series of essays defining environmental values in other than quantitative, cost-benefit terms); MARK SAGOFF, THE ECONOMY OF THE EARTH: PHILOSOPHY, LAW, AND THE ENVIRONMENT (1988) (arguing that environmental regulation is and should be the expression of principles and public values, not technocratic calculation).

75. See Omenn, *supra* note 26, at 31.

job. Not only is risk one of several factors, but risk descriptions themselves must take account of the different qualities of different risks. "The unmet challenge of [comparative risk assessment] is to describe disparate risks in rich, informative and non-manipulative ways."<sup>76</sup> Another way of stating this is, since not every relevant consideration can be characterized — and certainly not quantified — as a version of risk, risk assessment is but one of several analytical tools for making good environmental policy.<sup>77</sup>

Third, the priority setting process must involve and be understandable to the people who are affected by the problems being ranked.<sup>78</sup> Except perhaps as an internal analytical exercise, environmental priority setting cannot be a technical project run exclusively by environmental policy experts. In part, this is a corollary of the mandate to include public values in the analysis. Who better to identify and apply public values than the public itself? The public is also an important source of information on the sources and effects of environmental problems with which they live on a daily basis.<sup>79</sup> While public perceptions of the nature, source, and degree of risk can certainly be erroneous or distorted,<sup>80</sup> they have a direct contact and concern that experts ignore at their peril.<sup>81</sup> Finally, under the heading of enlightened self-

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76. Finkel, *supra* note 18, at 335 (italics omitted). For a description of several dimensions of risk and an insistence that they be fully considered, see *id.* at 338-47.

77. NATIONAL RESEARCH COUNCIL, BUILDING CONSENSUS THROUGH RISK ASSESSMENT AND MANAGEMENT OF THE DEPARTMENT OF ENERGY'S ENVIRONMENTAL REMEDIATION PROGRAM 3, 12-17, 35-37 (1994) [hereinafter BUILDING CONSENSUS]; OFFICE OF ENVTL. MANAGEMENT, DEPARTMENT OF ENERGY, RISKS AND THE RISK DEBATE: SEARCHING FOR COMMON GROUND 7 (1995); Applegate, *supra* note 54, at 1658-64; Daniel C. Esty, *What's the Risk in Risk?*, 13 YALE J. ON REG. 603, 605-06 (1996) (book review) (reviewing RISK VERSUS RISK, *supra* note 50); CARNEGIE COMM'N ON SCIENCE, TECHNOLOGY, AND GOVERNMENT, RISK AND THE ENVIRONMENT: IMPROVING REGULATORY DECISION-MAKING 81 (1993) [hereinafter RISK AND THE ENVIRONMENT].

78. Applegate, *supra* note 54, at 1654-56; Department of Energy, Risk Assessment, Management, and Communication and Priority Setting (1995) [hereinafter DOE Risk Principles]. For the text of DOE Risk Principles, see Applegate, *supra* note 54 app. at 1675. This is generally consistent with the USAID process, which necessarily involved international environmental organizations as surrogates for affected persons in remote parts of the world.

79. Andrews, *supra* note 52, at 552-58.

80. JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES (Daniel Kahneman et al. eds., 1982) (identifying several sources of distortion in public perception of risk).

81. Wagner, *supra* note 21, at 1650-73.

interest, public involvement builds the political support that any priority setting effort will eventually require if it is to be implemented. As many commentators on EPA priorities have noted (usually with chagrin), technical evaluations of risk make little headway against popular evaluations communicated to the agency through Congress.<sup>82</sup> A closed process involving only designated experts is unlikely to garner much public enthusiasm.

With these more modest claims and aspirations, environmental priority setting can be a useful, transparent, politically supportable enterprise. The soft version does not resolve all of the problems of comparative risk assessment, but it facilitates a plausible effort at the essential task of allocating environmental resources as wisely as possible. We now turn to the second major element of environmental priorities projects, a democratic decisionmaking process.

### III. DELIBERATIVE DEMOCRACY

There are good instrumental reasons, described above, for involving the public in environmental priority setting. Fundamentally, however, public participation should be based on the belief that it is the way that a democracy ought to resolve public problems. We are in this together, and we depend on each other for solutions. Moreover, we need to understand that while we come to environmental priorities from different perspectives and with different goals, those perspectives and goals overlap to a greater degree than perhaps we realize. The managers and employees of industries that create risks to a community are also citizens of the community, just as the citizens of that community patronize and are employed by those businesses. The great majority of people have good intentions and high aspirations: they want to do the right thing, even though they have very different views of what the right thing is. If environmental and economic goals can be mutually reinforcing, and if business and community overlap, then we ought to be able to recognize that we have common problems, that we have common goals, and then per-

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82. Justice Stephen Breyer is the leading example of the chagrined observer. See BREYER, *supra* note 8 at 33-51. He identifies a self-perpetuating cycle of public misperceptions (aided and abetted by sensational press accounts), Congressional reaction, and the inherent uncertainties in the regulatory process to account for the technically unjustifiable EPA priorities. *Id.*

haps we can find common solutions. In a democratic society we reach common solutions by decisionmaking processes that include as many of the affected or potentially affected persons as are willing to participate.

