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1986
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United States
Environmental Protection
Agency

Office of
Toxic Substances
Washington DC 20460

TSCA Assistance Office

Explaining Environmental Risk

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Explaining Environmental Risk

Some Notes on
Environmental Risk
Communication

by
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November 1986

**U.S. Environmental Protection Agency
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“Important If True”

In colonial times newspaper “correspondents” were nothing more than acquaintances of the publisher, writing home from their travels. Unable to confirm or disconfirm their reports, cautious publishers often printed them under the headline “Important If True.”

“Explaining Environmental Risk” should be read in the spirit of this caution. While I have leaned heavily on the risk communication research literature where I could, many questions haven’t been thoroughly studied, and here I have relied on my experience, my sense of other people’s experience, and, frankly, my biases. If your experience and biases suggest different answers, try them. If you want to stick more closely to research findings, check the sources listed at the end.

Why are so many risk assessment and risk management people beginning to take an interest in risk communication? There are two answers, I think, one entirely admirable and the other more open to question. The good news is that experts and managers are coming to recognize that how people perceive a risk determines how they respond to it, which in turn sets the context for public policy. It is hard to have decent policies when the public ignores serious risks and recoils in terror from less serious ones. The task of risk communication, then, isn’t just conveying information, though that alone is a challenge; it is to alert people when they ought to be alerted and reassure them when they ought to be reassured. If your job is directing the cleanup at chemical spills, or running a right-to-know program, or siting new waste facilities—in fact, if your job has anything to do with setting or administering or following environmental regulations—explaining environmental risk is an important piece of your job. And it’s probably a piece for which you have had little training.

The more questionable reason for the growing interest in risk communication is the hope in some quarters that communicating about the environment can somehow replace managing it or regulating it aggressively. This is a common dilemma for communication specialists—advocates of bad policies sometimes imagine that they can get away with anything if they sell it cleverly enough, while advocates of good policies sometimes imagine that they don’t have to sell at all. At a January 1986 national conference on risk communication (co-sponsored by the Conservation Foundation, the National Science Foundation, the

Environmental Protection Agency, and other organizations), the sessions on how to alert people to serious risks were sparsely attended. While overflow crowds pondered ways of calming people down. People sometimes need to be calmed down—but the ultimate goal of risk communication should be rational alertness, not passive trust.

If a public that views risk with rational alertness strikes you as a desirable outcome, “Explaining Environmental Risk” should help. This is neither a theoretical treatise nor a nitty-gritty cookbook; along with the practical suggestions for effective communication, I have tried to explain why some strategies work and others fail, so that you can build on this understanding to design your own strategies.

Though I hate to admit it, risk communication is a simpler field than risk assessment or risk management. It just isn’t that hard to understand how journalists and nontechnical publics think about risk. But it is crucial to understand, and not mastering the rudiments of risk communication has led a lot of smart people to make a lot of foolish mistakes. With apologies to busy readers, I have therefore resisted the urge to produce an executive summary or a list of recommendations. Technicians can get by on cookbooks, perhaps, but decision-makers need to understand.

Much depends, in fact, on whether you think risk communication is a job that can safely be left to “technicians” (public relations staff, community affairs officers) or whether—as I am convinced—you believe it must become an integral part of risk management. Although I hope public information people will find some value in what I have to say, my main goal is for environmental protection commissioners and plant managers to read it ... not merely pass it along to the public information office.

The temptation to pass it along to the public information office—and then forget it—is almost overwhelming, I know. It’s not just that decision-makers are busy people. It’s not even that decision-makers don’t realize how greatly their success depends on dealing effectively with the media and the public. It’s more that they wish it weren’t so, that dealing with the media and the public seems in so many ways the least pleasant, least controllable, least *fair* part of their work. Most risk managers, I suspect, spend a good deal of time hoping the media and the public will go away and leave them to do their jobs in peace.

But since they won’t, the next best thing is to understand better why they won’t, how they are likely to react to what you have to say, and what you might want to say differently next time. I hope “Explaining Environmental Risk” will help.

Four on-going research projects have added greatly to my understanding of risk communication. They are: (1) "Environmental Risk Reporting" and "Risk Communication for Environmental News Sources" (with David B. Sachsman, Michael Greenberg, Audrey R. Gotsch, Mayme Jurkat, and Michael Gochfeld), both funded by the National Science Foundation Industry/University Cooperative Center for Research on Hazardous and Toxic Substances; (2) "Getting to Maybe: Building Toward Community-Developer Negotiations on New Hazardous Waste Facilities" (with Jim Lanard and Emilie Schmeidler), funded by the Fund for New Jersey; (3) "Manual and Conference for DEP Risk Communication" (with Caron Chess and B.J. Hance), funded by the New Jersey Spill Fund, New Jersey Department of Environmental Protection; and (4) "Radon Risk Communication Symposium and Recommendations" and "Radon Knowledge, Attitudes, and Behavior in New Jersey" (with Neil Weinstein), both funded by the New Jersey Department of Environmental Protection. Of course my colleagues and funders on these projects are not responsible for my speculations in this report.

Several organizations have invited me to address them on strategies of risk communication, providing an opportunity to develop the ideas expressed in this report and test them on thoughtful and experienced audiences. I am grateful especially to the National Governors' Association, the New Jersey Hazardous Waste Facilities Siting Commission, the Council of Scientific Society Presidents, the Institute for Environmental Studies of the University of North Carolina, and the Air Pollution Control Association.

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Dealing With The Media

1. Environmental risk is not a big story. The mass media are not especially interested in environmental risk. Reporters do care whether or not an environmental situation is risky; that's what makes it newsworthy. But once the possibility of hazard is established—that is, once someone asserts the risk on the record—the focus turns to other matters: how did the problem happen, who is responsible for cleaning it up, how much will it cost, etc. Assessing the extent of the risk strikes most journalists as an academic exercise. The reporter's job is news, not education; events, not issues or principles. And the news is the risky thing that has happened, not the difficult determination of how risky it actually is.

