4 Explaining Risks to an Aroused Public

I know of no safe depository of the ultimate powers of society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion.
—Thomas Jefferson

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.
—U.S. Environmental Protection Agency

Even though good risk communication cannot always be expected to improve a situation, poor risk communication will nearly always make it worse.
—National Academy of Sciences

The Power of Television

"Would you live near a plastics plant manufacturing polyvinyl chloride?"

For 90 minutes an 11-member CBS team of reporters and television cameramen surrounded me in my EPA office as the interviewers over and over again tried to pin me down with different phrasing of the same question. For 90 minutes I avoided a direct answer. The EPA Administrator commended me for my oratorical skill. But my friends condemned me for the bureaucratic double-talk that came through during the 90-second clip from the interview shown that evening.

At the time of the broadcast in 1974, I surely would not have lived near a polyvinyl chloride plant which might expose my two young daughters to vinyl chloride that had been detected seeping into nearby neighborhoods. Since I had the option to live elsewhere, I simply would not have taken a chance regardless of how low the risk seemed to the experts. At the same time, I, as a government spokesman, could not express this view on a nationwide news broadcast. Such a statement could trigger a flurry of panic among the millions of Americans who had lived near these plants for many years and who did not have the financial wherewithal to move from their neighborhoods.

During this interview and my subsequent meetings with the press, the reporters were not interested in estimates of risk probabilities associated with vinyl chloride exposures. They didn't want to hear about the difficulty in extrapolating from laboratory experiments to real-life situations. They wanted a simple answer to a simple question. Was an EPA official who was at the center of the government's investigation of the problem of vinyl chloride releases prepared to trade places with the residents of Louisville, Long Beach, or Painesville who lived near these plants? If not, what was the government going to do to protect these residents?

The power of television is at its height when ordinary people painfully convey their individual stories and when personal tragedies are laid at the doorstep of the government which has a responsibility to protect all citizens from harm. Since environmental risks affect people from all walks of life, the possibilities for compelling stories are endless. Thus, the impacts of chemicals on people—and also on fish, on wildlife, and on forests—will continue to provide good grist for television, both nationally and locally, during the years ahead.

An authoritative study of national television coverage of environmental risks reached some interesting conclusions:

> ABC, CBS, and NBC's carefully crafted and expensively produced evening news broadcasts devoted 1.7 percent of their air time to 564 stories about man-made environmental risks during the period from January 1984 to February 1986. Little relationship was found between the amount of coverage and public health risk. Indeed, the networks appeared to be using traditional journalistic determinants of news (timeliness, proximity, prominence, consequence, and human interest) plus the broadcast criterion of visual impact to determine the

> degree of coverage of risk issues. . . . Given the media's need for news pegs, acute and chronic risk stories were covered differently. Acute risk stories were reported in a clearly defined cycle, peaking on the second day with on-the-scene reports and film clips of devastation. In keeping with a decrease in visual drama, later reports were shorter and emphasized legal and political considerations. Chronic risk coverage followed the release of new scientific, legal, or political information.[1]

Another study during the 1980s of coverage by the major television networks and three leading national newspapers of several major environmental problems involving toxic chemicals concluded that "media coverage of chemical health risks is likely to reflect the assumption that a risk is serious enough to require action; uses scientific data sparingly; and presents a sensationalized perspective."[2]

As to the experts who are shown on television, both studies concluded that government spokesmen are usually the primary sources of information with scientists and independent experts consulted only sparingly.

Many government and industry officials—as well as environmental groups—firmly believe that the public does not know when to worry and when to relax, and they like to blame television for this confused state of mind. These same critics must also assume some of the blame themselves. They are frequently less than open, forthright, and honest in their dealings on television. Indeed, my debut on CBS in grappling with vinyl chloride was not a proud moment.

Most government and industry officials feel confident with well-rehearsed appearances arranged to sell a point of view, but they are far less comfortable in unstructured give-and-take sessions designed to bring all the facts and opinions out into the open. They know that vocal elements of the public harbor a deeply embedded mistrust of government policies and industry motivations. Nevertheless, almost all senior environmental officials from government and industry face the cameras at one time or another. Some recognize their clear obligation to cooperate with the media which has become a major environmental force nationally and locally. Others realize that they have no place to hide and have become accustomed to going through the motions of communicating with a skeptical public. A few public officials genuinely welcome public debates of issues they are addressing and carefully weigh ques-

tions and comments of their critics in carrying out the assessments leading to their decisions.