#### A. *Theory and Process*

If the foregoing justification for public participation sounds quixotic, it is probably because there is a growing dissatisfaction with the poor quality of public discourse in this country. Many concerns have been identified, but central among them is the adversarial nature of public debate. We are encouraged to think of ourselves as representing specific interests, which are different to a greater or lesser degree than others' interests. Public decisionmakers make choices and compromises among the various interests — helping some, hurting others — in response to each group's special pleas. As a result, people are encouraged to treat each other as adversaries who need to be defeated or held at bay. This interest group pluralism is the dominant view of modern politics, and it has an increasing number of critics who believe that it encourages the taking of extreme and selfish positions, obscures areas of agreement and common ground, and entirely misses the possibility that there is a common good that could be determined by working together thoughtfully to solve common problems.<sup>83</sup>

This is not the place to develop deliberative democratic theory

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83. The academic proponents of this view include a remarkably broad range of scholarly disciplines, including lawyers, sociologists, historians, and political theorists. For a sampling of wide variety of this literature, see Cass R. Sunstein, *Beyond the Republican Revival*, 97 YALE L.J. 1539 (1988); Cass R. Sunstein, *Democratizing America Through Law*, 25 SUFFOLK U. L. REV. 949 (1991); Frank Michelman, *The Supreme Court, 1985 Term — Foreword: Traces of Self-Government*, 100 HARV. L. REV. 4 (1986); ROBERT REICH, *THE POWER OF PUBLIC IDEAS* (1988); Robert Reich, *Public Administration and Public Deliberation: An Interpretive Essay*, 94 YALE L.J. 1617 (1985). See also SAGOFF, *THE ECONOMY OF THE EARTH*, *supra* note 71; CHRISTOPHER LASCH, *THE TRUE AND ONLY HEAVEN: PROGRESS AND ITS CRITICS* 170-225, 530-32 (1991); MICHAEL J. SANDEL, *DEMOCRACY'S DISCONTENT: AMERICA IN SEARCH OF A PUBLIC PHILOSOPHY* (1996); ROBERT N. BELLAH ET AL., *HABITS OF THE HEART: INDIVIDUALISM AND COMMITMENT IN AMERICAN LIFE* (1985); ROBERT N. BELLAH ET AL., *THE GOOD SOCIETY* (1992); JAMES C. CRIMMINS, *THE AMERICAN PROMISE: ADVENTURES IN GRASS-ROOTS DEMOCRACY* (1995); JANE J. MANSBRIDGE, *BEYOND ADVERSARY DEMOCRACY* (1983); DANIEL YANKELOVICH, *COMING TO PUBLIC JUDGMENT: MAKING DEMOCRACY WORK IN A COMPLEX WORLD* (1991).

in any length. However, deliberative democratic theory has some important implications for the character of the decisionmaking processes that have been adopted by environmental priorities projects. First, it demands a decisionmaking process that is broadly inclusive of affected and potentially affected persons. A process that is built on respect for others' views, a willingness to listen to and consider them, and a desire to reach consensus cannot systematically exclude certain points of view.<sup>84</sup> In formal procedures, this is what "democratic" means. If simple voting of ballots is not the system, then the alternative process must at least permit that breadth of representation. Moreover, environmental priorities projects are advisory in nature, are not elected, and are not formally delegated governmental power. Their only authority is their ability to include a broad spectrum of views and to express them with as much agreement as possible. A five-to-four vote makes constitutional law in the Supreme Court,<sup>85</sup> but such a close vote means that an advisory board is deeply divided.

Inclusion requires a transparent process. Both participants and observers should be able to see the process by which decisions are reached. Voting for elected leaders is transparent. For an environmental priorities project, transparency applies not only to procedural decisions like membership in the project, but also to substantive decisions like the criteria for ranking risks. Secrecy may have a place in some forms of negotiation,<sup>86</sup> but the participants in an environmental priorities project do not represent, in any formal sense, groups that can negotiate about priorities. A process that gains its legitimacy from the breadth of

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84. It is inevitable, especially in view of the controversy over environmental priority setting and comparative risk assessment, that some groups will refuse to participate in the project. Participation cannot be compelled, so inclusiveness means in effect an open door to all points of view. It would be unwise to require full participation, because that would give opt-out groups a de facto veto on the results. Obviously, in some communities, the inability to involve one or a number of groups, despite sincere entreaties, will render the results not politically viable, but that is the nature of any political activity. Environmental priorities projects should focus on developing a process that is attractive to as wide a spectrum of views as possible.

85. Justice Brennan is said to have admonished his law clerks that the most important rule of constitutional law is the "Rule of Five" in Supreme Court voting.

86. Regulatory negotiation has sometimes been carried on in secrecy. As I have described elsewhere, there are good reasons to distrust such a process. John S. Applegate, *Beyond the Usual Suspects: The Use of Citizens Advisory Boards in Administrative Decisionmaking*, 73 IND. L.J. (forthcoming 1998).

its inclusiveness cannot rely on secrecy to reach decisions.