In an emergency, of course, the extent of the acute risk is the core of the story; radio reporters in particular want to know first and foremost whether to tell listeners to stay indoors, to evacuate, not to drink the water, etc. But the media don't especially want to know the ins-and-outs of risk assessment, the details of how great the risk is likely to be, how sure the experts are, or how they found out. If the story is important enough, these technical details merit a follow-up, a sidebar on the third or fourth day—but few stories are important enough.

The typical news story on environmental risk, in other words, *touches* on risk itself, while it *dwells* on more newsworthy matters. In 1985 newspaper editors in New Jersey were asked to submit examples of their best reporting on environmental risk, and the articles were analyzed paragraph by paragraph. Only 32 percent of the paragraphs dealt at all with risk. Nearly half of the risk paragraphs, moreover, focused on whether a substance assumed to be risky was or was not present (e.g. is there dioxin in the landfill), leaving only 17 percent of the paragraphs that dealt directly with riskiness itself (e.g. how hazardous is dioxin). In a parallel study, reporters were asked to specify which information they would need most urgently in covering an environmental risk emergency. Most reporters chose the basic risk information, saving the details for a possible second-day story. What happened, how it happened, who's to blame, and what the authorities are doing about it all command more journalistic attention than toxicity during an environmental crisis.

The nature of the crisis determines how much stress the media put on risk as opposed to other issues. Reporters know, for example, that a chemical spill is a risk story, and at the scene of a spill they will keep asking about toxic effects even after they are told the chemical is benign and inert. A fire story, on the other hand, automatically raises questions about how the fire started, how much damage was done, who turned in the alarm, and the like; many reporters won't realize unless told that a fire in a battery factory or a supermarket warehouse is a toxic event. But even when reporters understand that environmental risk is a key element of the crisis, their appetite for risk information is strong but easily sated; they want to know badly, but they don't want to know much.

And when there is no crisis? The extent of a chronic risk is newsworthy only when events make it so—for example, when a court battle or a regulatory action hinges on a disputed risk assessment. Sources wishing to “sell” a chronic risk story to the media must therefore work to make it newsworthy. Give it a news peg—that is, make something happen that reporters can cover. Make it interesting. Build the case for its importance. Provide a prop worth focusing a camera on. But expect only partial success; reporters flock to the scene of a crisis, but they have to be seduced into covering chronic risk.

Among the greatest environmental risks in New Jersey is indoor radon contamination. Because it is new and serious, it received considerable media attention in 1985 and early 1986. Then the coverage began to slip. The easy news pegs were over: the discovery of the problem, the first home in the state with a super-high reading, the passage of radon legislation. With no “radon industry” to fight back, the conflict that journalism feeds on has been conspicuously missing from the radon story. Radon is more a health problem and a housing problem than an environmental controversy, and its coverage is correspondingly muted. And radon at least has the “advantage” of cancer, the disease we love to hate. Imagine its low visibility if it gave people emphysema instead.

2. Politics is more newsworthy than science. The media's reluctance to focus on risk for more than a paragraph or two might be less of a problem if that paragraph or two were a careful summary of the scientific evidence. It seldom is. In fact, the media are especially disinclined to cover the science of risk. Most of the paragraphs devoted to risk in the New Jersey study consisted of unsupported opinion—someone asserting or denying the risk without documentation. Only 4.2 percent of the paragraphs (24 percent of the risk paragraphs) took an intermediate or mixed or tentative

position on the extent of the risk. And only a handful of the articles told readers what standard (if any) existed for the hazard in question, much less the status of research and technical debate surrounding the standard.

The media's focus on the politics of risk rather than the science of risk is most visible in the sources relied upon in risk coverage. In the New Jersey study, 57 percent of the sources cited were government, with state government (22 percent) leading the pack. Industry captured 15 percent of the paragraphs; individual citizens and advocacy groups were cited in 7 percent each. Uninvolved experts such as academics—those least likely to have an axe to grind, most likely to have an intermediate opinion and a technical basis for it—were cited in only 6 percent of the paragraphs. Of course sources from government, industry, and environmental groups may also have scientific rationales for their judgments, and “experts” are not always neutral. Still, it is important that the media get their risk information from people who are directly involved in the news event; only occasionally do they seek out uninvolved experts for guidance on the extent of the risk.

Trying to interest journalists in the abstract issues of environmental risk assessment is even tougher than trying to get them to cover chronic risk: abstract issues are not the meat of journalism. Yet the public needs to understand abstractions like the uncertainty of risk assessments, the impossibility of zero risk, the debatable assumptions underlying dose-response curves and animal tests. Where possible, it helps to embed some of these concepts in your comments on hot breaking stories—though reporters and editors will do their best to weed them out. When there is no breaking story, try to sell your favorite reporter on a feature on the fight over how conservative risk assessment ought to be. Emphasize that the problem underlies many of the stories he or she is covering. But understand why you will have only partial success, why the science of risk is inevitably less newsworthy than the politics of risk.

3. Reporters cover viewpoints, not “truths.” Journalism, like science, attempts to be objective, but the two fields define the term very differently. For science, objectivity is tentativeness and adherence to evidence in the search for truth. For journalism, on the other hand, objectivity is balance. In the epistemology of journalism, there is no truth (or at least no way to determine truth); there are only conflicting claims, to be covered as fairly as possible, thus tossing the hot potato of truth into the lap of the audience.

Imagine a scale from 0 to 10 of all possible positions on an issue. Typically, reporters give short shrift to 0, 1, 9, and 10;

these views are too extreme to be credible, and are covered as “oddball” if they are covered at all. (You may think some pretty extreme viewpoints get respectful media attention—but you haven’t met the people reporters decide not to quote.) Reporters also pay relatively little attention to 4, 5, and 6. These positions are too wishy-washy to make good copy; how do you build a story out of “further research is needed?” And sources with intermediate positions are unlikely to be heavily involved in the issue, certainly unlikely to seek media attention. Most of the news, then, consists of 2’s and 3’s and 7’s and 8’s, in alternating paragraphs if the issue is hot, otherwise in separate stories as each side creates and dominates its own news events. Objectivity to the journalist thus means giving both sides their chance, and reporting accurately what they had to say. It does not mean filling in the uninteresting middle, and it certainly does not mean figuring out who is right. Journalists who insist on trying to figure out who is right are encouraged to become columnists ... or to leave.

