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Beyond Science: Deliberation and Analysis in Public Decision Making

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I agree very much with most of Carolyn Raffensperger's argument. *Understanding Risk* does stand out for its willingness to admit that we need to rethink our assumptions about the privileged role that scientists and "experts" play in public decision making on topics of risk and environment. Involving publics in meaningful ways with scientists *can* make better science, but only if the scientists allow this to happen. I agree with Carolyn when she writes that this might require scientists engaging in inductive reasoning — something many of them have been trained *not* to do! Surely the scientific method is powerful. Deductive reasoning *is* powerful. We do not need to abandon it in order to recognize that building a definition of the problem "from the ground up" might be a competent and politically expedient way to proceed. Still, I disagree that this is the main message to take from the report. The debate about why to involve lay people in public decision making may have matured, in a sense, via the status a National Research Council committee has, but *Understanding Risk* does not provide anything new to that debate.

What is noteworthy about the report is that it offers us an opportunity to replace the traditional facts/values dichotomy with a conceptual framework that is more closely related to what people actually do in decision making. At the heart of this are the twin ideas of analysis and deliberation. Two entrenched beliefs seems to prevent readers from gleaning this important message from the book.

The first miscomprehension is that people tend to readily believe that analysis = *science* and deliberation = *participation*. The second miscomprehension is that people tend to assume that we analyze *only* facts but deliberate *only* about values. We must set aside our tendencies to see science as a dispassionate activity in which scientists analyze facts; politics as an overly passionate activity in which lay people deliberate about values; and science and politics locked in an eternal conflict. Then we will find something truly valuable in this report. Getting beyond "facts vs. values" and "scientists vs. lay people" is essential if we are to move our collective understanding of participatory decision making forward (and thereby, its realization as well).

Both analysis and deliberation refer to ways of knowing the world — rationales, if you like.¹ In analysis people use

systematic ways of gathering and interpreting data. The overarching principle in analysis is that results can be validated. Customarily, we think of analysis as a scientific activity — usually natural sciences. One of the goals of the committee, I believe, was to validate forms of scientific analysis beyond the natural sciences and engineering.² For instance: ethical analysis, equity analysis, multiattribute utility analysis (a longer list is provided on pp.102-103, also see p. 158). Hopefully, this report will help change the prevailing common perception of analysis to a form of reasoning that is much more expansive and inclusive of all types of science. This is important, but, in my mind, it is not enough. Remember, we should not reduce analysis to science. For it is *not* only scientists who do analysis. Lay people also practice analysis! To be brief, I will merely point to two commonly known examples: popular epidemiology and lay monitoring (often of rivers or estuaries). Thus analysis is not *only* science as done by scientists, it is a systematic, rigorous, validatable way of learning about the world that can be done by lay people as well as by scientists. Moreover, analysis is not a value-free activity. Values clearly inform how analyses are done, who does them, and when they are done.³

Deliberation is a different way that we make sense of the world. Here people "confer, ponder, exchange views, consider evidence, reflect on matters of mutual interest, negotiate, and attempt to persuade each other" (National Research Council 1996, 73). Deliberation is not only about values. Anyone who has ever been in a courtroom knows that. Facts are also contestable. In addition, their meaning needs to be interpreted. I emphasize again: deliberation is *not only* about values, analysis is *not only* about facts. Likewise, deliberation is *not* performed only by decision makers and interested and affected parties. Scientists are *not* delegated to remain in the domain of analysis. They deliberate with other scientists. They deliberate with publics, with decision makers, with stakeholders.⁴

Figure 1 is an attempt to summarize the variety of ways that scientists and lay people are involved in analysis and deliberation. In box 1, lay people engage in analytical activities. For example, at the Nevada nuclear weapons test site the Western Shoshone are doing an oral history project and an exposure assessment, because a previous government dose

reconstruction study did not take into account their unique lifestyles. In box 2 scientists engage in analytical activities. For example, scientists from the Silent Spring Institute perform telephone interviews with women who lived on Cape Cod in order to estimate their exposure to possible carcinogens. In box 3 scientists engage in deliberation. For example, EPA's Science Advisory Board discusses the literature on dioxin and considers reassessing its dangerousness. In box 4, lay people engage in deliberation. For example, lay people in a village targeted for a prison deliberate about their concerns and mutual interests.