Second, a deliberative discussion is an informed discussion. Thoughtful consideration of the issues offers little added value if it is based on poor or inaccurate information. Information for these purposes includes, for example, quantifiable facts about environmental effects and the costs of pollution. Uncertainty and variability are also facts that need to be fully presented and considered. Values and principles are also relevant information for the participants. Values can be discussed and evaluated, and their relationship to other values can be explored. For example, one cannot sensibly compare a serious widespread problem like air pollution with a less risky (in a quantitative sense) but highly localized problem, like hazardous waste sites, without discussing the distributional issues and the values that each problem implicates. Relevant information also includes the *consequences* of environmental action or inaction, because, without that knowledge, choices cannot be evaluated.<sup>87</sup> A deliberative democratic process must educate and inform its participants, in addition to providing a forum for their discussions.<sup>88</sup> This requires developing information and sharing information: meaningful dialogue requires a common information base, so that participants can operate on an equal footing.<sup>89</sup>

Third, deliberative discussion and debate is more than simply registering or expressing views in the presence of others. It is a dialogue, a willingness to listen to and consider the available information and other points of view, and to respond to other views candidly. Participants must be willing to change their minds on the basis of the what they learn and what they hear. Deliberative democracy seeks a genuine engagement among the participants. Adversarial decisionmaking, on the other hand, encourages position-taking before a third-party decider (judicial, legislative, or administrative). The logic of the adversarial model forces participants to take extreme positions, and to counter extreme positions with extreme positions, in order to sway the

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87. Finkel, *A Second Opinion*, *supra* note 52, at 330-31; WILLIAM LEISS & CHRISTINA CHOCIOLO, *RISK AND RESPONSIBILITY* 4-6 (1994).

88. REICH, *THE POWER OF PUBLIC IDEAS*, *supra* note 83, at 5-7, 124, 137-50.

89. The playing field must be level, but it need not be set at a high degree of detail. In other words, the information necessary to make an individualized risk assessment of the output of a particular factory is not necessary to a priorities project, as long as none of the participants is operating at that level of detail.

decisionmaker toward one side or the other. It also discourages participants from taking responsibility for decisions, as their task is to persuade someone else.

The acid test of a deliberative process is its ability to confront hard questions. A careful, imaginative investigation of the sources of environmental problems can sometimes reveal underlying solutions that are simple or that improve everyone's lot. For example, it makes no sense to poison the environment with pesticides to improve the yield on a crop that we have too much of. Likewise, careful planning can sometimes accommodate both an endangered species and its new neighbors. An open dialogue among affected persons is the best way to discover such solutions. However, hard questions will remain in the form of choices that implicate the limits on what we can have, either in the sense of restricted amounts of something or of conflicts with other desires.<sup>90</sup> Limits, as Christopher Lasch observed, are the "forbidden topic" in modern political discourse.<sup>91</sup> Environmental law is full of such choices, and priority setting highlights them by asking: "With limited resources, what should we do less of?" Skirting around hard choices by offering appealingly simple solutions is a frequent strategy in adversarial situations (for example, "the smelter's emissions are nothing to worry about" *versus* "the smelter owner can easily adopt pollution prevention measures"), and in environmental position-taking in general. Deliberation is a way to find solutions that all or most can live with, even if it does not resolve the problem simply or to everyone's advantage. Such solutions cannot be reached if the affected persons do not frankly acknowledge the difficulties of the problem and work with each other to find a solution.

Facing up to hard choices is also important because it involves taking personal responsibility for common problems and for the consequences of the solutions we choose.<sup>92</sup> In EPA's public delib-

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90. We may want, for example, to return hazardous waste sites to their pre-industrial condition, but we are limited in our ability to do this by technology (certain contaminants cannot be effectively removed from groundwater with today's technology), by expense (the Treasury could afford this for a few sites, but not all), and by other goals (such as a massive public works project that would undoubtedly result in many occupational deaths and fatalities).

91. LASCH, *supra* note 83, at 22-23.

92. LEISS & CHOCIOLO, *supra* note 87, at 4-6; YANKOLOVICH, *supra* note 83, at 24-31; BELLAH, *THE GOOD SOCIETY*, *supra* note 83, at 283-86.

erative process to decide how to handle the outdated smelter in Tacoma, Washington, the difficulty was "to get people to take responsibility, to educate themselves and one another about such a difficult issue."<sup>93</sup> Administrator Ruckelshaus believed that EPA should not decide the fate of the smelter of the citizens of Tacoma who are collectively employed, supported, and harmed by the smelter. Rather, he believed that the citizens must "decide what they want[] for their community . . . [and] determine their own future."<sup>94</sup> The vice of avoiding hard choices by taking unrealistic or uninformed positions is not only the instrumental problem of poor decisions. It goes to the heart of citizenship and the recognition of mutual rights and responsibilities.