If a risk story is developing and you have a perspective that you feel has not been well covered, don’t wait to be called. You won’t be. And you don’t need to wait. Reporters are busy chasing after the sources they *have* to talk to, and listening to the sources who *want* to talk to them. If you’re in the former category—if you’re safety manager at a plant that just experienced an uncontrolled release, for example—reporters will find their way to you, like it or not. Otherwise, rather than suffer in silence, become one of the relatively few experts who keep newsroom telephone numbers in their rolodex. You will find reporters amazingly willing to listen, to put you in their rolodexes, to cover your point of view along with all the others. Insofar as you can, try to be a 3 or a 7—that is, a credible exponent of an identifiable viewpoint. Don’t let yourself be pushed to a position that is not yours, of course, but recognize that journalism doesn’t trust 0’s and 10’s, and has little use for 5’s.

In deciding whether to brave the considerable risks of media exposure, bear in mind that the story *will* be covered, whether or not you arrange to be included. News items are allotted media attention to the extent that journalists see them as important and interesting. Then the search begins for information to fill the vacuum—preferably new, solid, comprehensible information that reflects an identifiable point of view, but if there’s not enough of that to fill the time or space that the story “deserves,” reporters will scrounge for angles to make up the difference. The result can be an enlightening feature on the problems of technical prediction, but it’s more likely to be a “color story”—the fears of

bystanders, the views of ideologues, the speculations of spokespeople, the history of mismanagement. Environmental risk stories often turn into political stories in part because political content is more readily available than technical content. Experienced sources work at filling the vacuum.

Although journalists tend not to believe in Truth-with-a-capital-T, they believe fervently in facts. Never lie to a reporter. Never guess. If you don't know, say you don't know. (But expect reporters to ask why you don't know.) If you don't know but can find out later, do so, and get back to the reporter as soon as possible, remembering that journalistic deadlines are measured in minutes, not months. If you know but can't tell, say you can't tell, and explain why. If you know but can't manage to say it in English, find someone who can. Reporters do not expect you to be neutral; in fact, they assume that you probably have an axe to grind, and prefer that you grind it visibly. They do expect you to grind it with integrity.

4. The risk story is simplified to a dichotomy. The media see environmental risk as a dichotomy; either the situation is hazardous or it is safe. This is in part because journalism dichotomizes all issues into sides to be balanced. But there are other reasons for dichotomizing risk. (1) It is difficult to find space for complex, nuanced, intermediate positions in a typical news story, say 40 seconds on television or 15 short paragraphs in a newspaper. (2) Virtually everyone outside his or her own field prefers simplicity to complexity, precision to approximation, and certainty to tentativeness. As Senator Edmund Muskie complained to an aide when the experts kept qualifying their testimony "on the other hand": "Find me an expert with one hand." (3) Most of the "bottom lines" of journalism are dichotomies—the chemical release is either legal or illegal, people either evacuate or stay, the incinerator is either built or not built. Like risk managers, the general public is usually asked to make yes-or-no decisions, and journalists are not wrong to want to offer information in that form.

Reporters are accustomed to the fact that technical sources invariably hedge, that nothing is ever "proved." They see this as a kind of slipperiness. Someone can always be found to advocate a discredited position (the tobacco industry has plenty of experts); no one wants to go too far out on a limb in case new evidence points in a different direction; researchers in particular like to leave the issue open so they can justify more research. Pinning down evasive sources is a finely honed journalistic skill. In terms of our 0-to-10 scale, reporters spend a fair amount of time trying to get 5-ish sources to make clear-cut 3 or 7 statements.

Sources, especially technical sources, greatly resent the pressure from journalists to dichotomize and simplify. The dichotomization of risk distorts the reality that nothing is absolutely safe or absolutely dangerous, and polarizes “more-or-less” disagreements into “yes-or-no” conflicts. And oversimplification of any sort can mislead the audience and damage the reputation of the source. But recognize that journalists must simplify what they cover. If you refuse to simplify what you say, the reporter will try to do the job for you (at great risk to accuracy) or will turn to a more cooperative source.

The most qualified person to simplify your views is you. Decide in advance what your main points are, and stress them consistently and repetitively, even if you have to hook *them onto your answers to irrelevant questions. Leave out* the technical qualifiers that your colleagues might insist on but the general public doesn't need to know (but leave in the qualifiers that really affect the bottom line). Stay away from jargon, and explain the technical terms you can't avoid. Check to make sure the reporter understands what you are saying; if the reporter looks glassy-eyed or starts frantically taking down every word, back up and start over.

When you explain the significance of a toxic substance to reporters, try to avoid the “is it there or not” dichotomy, which can so easily alarm people about tiny concentrations. *On the other hand, don't expect reporters to sit still for a* dissertation on uncertainty in dose-response curves. Your best bet, when you can, is to specify the amount involved, then set it against some standard of comparison, ideally a government exposure standard. This is still a dichotomy, of course; it leaves the misimpression that exposures just under the standard are perfectly safe while exposures just over are deadly. But as dichotomies go, “over or under” is preferable to “there or not.”

If you want to fight the journalistic tendency to dichotomize risk, fight it explicitly, asserting that the issue is not “risky or not” but “how risky.” Recognizing that intermediate positions on risk are intrinsically less dramatic and more complex than extreme positions, work especially hard to come up with simple, clear, interesting ways to express the middle view. Even so, expect reporters to insist on knowing “which side” you come down on with respect to the underlying policy dichotomy.

5. Reporters try to personalize the risk story. Perhaps nothing about media coverage of environmental risk so irritates technical sources as the media's tendency to personalize. “Have you stopped drinking it yourself?” “Would you let your family live there?” Such questions fly in

the face of the source's technical training to keep oneself out of one's research, and they confuse the evidentiary requirements of policy decisions with the looser ones of personal choices. But for reporters, questions that personalize are the best questions. They do what editors are constantly asking reporters to do: bring dead issues to life, make the abstract concrete, focus on real people facing real decisions. Personalizing also forces the source to dichotomize, to make the same "yea" or "nay" decision the reader or viewer must make.