The public often has difficulty distinguishing sincerity from cynicism on the part of officials. Television time is carefully husbanded, and more questions are often raised than answered in the brief public sparring. Thus, short clips frequently reinforce stereotypes of the "typical" government official in the eyes of those who have strongly held views on issues that are raised on television.

In response to the general awareness of the power of television, a call for the training of risk communicators is now sweeping through Washington. Ten percent of all EPA employees are being trained in this field—an unprecedented level of interest in communications among government agencies or indeed among any workforce. High-priced public relations firms are in great demand by industry to organize classes for the community outreach specialists of the large companies. Material on how environmental officials can effectively communicate with the public is flooding the popular and scientific literature. Hopefully, these officials will pay heed to the admonition in all the literature that the most important aspects of communication are honesty and forthrightness.

In 1987, I was swept up in the initial wave of risk communication training. I was chosen as one of five members of the American Chemical Society to receive practical instruction on how to provide the public with more objective information about chemical risks. All five of us felt that chemicals were receiving a bad rap, particularly in Washington, in being depicted only as an enemy of society when in fact they are critical to our very survival. At the same time, none of us worked for the chemical industry.

We spent one day in a Washington television studio with a seasoned network television commentator. She confronted us with all the popular clichés about killer chemicals and poisoning of the environment. She demanded immediate answers to her questions and would not accept scientific gobbledygook. She was deliberately abrasive and nasty, but she was effective. We had great difficulty surviving her well-directed barbs.

After this humiliating experience, I assembled many one-liners that can be injected amid rapid-fire questioning to help put chemical

risks into perspective: "When properly handled, chemicals are safe." " 'Risk' is the extent of the threat to human health and the environment when chemicals are not properly handled." "Many naturally occurring chemicals present greater risks than man-made chemicals." "The risks of cancer and other effects from chemicals in the environment are much less than the risks from automobile accidents, smoking, and drugs."

However, I don't think I will ever adjust to her contention, and the contention of many other experts, that a specialist's effectiveness on television depends largely on speaking mannerisms (50%) and body language (40%), and only secondarily on the substance of the remarks (10%). In any event, television is clearly a dominant force in communications between the government and the public on environmental issues. Increasingly, mastery of television skills is becoming a decisive determinant in the shaping of environmental policies.

The Continuing Impact of the Press

Turning to the printed word, almost every environmental official has bridled at inaccurate, incomplete, or distorted reporting of his or her statements. Many have been disappointed with the press for ignoring the "authoritativeness" and the importance of their words and not giving greater coverage to statements which support their views. While the impact of television close-ups of chemical fires, of chemical leaks and spills, and of suffering victims can shock the public, the less visual newspaper accounts of environmental problems also can stir emotions of the man on the street and rile the anger of responsible officials.

Veteran environmental officials often personally enjoy being quoted in the press. Almost every environmental agency has a staff which screens the press and clips articles reporting on the activities of its leaders. Too often, however, environmental officials become very cynical about press reporting. They try to conceal their belief that environmental reporters are novices in need of an education, and occasionally they simply talk down to the press.

Practicing scientists and other specialists dealing with the details of environmental problems sometimes view the press as their only effective vehicle for communicating with the politicians who make

decisions. Also, environmental lobby groups heavily orient their activities toward media appeal, and they frequently measure their success in terms of inches of press coverage nationally and locally.

Of course many newspapers and magazines publish excellent reports of the histories, risks, and uncertainties of chemical incidents. A number of environmental reporters are highly skilled in identifying significant scientific findings and uncovering crucial environmental assessments that for one reason or another were never released to the public.

While reports on environmental crises tend to dominate the coverage, important policy developments and general assessments of the state of the environment are not neglected. For example, on September 8, 1989, while in Davis, California, I bought copies of the *New York Times, Los Angeles Times,* and *Sacramento Bee* for a group of visiting dignitaries. On the front page of each of these papers was a lengthy account of the findings of the National academy of Sciences in Washington that American farmers and farming enterprises used excessive amounts of fertilizers and pesticides. An important study of the academy had concluded that federal agricultural subsidy programs designed to encourage more efficient and profitable agricultural approaches had also encouraged excessive use of chemicals. A number of case studies of alternative approaches to farming showed that farming which is less dependent on chemicals can often be more successful in raising productivity per acre.[3] The press accounts reporting these findings certainly had an impact in the farming communities of California as well as in Washington, and I suspect in many other communities throughout the country.