Fourth, for deliberative democratic theorists, the democratic process is transformative. It moves citizens from fixation on their own interests to an understanding of the common good and ultimately, to a willingness to accept the common good for themselves. This is not simply surrendering to the will of others, because the common good must take account of each participant's individual interests. Moreover, the common good is not an a fixed position, but can only be known by the kind of deliberative process just described. In operational terms, this means that the participants in a deliberative process should attempt to reach consensus, that is, a resolution that everyone can live with. It is important, however, that perfection not become the enemy of the possible. A consensus may be infeasible, in which case the best that an advisory deliberative process can do is to achieve a thorough understanding of relevant information and the participants' differing views. Such an understanding is not only valuable in itself as part of a democratic dialogue, but it assists the regularly constituted authorities in reaching a final decision.

An environmental priorities project that seeks, as most of them do, consensus results among a broad spectrum of persons interested in the environment, is implicitly drawing on the foregoing elements of a deliberative democratic process. The more attention is paid to these elements in the structuring of the process, the more useful the project will be in stimulating public dialogue on environmental issues.

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93. REICH, *THE POWER OF PUBLIC IDEAS*, *supra* note 83, at 149.

94. *Id.* at 149 (quoting former EPA Administrator Ruckelshaus).

A separate aspect of deliberative democratic theory is a tendency to take local as opposed to national decisionmaking as its model.<sup>95</sup> Some of this can be attributed to nostalgia for the town meeting of yesteryear, and there is clearly a danger in basing theory on virtues that are to some extent mythological (town meetings tend, for example, not to be very inclusive).<sup>96</sup> But it also has to do with the relative ease with which local decisions can be reached cooperatively and deliberatively, and, conversely, the ease with which deliberative democratic processes can be applied to local decisionmaking.

This feature, too, is of direct relevance to the conduct and success of state and local environmental priorities projects. Local problems are, generally speaking, relatively focused. The issues are limited in scope, the sources of the problems are determinable, and the solutions correspondingly apparent. The affected public can be readily identified, and those who choose can participate without undue inconvenience. The participants know each other or know about each other, and they share much common background information about the community itself. Moreover, they have a clear common goal — in this context, a more environmentally pleasing community — even if they disagree about the means for achieving the goal and about the extent to which it should be pursued in derogation of other goals like industrial development.<sup>97</sup> Participants in local decisions also have a clear incentive to cooperate, deriving from the fact that they will have to live with the consequences of their decisions and with each other. This in itself imparts a sense of responsibility for the decision and for the decisionmaking process. The participants will suffer from bad decisions and their future relationships with their neighbors will be strengthened or poisoned by the process they used for reaching those decisions.<sup>98</sup>

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95. See, e.g., BELLAH, *HABITS OF THE HEART: INDIVIDUALISM AND COMMITMENT IN AMERICAN LIFE*, *supra* note 83, at 168-86; CRIMMINS, *supra* note 83; Carol M. Rose, *The Ancient Constitution vs. the Federalist Empire: Anti-Federalism from the Attack on "Monarchism" to Modern Localism*, 84 NW. U. L. REV. 74, 94-100 (1989).

96. MANSBRIDGE, *supra* note 83; BELLAH, *HABITS OF THE HEART: INDIVIDUALISM AND COMMITMENT IN AMERICAN LIFE*, *supra* note 83, at 205.

97. I do not want to overstate the commonalities within diverse communities, especially where the diversity includes an element of "haves" and "have-nots", or of inclusion and exclusion. Recognizing and acknowledging divisions is a necessary first step to any realistic effort to find common ground.

98. SANDEL, *supra* note 83, at 314-15, 333-38.

In sum, deliberative democratic theory implies a public decisionmaking process that is open and inclusive, transparent to participants and observers alike, educative and informed, deliberative in the sense of promoting a genuine dialogue among the participants, and aimed at reaching consensus or, at a minimum, a thorough understanding of issues and positions. The best prospects for implementing a deliberative process are at the local decisionmaking level, where participants are more likely to share information, goals, and a common future.

### *B. Deliberative Democracy and Risk Assessment*

Many of the elements of deliberative democratic process have already found their way into the newest thinking on risk assessment and management. The recent reports of the National Academy of Sciences and of the Presidential/Congressional Commission on Risk Assessment and Management emphasize the importance of communicating the results and the limitations of risk analysis to the public (*i.e.*, transparency), and of involving the public throughout the process.<sup>99</sup> The public also needs to help in defining the problems, developing options for responding to them, and choosing the response actions to be taken. As previously described, the California,<sup>100</sup> Ohio,<sup>101</sup> and other state and local environmental priorities projects have made public involvement a central element, as does EPA's comparative risk guidance.<sup>102</sup>

All the same, deliberative democratic theory has little intrinsically in common with the technocratic impulses of comparative risk assessment, especially the hard version.<sup>103</sup> It therefore

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99. The most recent authoritative pronouncements on risk assessment, however, insist on the value of public involvement in the risk assessment and management processes. 1 PRESIDENTIAL/CONGRESSIONAL COMMISSION ON RISK ASSESSMENT AND MANAGEMENT, RISK ASSESSMENT AND RISK MANAGEMENT IN REGULATORY DECISION-MAKING 39 (1997). See also UNDERSTANDING RISK, *supra* note 23; U.S. DEPT. OF ENERGY, RISK ASSESSMENT, MANAGEMENT, AND COMMUNICATION AND PRIORITY SETTING (January 6, 1995), reprinted in John S. Applegate, *A Beginning and Not an End in Itself: The Role of Risk Assessment in Environmental Decision-Making*, 63 U. CIN. L. REV. 1643, 1675-77 (1995); BUILDING CONSENSUS, *supra* note 77.