In a sense, experts and policy-makers work at a different level of analysis than reporters and the public. As an EPA study on the ethylene dibromide controversy noted, the agency wanted to talk about "macro-risk" (how many deaths will result from EDB contamination), while reporters kept asking about "micro-risk" (is it okay to eat the cake mix). The connections between macro-risk and micro-risk are difficult to draw. But for the individual citizen (faced with a cake mix, not a regulatory proposal), micro-risk is the issue, and reporters are not off-base in pushing technical sources to trace the connections. This is what personalizing questions are designed to do.

Knowing that reporters will inevitably ask personalizing questions, be prepared with answers. It is often possible to answer with both one's personal views and one's policy recommendations, and then to explain the difference if there is one. Or come with colleagues whose personal views are different, thus dramatizing the uncertainty of the data. If you are not willing (or not permitted) to acknowledge your own views, plan out some other way to personalize the risk, such as anecdotes, metaphors, or specific advice on the individual micro-risk level.

6. Claims of risk are usually more newsworthy than claims of safety. On our 0-to-10 scale of risk assertions, the 3's and 7's share the bulk of the coverage, but they don't share it equally. Risk assertions receive considerably more media attention than risk denials. Sometimes, in fact, the denials get even less coverage than the intermediate position, and reporters wind up "balancing" strong assertions of risk with bland statements that the degree of risk is unknown. In the New Jersey study, the proportions were 58 percent "risky," 18 percent "not risky," and 24 percent mixed or intermediate.

This is not bias, at least not as journalism understands bias. It is built into the concept of newsworthiness. If there were no allegation of risk, there would be no story. That something here might be risky is thus the core of the story; having covered it, the media give rather less attention to the counterbalancing notion that it might not be risky.

Other factors contribute to the tilt toward alarming news. One is the reporter's desire to "build" the story, to come back with something that editors will want to showcase. (Reporters are much more interested in selling stories than in "selling newspapers.") Another factor is the journalist's preference for simple, graphic language, for "dump" rather than "land emplacement." Risks sound riskier in simple language than in technical jargon. The factor closest to outright bias—but still distinguishable in the minds of journalists—is the media's traditional skepticism toward those in authority. Most news is about powerful people, but along with the advantage of access government and industry must endure the disadvantage of suspicion. Environmental groups, by contrast, receive less attention from the media, but the attention is more consistently friendly.

On the other hand, the media are often and justly criticized for being too slow to alert the public to new environmental hazards. Considering that we rely largely on journalism as an "early warning system" for social problems on the horizon, this is a serious criticism. To gain a journalistic hearing, the first source to assert a particular risk must be reasonably credible, highly committed, and very lucky or very skilled. Almost invariably, new technologies start out with sweetheart coverage. The environmental controversy comes later, and only after the controversy is on the media agenda (and the technology is perhaps too deeply embedded to be dislodged) does the risky side of the argument catch up and pull ahead. This may be the worst of all possible patterns: to fail to warn us about risks when it's early enough to make a societal go/no-go decision, then to frighten us deeply about risks after the decision has been made.

The principal exception to this pattern is emergencies. On a chronic risk story, the risk is the story. But a genuine emergency is by definition a big story; freed from the need to build the story, the reporter—especially the local reporter—may try to prevent panic instead. The President's Commission on the Accident at Three Mile Island conducted a content analysis of network, wire service, and major newspaper coverage during the first week of the 1979 accident. The Commission's expectations of sensationalism were not confirmed. Of media passages that were clearly either alarming or reassuring in thrust, 60 percent were reassuring. If you stick to the technical issues, eliminating passages about inadequate flow of information and general expressions of fearfulness from local citizens, the preponderance of reassuring over alarming statements becomes 73 percent to 27 percent.

It didn't seem that way at the time, of course. The information that something previously assumed to be safe may or may not be hazardous naturally strikes people as

alarming, almost regardless of the amount of attention paid to the two sides; imagine reading this evening that scientists disagree over whether your favorite food is carcinogenic. Thus, sociologist Allan Mazur has found that public fearfulness about risky new technologies is proportional to the amount of coverage, not to its character. Media coverage of environmental risk alerts the public to risks it was otherwise unaware of, and thus increases the level of alarm even when it is balanced.

None of this is a rationale for avoiding the media. Even balanced media coverage may not reliably lead to balanced public opinion, but balanced coverage is preferable to unbalanced coverage. And the coverage is most likely to be balanced when sources on all sides are actively trying to get covered. People with knowledge and opinions to share perform a public service when they share them. What can you do to alert people to the risks of a new technology before it is too late? What can you do to redress the alarming imbalance once the media have begun to overdramatize the risks? Energetic public relations will help with both tasks, though in both cases you will be working against the grain

7. Reporters do their jobs with limited expertise and time.

At all but the largest media, reporters covering environmental risk are not likely to have any special preparation for the assignment. Specialized environmental reporters are more the exception than the rule. Reporters covering an environmental emergency, for example, are mostly general-assignment reporters or police reporters, sent to the scene (or the phones) without time to scan the morgue, much less a technical handbook. And reporters tend to be science-phobic in the first place; the typical college journalism major takes only two science courses, and chooses those two carefully in an effort to avoid rigor. Though there are many exceptions, the average reporter approaches a technical story with trepidation (often hidden by professional bravado), expecting not to understand.

It doesn't help that the average reporter covers and writes two to three stories a day. Here too there are exceptions, but most journalists are in a great hurry most of the time. They must make deadline not just on this story, but quite often on the story they will be covering after this one. Their goal, reasonably, is not to find out all that is known, but just to find out enough to write the story. Even if they knew more, they would not have the space or airtime to report more, nor do they believe their readers or viewers would have the interest or patience to absorb more.

Note also that irrespective of what journalistic superstars earn, the average reporter at a small daily newspaper takes home perhaps \$13,000-\$18,000 a year. Considering their

incomes, journalists are shockingly competent and dedicated, but there are limits to how much competence and dedication a salary in the teens can purchase.