While many articles and popularized books present balanced views of environmental issues, catchy headlines are still used to aggressively sell publications. Thus, the *Miami Herald* banners on the front page, "New migraine for motorists: mandatory testing of exhausts." On an inside page, the headline reads, "Tailpipe test will be pain for drivers." Only reluctantly does a subheadline state, "But cleaner air could be the result."[4] Similarly, Americans are regularly exposed to dramatic titles designed to promote the sale of books. Recent titles include *The Ozone Crisis, Toxic Terror, Laying Waste: The Poisoning of America by Toxic Chemicals, The Poison Conspiracy, Malignant Neglect,* and *The End of Nature.*

Sensationalized headlines and titles will remain an important dimension of the environmental movement. They will continue to catch the attention and often distort the views of the public. Hopefully, the reporting that follows the headlines and the discussions behind the titles of the books will be more responsible. We simply will have to live with the reality that dramatic phrases sell newspapers and books. Only an expanded educational effort on a broad front can create a more sophisticated readership which recognizes that complicated environmental issues cannot be presented in a handful of words.

Seeking Consensus but Encountering Controversy at Public Meetings

While the media will undoubtedly remain the major communications link between government agencies and the general public in the environmental field, other important forms of communication are rapidly spreading as some segments of the public become deeply immersed in controversies. Often the problems are so complex that even the most articulate journalist has great difficulty in presenting the key issues within the constraints of press deadlines and limited space. Also, much of the supporting information is highly technical and hardly suited for television or newspapers.

Nonetheless, government officials should not underestimate the capabilities of environmental reporters or the sophistication of the public. When an environmental problem has a direct impact on a community or on individuals within the community, local newscasters and residents quickly become quite expert in many detailed aspects of issues previously reserved for only specialists. Even in those cases when a government agency decides to shoulder the entire burden of telling its own story through seminars with local community leaders, through public meetings, and through volumes of technical documents, it should recognize the media as an important interpreter of developments in communicating with the public.

In recent years, meetings between government officials and the public on environmental issues have become commonplace at the federal, state, and local levels. Laws or regulations may require such public sessions. Interest groups may demand them. Meetings may be

organized by government officials who are seeking support or who are trying to minimize opposition concerning their proposals. Some officials may initiate interactions with the public because of their personal commitments to the concept of a public role in decision making.

Public meetings can be highly structured and carefully orchestrated events. They can be informal and freewheeling. They can be held in connection with seminars involving experts. They can be organized as focus groups involving parties who have similar or conflicting points of view.

Environmental controversies are very diverse. The political setting for each problem is usually quite unique, and the public's reactions are highly dependent on deeply engrained local social and economic interests. Several unusual personal experiences have influenced my views as to the role and impact of public meetings. These case studies highlight a few important aspects of seeking consensus or at least common understanding. They may be helpful in identifying some of the potential pitfalls in future communications between government and the public.

In early 1980, I visited Three Mile Island to consult with the EPA staff. They had been in Pennsylvania for about one year to monitor radiation levels in the area, following the reactor accident in 1979. During the visit, my EPA colleagues thought I should meet with some of the molders of public opinion in the area.

We went to a church where 25 pastors from the area had gathered at the request of the government officials supervising activities at the reactor site. The idea was to persuade the clergy, and through them a large number of local residents, that radiation was being effectively contained within the disabled reactor and that there was no need for concern. Also, experts would describe the plans for a one-time release from the reactor building into the atmosphere of xenon, a radioactive gas which had been accumulating and thereby complicating efforts to clean up debris from the accident. They would explain how the release would be completely harmless: the radiation levels in surrounding communities would be so minuscule that the most sensitive instruments would have difficulty detecting the xenon. The clergy, therefore, should calm the fears of their parishioners who might imagine that a radioactive cloud was to engulf the region.

This meeting was a lesson in how not to interact with the public. A group of representatives from different federal and state agencies presented a set of briefings on how nuclear reactors function, how the accident occurred, how the xenon would be released, how levels of environmental radiation are measured, and why low levels of radiation have little health and environmental significance. The speakers droned on for 90 minutes, occasionally complaining that the church was not equipped with appropriate projection equipment. The pastors did not intervene with a single question. They twitched with apparent boredom, but they restrained themselves from dozing.

Finally, as the time to adjourn the meeting approached, the senior government spokesman asked if the pastors had any questions. Finally, one minister spoke, "We appreciated your going to all this trouble, but what you say is not important. The issue is not radiation levels, but it is the morality of using nuclear power. We don't need nuclear weapons, and we don't need nuclear reactors." With that statement, the pastors excused themselves and left.