100. See *supra* note 41 and accompanying text.

101. See *supra* note 42 and accompanying text.

102. GUIDEBOOK, *supra* note 7, at 2-6.

103. For example, EPA's guidance views a "negotiated consensus" as the expected way to reach ranking conclusions, but it does not reject voting or even pre-set formu-

may seem odd that they should come together in environmental priorities projects and improbable that such a mixture could be successful. One response is that comparative risk assessment and deliberative democracy have a dialectical relationship: they react together and create the projects as a synthesis, and there is no *a priori* reason that such a synthesis will not be productive.<sup>104</sup> Another response is that there is no real conflict between them: good risk assessment requires good public involvement.<sup>105</sup> Both of these responses are accurate. Deliberative democracy modifies technocratic comparative risk assessment by injecting values and other public-regarding considerations. Conversely, comparative risk assessment is an analytical tool that highlights unavoidable choices in environmental policy, and good deliberation requires the consideration of such information. It is also the case that the public has much to offer the analytical techniques of risk assessment and risk management, so a method that ignores public input is analytically unsound as well as politically unwise.

Another reason for the confluence of comparative risk assessment and deliberative democracy is that the practical consequence of deliberative democratic theory — a dialogic, nonadversarial approach to public decisionmaking — parallels a current interest in collaborative decisionmaking that arises from entirely different sources. Many observers of current environmental regulation have come to the conclusion that the adversarial approach is unduly cumbersome and produces inefficient results. One reaction is to develop market-based strategies that give regulated entities more flexibility in complying with environmental restrictions.<sup>106</sup> Another reaction is collaborative

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las. See GUIDEBOOK, *supra* note 7, at 17-18.

104. The connection between environmental priorities projects and deliberative democratic processes is stressed in Minard, *CRA and the States: History, Politics, and Results*, *supra* note 3; Lash, *supra* note 43, at 69-86; Alice M. Rivlin, *Rationalization and Redemocratization: Time for a Truce*, in *WORST THINGS FIRST*, *supra* note 26, at 21-29; Jim Wilkins, *Public Outreach, Feedback & Integration: A Comparative Risk Dialogue* (National Comparative Risk Conference, New Orleans, 1994) <<http://www.epa.gov/oppeinet/oppe/futures/risk/topics/public/involved.txt.html>>.

105. 2 PRESIDENTIAL/ CONGRESSIONAL COMM'N ON RISK ASSESSMENT IN MANAGEMENT, RISK ASSESSMENT AND RISK MANAGEMENT IN REGULATORY DECISION-MAKING 39, 7-37 (1997); see also UNDERSTANDING RISK, *supra* note 23, at 27-35; DOE Risk Principles, *supra* note 78; BUILDING CONSENSUS, *supra* note 77.

106. Pildes and Sunstein, for example, champion such reforms at the national

environmental decisionmaking.<sup>107</sup> By working together, the agency and industry can arrive at protective but more realistic and flexible regulatory requirements, and can do it more quickly.

Collaborative decisionmaking has been discussed most extensively in connection with proposals for regulatory negotiation.<sup>108</sup> Regulatory negotiation proponents identify many of the same defects of adversarial decisionmaking that deliberative democratic theorists do, but the collaborative decisionmaking advocates see the problem in instrumental terms. That is, the problem with adversarial regulation is not a democratic deficit, but regulations that are unduly rigid or unnecessarily costly or ineffective because each side was unwilling to listen to the information provided and points of view of the others. Win-win solutions are lost to the struggle for victory by one side or the other. While the goal of dialogue is the same, one of the real weaknesses of regulatory negotiation is its failure to involve a broad cross-section of affected persons.<sup>109</sup> Such negotiations remain largely the preserve of the environmental *cognoscenti* — persons with technical expertise who regularly deal with each other on these issues. This excludes ordinary citizens who are affected by the decisions or who are simply interested in them. Therefore, while this version of collaborative decisionmaking fails as a device for democratic decisionmaking, it reinforces, on technocratic grounds, the case for deliberative processes.

Environmental priorities projects combine technocratic and democratic elements of environmental decisionmaking. Priority setting itself is an essential management tool, and it also reveals underlying values and goals by forcing the recognition of choices among them. Comparative risk assessment is a part of priority setting, but its technocratic, hard version must be moderated by the introduction of narrative, non-quantitative considerations. The deliberative process that most environmental priorities pro-

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level, in part on civic republican grounds. See generally Richard H. Pildes & Cass R. Sunstein, *Reinventing the Regulatory State*, 62 U. CHI. L. REV. 1 (1995).