If the idea appeals to you, by all means offer to teach local journalists the basics of your field—but don't expect general assignment reporters to find much time (or much stomach) for technical training they will use only a few times a year. A beat reporter who covers your issue full-time (if you are lucky enough to have one) is a much better candidate for technical training.

Better still, train yourself (and your colleagues and staff) in *dealing with the media*. Hiring effective public information specialists also helps, but reporters much prefer to talk to the people in charge and the people in the know. Especially during an emergency, press calls often go to the boss and the expert instead of the press office, so the boss and the expert should know how to talk to reporters. The annals of risk communication are full of stories of corporate managers and agency bureaucrats who shot themselves in the foot—and permanently damaged their organizations—because they hadn't the least idea of how to deal with the media. Even the best communication skills can't rescue a technical disaster, of course; who wants to handle the PR at Chernobyl or Bhopal? But inadequate communication skills can create a disaster that needn't have been.

And adequate communication skills are not so hard to develop. All it takes is a little understanding of how the media work, a little training in dealing with reporters, and a little experience to smooth out the rough edges. Why, then, do so many managers, bureaucrats, and technical experts avoid all contact with the media? Because it's risky. Reporters don't always understand what you're telling them; they don't always share your goals and values, they don't always handle their jobs the way you want them to. In all these ways and many others, reporters may be different from the people you usually work with. And so working with reporters may sound like something less than an unalloyed pleasure.

Pleasure or not, the risks of ducking the media are far greater than the risks of working with them. Every news story about environmental risk is a collaboration between the journalists working on the story and the sources they talk to. There's not too much you can do to change the nature of journalism or the performance of journalists. But you can understand them and figure out how to deal with them. By improving your own performance as a source, you *can* bring about a real improvement in media coverage of environmental risk.

Dealing With The Public

1. Risk perception is a lot more than mortality statistics. If death rates are the only thing you care about, then the public is afraid of the wrong risks. That is, public fears are not well correlated with expert assessments or mortality statistics. This is often seen as a perceptual distortion on the part of the public, but a more useful way to see it is as an oversimplification on the part of many experts and policy-makers. In other words, the concept of “risk” means a lot more than mortality statistics.

Virtually everyone would rather drive home from a party on the highway than walk home on deserted streets. Even if we do not miscalculate the relative statistical likelihood of a fatal mugging versus a fatal car crash, the possibility of getting mugged strikes us as an outrage, while we accept the possibility of an auto accident as voluntary and largely controllable through good driving. (Eighty-five percent of all drivers consider themselves better than average.) Similarly, a household product, however carcinogenic, seems a lot less risky than a high-tech hazardous waste treatment facility—the former is familiar and under one’s own control, while the latter is exotic and controlled by others.

Risk perception experts (especially psychologists Paul Slovic, Sarah Lichtenstein, and Baruch Fischhoff) have spent years studying how people interpret risk. The following list identifies some of the characteristics other than mortality that factor into our working definitions of risk. Remember, these are not distortions of risk; they are part of what we mean by the term.

Less Risky

Voluntary
Familiar
Controllable
Controlled by self
Fair
Not memorable
Not dread
Chronic
Diffuse in time and space
Not fatal
Immediate
Natural
Individual mitigation possible
Detectable

More Risky

Involuntary
Unfamiliar
Uncontrollable
Controlled by others
Unfair
Memorable
Dread
Acute
Focused in time and space
Fatal
Delayed
Artificial
Individual mitigation impossible
Undetectable

The very same risk—as experts see these things—will be understood quite differently by the lay public depending on where it stands on the dimensions listed above. Some thirty percent of the homes in northern New Jersey, for example, have enough radon seeping into their basements to pose more than a one-in-a-hundred lifetime risk of lung cancer, according to estimates by the U.S. Environmental Protection Agency and the State Departments of Health and Environmental Protection. But despite considerable media attention (at least in the beginning), only five percent of North Jersey homeowners have arranged to monitor their homes for radon, and even among these few the level of distress is modest—compared, say, to the reaction when dioxin is discovered in a landfill, objectively a much smaller health risk. State officials were initially concerned about a radon panic, but apathy has turned out to be the bigger problem.

The source of the radon in New Jersey homes is geological uranium; it has been there since time immemorial, and no one is to blame. But three New Jersey communities—Montclair, Glen Ridge, and West Orange—have faced a different radon problem: landfill that incorporated radioactive industrial wastes. Though their home readings were no higher than in many homes on natural hotspots, citizens in the three communities were outraged and fearful, and they successfully demanded that the government spend hundreds of thousands of dollars per home to clean up the landfill. The state's proposal to dilute the soil nearly to background levels and then dispose of it in an abandoned quarry in the rural community of Vernon has provoked New Jersey's largest environmental demonstrations in years, with thousands of residents swearing civil disobedience sooner than let the trucks go through. In nearby communities threatened by naturally occurring radon, meanwhile, the concern is minimal.

It doesn't help to wish that people would confine their definitions of risk to the mortality statistics. They won't. Mortality statistics are important, of course, and policy-makers understandably prefer to focus on the risks that are really killing people, rather than the risks that are frightening or angering people because they are involuntary, unfamiliar, uncontrollable, etc. But successful risk communication begins with the realization that risk perception is predictable, that the public overreacts to certain sorts of risks and ignores others, that you can know in advance whether the communication problem will be panic or apathy. And since these differences between risks are real and relevant, it helps to put them on the table. Merely acknowledging that a risk seems especially fearful because it

is unfamiliar or unfair will help. Doing something to remedy the unfamiliarity or unfairness will help even more.

Just to make things more complicated, risk perception is not linear, not for anybody. That is, you can't just multiply how probable a risk is by how harmful it is to get how badly people want to prevent it. (If you could, there would be no insurance industry and no gambling industry.) In general, people will pay more to protect against low-probability loss than to pursue low-probability gain—but if the price is low enough to be dismissed as negligible, even an infinitesimal chance at a big payoff looks good.

