

Explaining Environmental Risk

Peter M. Sandman

Peter M. Sandman, "Explaining Environmental Risk," (Washington DC: United States Environmental Protection Agency, Office of Toxic Substances, 1986).

Sandman discusses how to effectively communicate risks to the public and the media. He identifies a number of factors affecting risk communication, and discusses ways to better help the public deal with risk and uncertainty.

Understanding the Risks: The Media

The media tends to simplify risk stories into dichotomies: safe or dangerous. The media also try to personalize risks. These tendencies are often frustrating for experts who are accustomed to making nuanced evaluations and using broad statistics. Sandman argues that there are valid reasons for these tendencies, and that effective risk communication must accommodate them.

When confronted with an environmental risk the public is generally faced with a yes-or- no decision. Will the plant be built? Should the building be evacuated? Journalists seek to offer information to the public in a form which is consistent with the decision at hand. Also, modern media formats do not allow for complex, extended presentations. And in general people prefer reports which are simple, certain and precise, to reports which are complex, approximate and uncertain. The media tendency to personalize news stories reflects the perspective of the individual citizen. Confronted with broad policy issues, experts tend to focus on the macro-level. Will the overall death rate increase? Confronted with personal choices, individuals tend to focus on the micro-level. Should I drink the water?

Understanding the Risks: The Public

Experts take a narrower view of risk than does the general population. In evaluating risks, experts tend to focus on purely "objective" factors such as mortality statistics. Our common sense notion of risk includes many other facets. Situations are more risky when they are unfamiliar, beyond the individual's control, unfair, acute, and immediate. Sandman notes, for example, that "a household product, however carcinogenic, seems a lot less risky than a high- tech hazardous waste treatment facility because the former is familiar and under one's own control, while the later is exotic and controlled by others." [p. 14] Sandman stresses that this is not an unreasonable distortion of risk; it is simply what is, in fact, meant by risk. If anything, experts use an oversimplified sense of the term.

Individuals' understandings of a particular risk are also affected by the manner in which the information is presented and by the broader social context. A 30% success rate sounds much better than a 70% failure rate. A risk may seem more or less tolerable depending on our neighbors' attitudes and how much they are risking.

Questions of reasonable risk are often overridden by moral issues. When pollution is seen as immoral, then balancing the costs of cleanup against the risks of harm is irrelevant. Moral principles are not subject to cost benefit analyses. Sandman points out, " the police do not always catch a child molester, but they know not to argue that an occasional molested child is an acceptable risk." [p. 16] Similarly, what may be at issue is not the size of the risk, but the fairness of the distribution of risks.

As does the media, the public also tends to simplify risk stories into dichotomies: serious or trivial. Sandman admits that probabilistic risk statements are genuinely hard to understand. However they can be understood with effort. Individuals will resist expending this effort when they themselves cannot control their exposure to the risk. Sandman says, "on my own behalf, I may choose to tolerate a risk or to protect against it, but for you to decide that my risk is tolerable is itself

intolerable."[p. 18] The element of control and empowerment is key to effective risk communication.

Dealing with Uncertainty

Sandman argues that equity and control are key issues which must be addressed in order to effectively communicate risks to the public. Agreements on substantive issues (degree of risk) can be blocked by disagreements regarding procedural issues (who decides). Sandman explains, "So long as people feel disempowered on the process issue, they are understandably unbending on the substantive issue, much the same way as a child forced to go to bed protests the injustice of bedtime coercion without considering whether he or she is sleepy."[p. 18] When coerced, people become stubborn. They are not motivated to expend the effort needed to understand complex risks, since their understanding would have no real use. Conversely, having some decision-making power motivates people to expend the effort to understand risks.

Sandman suggests ways to empower the public. Agencies should consult the public early on in the risk assessment process, and periodically throughout the process. "A list of options and alternatives and a fair and open procedure for comparing them and adding new ones is far more conducive to real power sharing than a draft' decision."[p. 21]

Explanations must avoid jargon. The author suggests three guidelines for simplifying technical information. First, the presenter should determine what her information goals are and what the public's information needs are. When presenting information, stay focused on responding to those needs and goals. Second, anticipate what might be confusing to the audience and provide enough background information to prevent confusion or misunderstanding. Third, Sandman suggests adding "enough qualifiers and structural guidelines to prepare people for what you are not telling them, so additional information later will not leave them feeling unprepared or misled."[p. 22]

Risks can be conveyed by comparing them to other more familiar risks. Statistical information is more helpful when presented in graphic forms, and with explicit acknowledgment of the non-statistical factors that affect risk assessment. Explicit acknowledgment of the emotions involved in discussions of risk also helps make communication more effective. Experts and bureaucrats are generally trained to ignore feelings. However, ignoring others' feelings usually prompts them to escalate displays of emotion in an attempt to have those feelings recognized. Acknowledging feelings helps to separate emotions from issues. The author finds that, "over the long haul, risk communication has more to do with fear, anger, powerlessness, optimism and overconfidence than with finding ways to simplify complex information."[p. 23]