107. See generally Jody Freeman, *Collaborative Government in the Administrative State*, 45 UCLA L. REV. 1 (1997).

108. These are reviewed in Applegate, *supra* note 86 (identifying the negotiation model as a precursor of the deliberative democracy model of cooperative administrative decisionmaking). Other collaborative efforts, such as EPA's Project XL, are discussed in Freeman, *supra* note 107.

109. See Applegate, *supra* note 86.

jects use has both utilitarian and democratic advantages over adversarial decisionmaking.

#### IV. ENVIRONMENTAL PRIORITIES PROJECTS AS A DELIBERATIVE FORUM

The establishment of environmental priorities projects is usually justified by the need to make resource allocation decisions and by the preference for seeking broad public participation in those decisions. As we have seen, however, comparative risk analysis, the method of choice for making priority decisions, has serious limitations that can undermine the credibility of the projects based on it. Because comparative risk analysis and deliberative democratic theory are separate developments, the weaknesses of comparative risk analysis as a formula for priority setting do not necessarily translate into weaknesses in priorities projects as a deliberative forum for considering environmental issues. In other words, environmental priorities projects have value as a democratic process, whether or not one is willing to credit fully the substantive results of its exercise in comparative risk assessment.

The remainder of this essay considers the democratic values of environmental priorities projects, of which there are at least four: they focus attention on environmental issues across a wide spectrum of the population; they provide an occasion for assessing and inventorying a state or community's environmental problems; they provide a forum for dialogue and deliberation among interested parties who communicate with each other too rarely; and they can form the basis for building long-term cooperative relationships among persons interested in resolving our shared environmental problems. While the substantive result of a project's deliberations (*i.e.*, its actual list) is not, in this view, of critical importance, the fact that it is a *priorities* project greatly enhances its value as a deliberative forum.

##### *A. Inclusion*

Most of the time, the environment *per se* does not spark broad public activism. As with many public issues, it takes a crisis. Without a crisis, the range of participants shrinks to the "usual suspects," persons sufficiently invested in environmental issues, by ideology and/or employment, to maintain a long-term pres-

ence. The problem with environmental management as crisis management (wholly apart from the usual criticism that it results in skewed priorities, which is one reason for establishing environmental priorities projects in the first place) is that it places decisions in a heated, urgent, and often polarized context that is hardly conducive to deliberation or thorough consideration of other perspectives. Environmental priorities projects are not crises, obviously, but they do constitute a specific event with a specific product. If they are established under the auspices of governmental entities who are seeking priorities advice, they offer in addition a concrete opportunity to influence official decisionmaking. As such, they provide an attractive opportunity to consider environmental problems under less fraught conditions than a crisis.

If the bad thing about a crisis is the "crisis atmosphere," the good thing about a crisis is that people who would not otherwise do so get involved in public decisionmaking.<sup>110</sup> Otherwise passive citizens get involved because they feel threatened in some way, and so they see a need and an opportunity to affect environmental decisions. Again, an environmental priorities project is not a crisis and will not arouse the truly apathetic. But it is a more unique event than routine rules, permits or even legislation, and by its nature it requires a more limited time commitment. Environmental priorities projects can also make environmental decisionmaking more transparent by gathering facts, discussing values and consequences, and reaching decisions in an open, well-explained process. An environmental priorities project can, in these ways, attract the interest of people or groups who do not ordinarily participate in environmental decisionmaking, those who are disenchanting with the adversarial or "backroom" nature of public debate and decisions, and those who are interested in environmental issues generally but have no clear outlets for their interest. In this way, environmental priorities projects serve the democratic function of inclusion, by expanding the discussion of public issues as broadly as possible.

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110. See Donald T. Hornstein, *Paradigms, Process, and Politics: Risk and Regulatory Design*, in *WORST THINGS FIRST*, *supra* note 26, at 155-57 (also arguing that the passion and "irrationality" of the reaction to crises are necessary to the continuing political viability of the environmental movement).

### B. Assessment

Deliberative decisions need to be informed decisions, and so one of the basic obligations of an environmental priorities project is to develop the information on which priority setting is based. A first step in virtually all environmental priorities projects is to inventory and evaluate the environmental problems in the area under study. The assessment phase often commands a great deal of an environmental priorities project's time and resources, because the inventory represents the universe of environmental problems that the project will consider, and the descriptive material provides the raw data for setting priorities.<sup>111</sup>

The assessment should give participants a clear sense of the breadth of the problems that the state or locality faces, and it should candidly report on the sources, nature, extent, and possible remedies. This enables participants to evaluate priorities in the context of other problems, which is essential to understanding the characteristics and seriousness of any single problem.<sup>112</sup> The Carnegie Commission observed that priority setting can be used to "learn the public's 'informed judgment,' rather than to make the relative risk analysis process more responsive to current crises."<sup>113</sup> If public expectations are unrealistic, perhaps it is because people are unaware of the consequences of their positions. Experience with deliberative processes shows that the public is capable of and prepared to take responsible action when it knows what the real choices are.<sup>114</sup>

An assessment or inventory may be particularly informative because such documents had not previously existed. It is the rare state or municipality that has integrated its consideration of environmental problems. More often, the problems are divided among agencies (*e.g.*, pollution abatement *versus* wildlife and conservation) or among bureaus within agencies (*e.g.*, air *versus* water *versus* solid waste). Moreover, if the inventory is the prod-

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111. See, *e.g.*, MINARD ET AL., FORCE FOR CHANGE, *supra* note 3, at 13-14, 68-72; GUIDEBOOK, *supra* note 7, at ch.3.