Risk judgments are also very responsive to verbal cues. Doctors, for example, are much more likely to prescribe a new medication that saves 30 percent of its patients than one that loses 70 percent of them. A pollutant or an accident that will eventually give cancer to 10,000 people sounds very serious, but one that will add less than one tenth of one percent to the national cancer rate sounds almost negligible. There is in fact no “neutral” way to present risk data, only ways that are alarming or reassuring in varying degrees.

Finally, people's perception of risk is greatly influenced by the social context. Our responses to new risks, in fact, are largely predictable based on our enduring values and social relationships. Do we like or dislike, trust or distrust the people or institutions whose decisions are putting us at risk? Do our friends and neighbors consider the risks tolerable or intolerable? Are they enduring higher risks than ours, or escaping with lower ones? All these factors, though they are irrelevant to the mortality statistics, are intrinsic parts of what we mean by risk.

2. Moral categories mean more than risk data. The public is far from sure that risk is the real issue in the first place. Over the past several decades our society has reached near-consensus that pollution is morally wrong—not just harmful or dangerous, not just worth preventing where practical, but wrong. To many ears it now sounds callous, if not immoral, to assert that cleaning up a river or catching a midnight dumper isn't worth the expense, that the cost outweighs the risk, that there are cheaper ways to save lives. The police do not always catch child molesters, but they know not to argue that an occasional molested child is an “acceptable risk.”

Government agencies build their own traps when they promulgate policy (and public relations) in the language of morality, depicting food additives or chemical wastes or polluted water as evils against which they vow to protect the innocent public. It is not at all obvious which environmental “insults” (another term with moral overtones) a society should reject on moral grounds and which it should assess

strictly in terms of impact. But an agency that presents itself and its mission in moral terms should expect to be held to its stance. And an agency that wishes to deal with environmental risk in terms of costs-and-benefits instead of good-and-evil should proceed gently and cautiously, aware that it is tromping on holy ground.

Nor is morality the only principled basis for questioning the costs-and-benefits premises of risk assessment. Just as the moralist challenges the rightness of trading off certain risks against costs or benefits, the humanist challenges the coherence of the tradeoffs. How, the humanist asks, can anyone make sense of a standard that tries to put a cash value on human life? Or, indeed, of a standard that assumes that a hundred widely scattered deaths per year are equivalent to a one-in-a-hundred chance of obliterating a community of 10,000?

Similarly, the political critique of the premises of risk assessment begins by noting that "the greatest good for the greatest number" has always been a convenient rationale for the oppression of minorities. Democratic theory asserts that individuals and groups should be free to bargain for their own interests, and should be protected from the tyranny of the majority. There is nothing unreasonable about the suggestion that equitable distribution of risks and benefits—and of the power to allocate risks and benefits—is often more important than the minimization of total risk or the maximization of total benefit. It may be efficient to dump every environmental indignity on the same already degraded community, but it is not fair.

3. Policy decisions are seen as either risky or safe. Like the media, the public tends to dichotomize risk. Either the risk is seen as very frightening, in which case the response is some mix of fear, anger, panic, and paralysis; or the risk is dismissed as trivial, in which case the response is apathy.

In their personal lives, people do not necessarily dichotomize risk. Most of us are quite capable of understanding that the picnic might or might not be rained out, that the boss might or might not get angry, even that smoking might or might not give us lung cancer. Of course quantified probabilistic statements are genuinely hard to understand, especially when the probabilities are small, the units are unfamiliar, and the experts disagree. But beyond these perplexities lies another issue of enormous importance to risk communication. While people may (with difficulty) master a probabilistic risk statement that concerns what they should do to protect themselves, they are bound to resist probabilistic risk statements that concern what others (government, say) should do to protect them. 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. Quantitative risk assessments, risk-benefit calculations, risk-cost ratios, and risk-risk comparisons are all hard to hear when we bear the risk and someone else makes the decision.

4. Equity and control issues underlie most risk controversies. Trust and credibility are often cited as the key problems of risk communication. Certainly few people trust government and industry to protect them from environmental risk. This is just as true of the passive, apparently apathetic public as it is of the activist, visibly angry public. The former is simply more fatalistic, more prone to denial, more completely drowned in indiscriminating chemophobia. The activist public, in other words, distrusts others to protect its interests and thus chooses to protect its own. The far larger passive public is passive not because it believes others will protect its interests, but because it doubts it can protect its own. Both publics listen to the reassurances of government and industry—if they listen at all—with considerable suspicion.

But to say that trust is the problem here is to assume that the goal is a passive public that doesn't mind being passive. If the goal is an actively concerned public, then the problem isn't that people are distrustful, but rather that government and industry demand to be trusted. Translate the question of trust into the underlying issue of control. Who decides what is to be done?

Any environmental risk controversy has two levels. The substantive issue is what to do; the process issue is who decides. So long as people feel disempowered on the process issue, they are understandably unbending on the substantive issue, in 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. It isn't just that people oppose any decision they view as involuntary and unfair, regardless of its wisdom; because the equity and control issues come first, people typically never even ask themselves whether they agree on the merits. Outraged at the coercion, they simply dig in their heels. It is hardly coincidental that risks the public tends to overestimate generally raise serious issues of equity and control, while most of the widely underestimated risks (smoking, fat in the diet, insufficient exercise, driving without a seatbelt) are individual choices.

Specialists in negotiation and conflict resolution have long understood this relationship between substantive issues and the process issues of equity and control. Consider for

example a community chosen by the state government to “host” a hazardous waste incinerator. Justly offended at this infringement of local autonomy, the community prepares to litigate, frantically collecting ammunition on the unacceptability of the site. Both their anger and the legal process itself encourage community members to overestimate the risk of the proposed facility, to resist any argument that some package of mitigation, compensation, and incentives might actually yield a net gain in the community’s health and safety, as well as its prosperity.

In interviews with community members faced with such a situation, the control issue tends to overshadow the risk assessment. But when citizens are asked to hypothesize a de facto community veto and envision a negotiation with the site developer, they become quite creative in designing an agreement they might want to sign: emissions offsets, stipulated penalties, bonding against a decline in property values, etc. It is still too early to tell whether a negotiated hazardous waste treatment facility is feasible. But *thinking about* such a negotiation becomes possible for community members only when they feel empowered—that is, when the issue of outside coercion has been satisfactorily addressed.