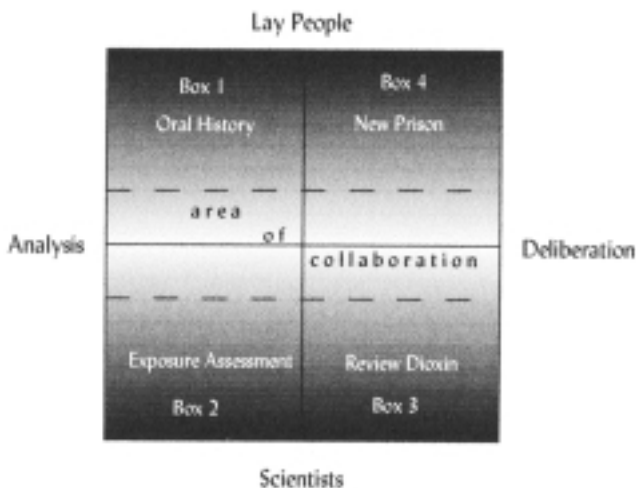


Figure 1 attempts to capture another important idea: that collaboration can occur among scientists and lay people in both analysis and deliberation. An example of collaboration in analysis is the Western Shoshone in Nevada. They, assisted by scientists at the Childhood Cancer Research Institute, are working with government scientists to help design future health studies. Collaboration in deliberation also occurs, such as when EPA convenes negotiated rulemaking committees. These typically involve scientists and stakeholders, who meet over the course of several months to review the literature and propose draft recommendations. (An example of negotiated rulemaking on disinfectant byproducts in drinking water is presented in the NRC report as an appendix.)

This Figure does not appear in the report, but I think it captures an idea that could readily lead to progress in this area. For too long we have conceptualized decision making in terms of science, politics, facts, and values. This has facilitated the gross misconceptions that science is value neutral and politics is empty rhetoric. When we think about scientists and lay people actively building shared understandings

via the activities of analysis and deliberation, we take a step forward.

Finally, the Figure suggests some diagnostic questions which, if truly contemplated by those organizing and participating in collaborative decision making, will produce processes that are both competent and just:

1. How could this process capitalize on the local knowledge of the lay people by engaging them in analytical activities?

2. How can the analytical work of scientists be informed and contextualized by the needs and preferences of the interested and affected parties?

3. How can we create venues for deliberation in which scientists and lay people can discuss how best to incorporate wisdom gained through analysis into the decision making process?

4. How can we create venues for deliberation among interested and affected parties in which shared and individual concerns emerge and become clarified, and which enables a discussion that moves toward closure in a respectful and productive manner?

Carolyn Raffensperger's paper for this Forum concentrates attention on bringing lay people into the science — roughly equivalent to question #1 above. In my opinion, the *Understanding Risk* report has given us the opportunity to address that and other important issues. In so doing, it offers the best chance we have had in a long time to move ahead toward a time when we make public decisions in a way that is both competent and just.

Endnotes

1. "Both are processes for increasing understandings about existing phenomena and estimating future conditions" (National Research Council 1996, 118).
2. "We emphasize that analysis can be used for social questions about risk, including potential economic, social, political, and cultural harms... [...] Analysis therefore may involve more than the tools of the natural sciences and more than quantification. (ibid., 98)
3. *Understanding Risk* is very very clear about this. See chapter 2.
4. The report is much more clear about recognizing that scientists participate in deliberation (ibid., 74) and less clear that non-scientists participate in analysis.

Reference

- National Research Council. 1996. *Understanding Risk: Informing Decisions In A Democratic Society*. Washington DC: National Academy Press.