112. Omenn, *supra* note 26, at 31; Finkel, A *Second Opinion*, *supra* note 52, at 330.

113. RISK AND THE ENVIRONMENT, *supra* note 77, at 89.

114. Applegate, *supra* note 54, at 1653-54 (recounting the experience of a citizens advisory board for a former nuclear weapons facility); JOHN DOBLE & JEAN JOHNSON, 1 SCIENCE AND THE PUBLIC: A REPORT IN THREE VOLUMES 5-18 (Kettering 1990).

uct of an inclusive process, as it should be, it will reflect the concerns and observations of groups who do not ordinarily participate in environmental decisionmaking. Disenfranchised groups often feel that their problems are ignored — which is a central motivation for the environmental justice movement — and so the inventorying process offers both an opportunity and an incentive to become involved. As a collateral effect, the inventory may also stimulate interest in the project by highlighting conditions that are not generally known, or by revealing the sheer number and range of environmental problems that face a state or community.

Finally, given its audience, the assessment should be presented in a form suitable for non-experts. It should explain technical concepts, like risk, that are often impenetrable to lay people. In this sense, too, information reinforces inclusion by reducing the barriers to entry into a technocratic regime.<sup>115</sup> The level of detail should correspond to the importance of the issue, the uncertainty and variability of the data should be clearly described, and alternative expressions of risk (for example, individual risk *versus* population fatalities) should be presented.<sup>116</sup> In this way, environmental priorities projects, because they require information gathering as a first step, make informed decisionmaking possible. They can help to level the playing field between lay and expert participants by providing a common base of knowledge, which in turn becomes the foundation for genuine dialogue.

### C. *Dialogue and Deliberation*

As the title of this essay suggests, environmental priorities projects literally create a forum. They provide a place where a wide range of interested persons can come together to work through environmental issues. In this forum, the casually interested person can work with the regular advocate, government officials can work with private citizens, experts can work with non-experts<sup>117</sup> (or experts in other fields), and elected officials can work with their constituents. Further, this can all take place outside the usual channels dominated by invested actors, ad-

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115. Wagner, *supra* note 21, at 1674-77.

116. Finkel, *supra* note 18, at 350-53.

117. See RISK AND THE ENVIRONMENT, *supra* note 77, at 89-90.

versarial proceedings, and crises. Existing institutions tend to be limited to technical or political insiders, so environmental priorities projects expand access to a wider group. It works in reverse, as well. Technical experts, regulators, and even elected officials often feel isolated from the general public by the nature of their jobs or by the need to render decisions.<sup>118</sup> Environmental priorities projects can be an opportunity for them to work with the public toward a common purpose rather than in an adversarial setting.

Priorities projects encourage deliberation in several ways. Priority setting forces the recognition of choices, but avoids the adversarial nature of a particular dispute. A deliberative or dialogue process is easy to advocate in a contested situation, and it can be successful, but it is far easier when the consequences for any individual are less immediate. People can more easily step back and look at problems in new ways without fearing that they are weakening their positions in a particular dispute. The underlying question posed by comparative risk assessment — “What should we do to make our lives safer, given limited governmental resources to accomplish this?” — is a critical one for society, and environmental priorities projects can provide a framework and forum for answering it.<sup>119</sup>

Most important, priority setting gives shape and structure to discussions. A brainstorming session on environmental problems may be a pleasant enough way to pass a few hours, but without a product it is unlikely either to garner much interest or to reach any useful conclusions. The requirement to produce a set of priorities imposes a structure on discussions — assessing information, ranking results, etc. — and it uniquely forces actual engagement with the issues. Without forcing choices, none will be made and all sides will resort either to disagreement or to agreement on platitudes. Priority setting “rubs our noses in the choices we must make to solve one problem or another,”<sup>120</sup> and thus forces us to confront our value choices. As this essay has suggested, a soft or modest version of comparative risk assessment does this better than the doctrinaire quantitative version, but the

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118. See Michael P. Healy, *The Effectiveness and Fairness of Superfund's Judicial Review Preclusion Provision*, 15 VA. ENVTL. L.J. 271, 343-44 (1995-96).

119. Finkel, *supra* note 18, at 347-50.

120. Anderson, *supra* note 25, at 78.

utility of priorities as a way to get to the hard questions is clear.