On this dimension people’s response to information is not much different from their response to persuasion. We tend to learn for a reason—either we’re curious, or we’re committed to a point of view and looking for ammunition, or we’re faced with a pending decision and looking for guidance. These three motivations account for most information-seeking and most learning—and none of them exerts much influence when an individual citizen is offered information about, say, a Superfund clean-up plan. A few stalwart souls will read out of curiosity, though it won’t take much technical detail to put a stop to that. Activists will scour the plan for evidence to support their position or for evidence that their position wasn’t properly considered. (Activists know what they think and believe they can make a difference.) And those charged with litigating, funding, or implementing the plan study it in order to do their jobs.

And the general public? Why learn if you feel powerless do anything about what you have learned? On the other hand, when the public has felt it was exercising real influence on a decision—the ASARCO smelter in Tacoma comes to mind—it has shown a surprising ability to master the technical details, including risk assessment details.

Not that every citizen wants to play a pivotal role in environmental decision. We have our own lives to lead, and we would prefer to trust the authorities. If the issue is unimportant enough we often decide to trust the authorities despite our reservations; if the crisis is urgent enough we

may feel we have no choice but to trust the authorities, again despite our reservations. The gravest problems of risk communication tend to arise when citizens determine that the issue is important, that the authorities cannot be trusted, and that they themselves are powerless. Then comes the backlash of outrage.

5. Risk decisions are better when the public shares the power. People learn more and assess what they learn more carefully if they exercise some real control over the ultimate decision. But this sort of power-sharing is, of course, enormously difficult for policy-makers, for a wide range of political, legal, professional, and psychological reasons. Interestingly, corporate officials may sometimes find power-sharing less unpalatable than government officials. Corporations have a bottom line to nurture, and when all else fails they may see the wisdom of sharing power in the interests of profit. But government officials have no profit to compensate for the loss of power, so they may find it harder to share.

“Public participation,” as usually practiced, is not a satisfactory substitute for power-sharing. To be sure, telling the public what you’re doing is better than not telling the public what you’re doing. Seeking “input” and “feedback” is better still. But most public participation is too little too late: “After years of effort, summarized in this 300-page report, we have reached the following conclusions... Now what do you folks think?” At this point it is hard enough for the agency to take the input seriously, and harder still for the public to believe it will be taken seriously. There is little power-sharing in the “decide-announce-defend” tradition of public participation.

The solution is obvious, though difficult to implement. Consultations with the public on risk management should begin early in the process and continue throughout. This means an agency must be willing to tell the public about a risk *before* it has done its homework—before the experts have assessed the risk thoroughly, before all the policy options have been articulated, way before the policy decisions have been made. There are dangers to this strategy: people will ask the agency what it proposes to do about the problem, and the agency will have to say it isn’t sure yet. But on balance an agency is better off explaining why it doesn’t yet have all the answers than explaining why it didn’t share them years ago. In fact, not having all the answers can be made into an asset, a demonstration of real openness to public input. The goal, after all, is to enlist the rationality of the citizenry, so that citizens and experts are working together to figure out how great the risk is and what to do about it.

Of course no responsible agency will go public without any answers. What's important is to propose options X, Y, and Z tentatively, with genuine openness to V and W, and to community comments that may eliminate Z. 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.

This sort of genuine public participation is the moral right of the citizenry. It is also sound policy. Undeterred by conventional wisdom, lay people often have good ideas that experts can adapt to the situation at hand; at a minimum, lay people are the experts on what frightens them and what would reassure them. When citizens participate in a risk management decision, moreover, they are far more likely to accept it, for at least three reasons: (1) They have instituted changes that make it objectively more acceptable; (2) They have got past the process issue of control and mastered the technical data on risk; that is, they have learned why the experts consider it acceptable; and (3) They have been heard and not excluded, and so can appreciate the legitimacy of the decision even if they continue to dislike the decision itself.

6. Explaining risk information is difficult but not impossible, if the motivation is there. High school teachers have long marveled that a student who couldn't make sense of Dickens's *A Tale of Two Cities* had no trouble with Hot Rod's far more complex instructions on how to adjust one's sparkplugs for a fast start on a rainy day. Motivation makes the difference. When people have a reason to learn, they learn.

It is still possible for communicators to make the learning easier or harder—and scientists and bureaucrats have acquired a fairly consistent reputation for making it harder. At Three Mile Island, for example, the level of technical jargon was actually higher when the experts were talking to the public and the news media than when they were talking to each other. The transcripts of urgent telephone conversations between nuclear engineers were usually simpler to understand than the transcripts of news conferences. To be sure, jargon is a genuine tool of professional communication, conveying meaning (to those with the requisite training) precisely and concisely. But it also serves as a tool to avoid communication with outsiders, and as a sort of membership badge, a sign of the status difference between the professional and everyone else.

Like any piece of professional socialization, the tendency to mystify outsiders becomes automatic, habitual more than malevolent. It's hard for a layperson to get a straight answer from an expert even when nothing much is at stake. When a potentially serious risk is at stake, when people are

frightened or angry or exhausted, when the experts aren't sure what the answers are. when the search for a scapegoat is at hand, effective communication is a lot to expect.

In many risk communication interactions, in short, the public doesn't really want to understand (because it feels powerless and resentful) and the experts don't really want to be understood (because they prefer to hold onto their information monopoly). The public finds it convenient to blame the experts for obfuscation, and the experts find it convenient to blame the public for obtuseness. These motivational issues are probably more important than the traditional concerns of clarity in determining whether real knowledge will pass from expert to public.

Within the traditional concerns of clarity, the major issue is simplification. Even assuming a public that wants to understand and an expert who wants to be understood, risk information must still be simplified.

Insofar as possible, of course, it is wise to simplify language rather than content. That is, take the extra words to make hard ideas clear. Unfortunately, neither the expert source nor the lay audience is usually willing to dedicate the time needed to convey complex information a step at a time. So inevitably simplification becomes a matter of deciding what information to leave out. Experts are famous for their conviction that *no* information may be left out; unable to tell all, they often wind up telling nothing.

In fact, there are three standard rules of thumb for popularizing technical content. (1) Tell people what you have determined they ought to know—the answers to the questions they are asking, the instructions for coping with the crisis, whatever. This requires thinking through your information goals and your audience's information needs, then resolutely keeping the stress where you have decided it should be. (2) Add what people must know in order to understand and *feel* that they understand the information—whatever context or background is needed to prevent confusion or misunderstanding. The key here is to imagine where the audience is likely to go off-track, then provide the information that will prevent the error. (3) Add 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. Partly this is just a matter of sounding tentative; partly it is constructing a scaffolding of basic points on which people can hang the new details as they come in. Applying these three rules isn't easy, but it is a lot easier than trying to tell everything you know.

The hardest part of simplifying risk information is explaining the risk itself. This is hard not only because risk assess-

ments are intrinsically complex and uncertain, but also because audiences cling tenaciously to their safe-or-dangerous dichotomy. One path out of dichotomous thinking is the tradeoff: especially risk benefit, but also risk-cost or risk-risk. But there is solid evidence that lay people resist this way of thinking; trading risks against benefits is especially offensive when the risks raise moral issues and the “victims” are not the ones making the choice. Another alternative to dichotomy is the risk comparison: X is more dangerous than Y and less dangerous than Z. But as we have already noted, risk means a lot more than mortality statistics, and comparing an involuntary risk like nuclear power to a voluntary one like smoking invariably irritates more than it enlightens—as does any risk comparison that ignores the distinctions listed at the start of this section.

The final option to dichotomy is to provide the actual data on deaths or illnesses or probability of occurrence or whatever. This must be done carefully, with explicit acknowledgement of uncertainty, of moral issues, and of non-statistical factors like voluntariness that profoundly affect our sense of risk. Graphs and charts will help; people understand pictorial representations of probability far better than quantitative ones.

Don't expect too much. People can understand risk tradeoffs, risk comparisons, and risk probabilities when they are carefully explained. But usually people don't really want to understand. Those who are frightened, angry, and powerless will resist the information that their risk is modest; those who are optimistic and overconfident will resist the information that their risk is substantial. 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.

7. Risk communication is easier when emotions are seen as legitimate. It follows from what we have been saying that an important aspect of risk communication is finding ways to address the feelings of the audience. Unfortunately, experts and bureaucrats find this difficult to do. Many have spent years learning to ignore feelings, their own and everyone else's; whether they are scientists interpreting data or managers setting policy, they are deeply committed to doing their jobs without emotion.

At an even deeper level, scientists and bureaucrats have had to learn to ignore the individual, to recognize that good science and good policy must deal in averages and probabilities. This becomes most obvious when a few people feel threatened by a generally desirable action, such as the siting of a hazardous waste facility. Experts who are confident that the risk is small and the facility needed may

well try to sympathize with the target community—but their training tells them playing the odds is a good bet, somebody has to take the risk, the decision is rational, and that's the end of the matter.

Thus the most common sources of risk information are people who are professionally inclined to ignore feelings. And how do people respond when their feelings are ignored? They escalate—yell louder, cry harder, listen less—which in turn stiffens the experts, which further provokes the audience. The inevitable result is the classic drama of stereotypes in conflict: the cold scientist or bureaucrat versus the hysterical citizen.

Breaking this self-defeating cycle is mostly a matter of explicitly acknowledging the feeling (and the legitimacy of the feeling) before trying to explain anything substantive—because any effort to explain substance first will be experienced by people as just another way of not noticing how they feel. The trick, in other words, is to separate the feeling from the substance, and respond to the feeling first. “I can tell you’re angry about this” won’t eliminate the anger—nor should it—but it will eliminate the need to insist on the anger, and will thus free energy to focus on the issue instead. “A lot of people would be angry about this” and “in your position I would be angry about this” are even more empathic remarks, legitimating the anger without labeling the citizen. All three responses are far more useful than pretending that the anger isn’t there or, worse yet, demanding that it disappear. Techniques of this sort are standard practice in many professional contexts, from police crisis intervention to family counseling. Training is available; risk communicators need not reinvent the wheel.

It helps to realize that experts and bureaucrats—their preferences notwithstanding—have feelings too. In a public controversy over risk, they are likely to have very strong feelings indeed. After all, they consider themselves moral people, yet they may be accused of “selling out” community health or safety or environmental protection. They consider themselves competent professionals, yet they may be accused of egregious technical errors. They very likely pride themselves on putting science or public service ahead of personal ambition, yet they may be accused of not caring. They chose their careers expecting if not gratitude at least a calm working environment and the trust and respect of the community. Instead they are at the center of a maelstrom of community distrust, perhaps even community hatred. It hurts.

The pain can easily transform into a kind of icy paternalism, an “I’m-going-to-help-you-even-if-you-don’t-know-what’s-good-for-you” attitude. This of course triggers even more distrust, even stronger displays of anger and fear. Risk communication stands a better chance of working when both sets of feelings—the expert’s and the community’s—are on the table.

Feelings are not usually the core issue in risk communication controversies. The core issue is usually control, and the way control affects how people define risk and how they approach information about risk. But the stereotypical conflict between the icy expert and the hysterical citizen is nonetheless emblematic of the overall problem. The expert has most of the “rational” resources—expertise, of course; stature; formal control of the ultimate decision. Neither a direct beneficiary nor a potential victim, the expert can afford to assess the situation coldly. Indeed, the expert dare not assess the situation in any other way. The concerned citizen, meanwhile, has mainly the resources of passion—genuine outrage; depth of commitment; willingness *to endure personal sacrifice*; *community solidarity*; informal political power. To generate the energy needed to stop the technical juggernaut, the citizen must assess the situation hotly.

A fundamental premise of “Explaining Environmental Risk” is that risk understanding and risk decision-making will improve when control is democratized. We will know this is happening when citizens begin approaching risk issues more coolly, and experts more warmly.

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