The existence of a common pool of information demands that participants make arguments based on that information instead of simply positioning themselves on an issue. Participants can explain *why* they take the position they do, and those reasons are subject to challenge. As Mark Sagoff has said, citizens are not simply collections of wants; they should act on principles, and principles (unlike mere preferences) are capable of being challenged and supported.<sup>121</sup> The challenge and response is the essence of dialogue. One study of environmental priorities projects reported, “[v]irtually everyone we interviewed said that the effort of ranking risks (or risk management priorities) forced the participants to deal with the data and their values in a powerful and productive way.”<sup>122</sup>

#### D. Consensus

The willingness to confront hard questions makes reaching consensus harder, of course. But, just as a priorities project challenges participants to work with the available information, seeking consensus challenges participants to look for common ground and areas of agreement. The search for agreement is a good way to test the limits of positions and the role of values. Even if consensus is not reached, areas of agreement and disagreement can be identified and reasons given. A project in which the participants simply “talk[] their way through the ranking[,] debating the reasons for calling a given problem a higher or lower risk”<sup>123</sup> improves the deliberative process and helps governmental decisionmakers to make more informed decisions. As with all of the elements of deliberative democracy, the process for reaching results can be of greater long-term importance than the particular outcome.<sup>124</sup>

[W]hat is needed most is simply gathering people together to

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121. SAGOFF, *THE ECONOMY OF THE EARTH: PHILOSOPHY, LAW, AND THE ENVIRONMENT*, *supra* note 74, at 51.

122. MINARD ET AL., *A FORCE FOR CHANGE*, *supra* note 3, at 4.

123. Minard, *CRA and the States: History, Politics, and Results*, *supra* note 3, at 53.

124. The director of the California Comparative Risk observed, “The primary lesson I learned as Project Director is that the end result is not as important as the means.” *TOWARD THE 21ST CENTURY*, *supra* note 41, at 91.

make the choices and talk about their conclusions, exposing their assumptions and their wishes to public scrutiny. Even if such a process produced conflicting results, EPA, the public, and Congress would learn from the experience.<sup>125</sup>

In sum, the real value of an environmental priorities project is in "working through" the issues,<sup>126</sup> even if the result is limited by lack of consensus or by the nature of comparative risk assessment.

The process of information gathering, followed by dialogue and guided by the effort to find common ground, will have its greatest value if it creates the groundwork for collaborative environmental decisionmaking in the long term. Acquaintances and relationships outside one's own group, formed in the course of a collaborative decisionmaking exercise, make it possible when a particular issue arises in the future to know where to turn and what one will find there. The Maine Environmental Priorities Project began as an effort to find

a better way to make environmental decisions. Six years and one comparative risk project later, many of these same leaders are seeking to institutionalize information-based-consensus-driven processes for environmental management in Maine. Along the way, they have built relationships that have spawned a variety of other actions and opportunities for, as one project participant states it, "building a vital center" among business, environmental, and government communities.<sup>127</sup>

Government officials and industry should know that their environmentalist critics are thoughtful and concerned with the good of the community as a whole, and environmentalists should know that government officials are genuinely trying to do their best under often difficult circumstances. When we only engage with people who already have our own perspective, we tend to demonize others, and that is only rarely fair. Building trust and a habit of cooperative environmental decisionmaking takes a long time and repeated interactions, but an environmental priorities project can be the first step down that road.

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125. A NEW DIRECTION FOR EPA, *supra* note 32, at 144.

126. YANKELOVICH, *supra* note 83, at 91.

127. *Green Mountain Institute for Environmental Democracy, Lessons from the Tortoise and the Hare: MEPP Crosses Another Finish Line*, 2(3) SYNERGY 1 (Green Mountain Inst. for Env'tl. Democracy, May/June 1997).

## V. CONCLUSION

Environmental priorities projects have their origins in two very different impulses: a technocratic desire to establish priorities among environmental problems by quantitatively assessing the relative risks that they pose, and a democratic desire to achieve more inclusive, more informed, and more deliberative environmental decisionmaking. These impulses have no organic connection, but combined they can improve each other. The technocratic element is enhanced by introducing a wider range of considerations than comparative risk assessment demands, and the democratic element is enhanced by using priorities to inform and structure the dialogue. Public involvement is not, as the traditional justification for environmental priorities projects suggests, just an element (albeit an important one) in what is essentially a comparative risk exercise.<sup>128</sup>

Rather, priorities projects *are* public involvement, and, given the difficulties of comparing risks, public involvement is indeed their one entirely reliable outcome. Environmental priorities projects can productively address the real problem of allocating scarce environmental protection resources, they can promote informed, deliberative discussion of environmental issues, and they can build a foundation of cooperative long-term relationships. Regardless, therefore, of the limitations of the comparative risk assessment formula in producing a definitive list of priorities, environmental priorities projects provide an invaluable democratic forum for deliberating public policy.

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128. See, e.g., MINARD ET AL., FORCE FOR CHANGE, *supra* note 3, at 10 (suggesting that public involvement is important, but also "extremely difficult, time consuming, expensive, and problematic"); Wilkins, *supra* note 104, at 2-7 (recognizing need for dialogue, but treating it as one element of a comparative risk project).