Another case in point came 15 months later as the EPA grappled with the problems at Love Canal. Upon my arrival in Niagara Falls, I was greeted by a police officer who advised me that he would be my escort during my brief stay in the city. He added that bodyguards had been assigned not only to me but to all government officials who had arrived. We were in the city for a meeting with the residents of the Love Canal area concerning the results of the EPA monitoring program which had been carried out to determine the habitability of the area. As discussed in Chapter 2, this program was directed to the residential area beyond the ring of homes immediately adjacent to the Canal. The homes in the inner ring had already been evacuated.

My bodyguard suggested that we have dinner at a small out-of-the-way café since reporters and hostile homeowners seemed to be everywhere. We could then proceed directly to the chambers at city hall for the meeting. At dinner the policeman described the pent-up anger of the Love Canal residents over the squabbling between the state and federal governments as to who was responsible for investigating and cleaning up the mess.

After dinner we joined the other ten officials and their police escorts at city hall exactly on time, and my government colleagues and

I immediately took seats at the front of the council chambers. More than 50 television and press cameras and several dozen police officers ringed the audience of 300 homeowners. The mayor presided.

Using large maps and charts, we carefully explained the design of the monitoring program and the levels of environmental contaminants which had been found throughout the area. We then articulated the bottom line: (1) the levels of contamination in the area where residents still lived were no higher than contamination levels in other industrial cities of the United States; (2) there was no evidence that contamination in the inhabited area was attributable to dumping in Love Canal; and (3) the levels of contamination posed no threat to human health. The meeting was opened for questions, and the shouting soon began.

A small bespectacled man quickly rose and began waving documents. When asked by the mayor to identify himself, he revealed that he was a lawyer speaking on behalf of some of the owners of property where we had conducted the study. He displayed outrage over the government's "whitewash" since "it was obvious" that the entire area had been "poisoned by leakage of chemicals from the dump." As he began to rattle off rebuttal evidence from *his* group of scientific experts that the area was indeed contaminated to an unsafe level due to its proximity to the Canal, the cameras pressed in around him. The police edged forward, and other members of the audience a few feet away began to shout him down.

For a moment the meeting took on a circus atmosphere as the shouting spread throughout the chamber. The television cameras switched back and forth, and the police kept hustling from one position to another. The lawyer's adversaries had much louder voices. They immediately made it clear that the lawyer's clients, while still homeowners, had already moved from the area on the lawyer's advice that the neighborhood would be declared a disaster zone by the government. The residents still living in the area were not interested in a legal treatise presented by a lawyer representing absentee landlords who was trying to squeeze as much money as possible out of Occidental Petroleum Corporation—the parent company of the dumper of the chemicals 30 years earlier. These residents had come to the meeting to learn the "facts" from this latest study, and they were genuinely interested in what the EPA had to say.

The mayor gained a semblance of control over the meeting, but

shouting and acrimony continued to punctuate the discussions. Most residents, vitally concerned over the health of their families, seemed relieved by the government's contention that the threat had been exaggerated and that evacuation was not necessary after all. Some were clearly incensed that a lawyer was trying to discredit a study which they found reassuring, and two or three even seemed ready to engage in fistfights with outsiders who were using up valuable time at the meeting for their own selfish purposes.

The residents were remarkably well informed about the health implications of exposures to toxic chemicals. Most seemed to accept the conclusions that contamination levels were below thresholds of concern and that the chemicals in the environment were from nearby industry and natural background sources and not from the Canal. They did not challenge the EPA's scientific findings. What disturbed them most was the lack of vigorous government action to reverse the image of the area as a toxic wasteland. This image heavily devalued their property and took an emotional toll on their families.

Let me now turn to a final story in community relations. During my tenure as the senior EPA official in southern Nevada in the early 1980s, the EPA developed a novel community outreach program in the towns and small settlements downwind from the nation's nuclear weapons test site. The objective was to reassure local residents that they were not being exposed to harmful levels of radiation from weapons tests.

After discussions with community leaders, the EPA in cooperation with the U.S. Department of Energy enlisted about a dozen high school science teachers to operate radiation monitoring stations in their communities surrounding the test site. The government provided the teachers with training in the fundamentals of radiation monitoring, logistics support, and technical advice, as well as small stipends. The teachers were then able to ensure that the stations operated properly. They collected samples and reviewed the measurements that were recorded on their instruments. They signaled the alarm if there was any semblance of radiation. These teachers had the full confidence of their neighbors who became quickly informed about the monitoring activities of the government and the implications for their communities. As the teachers reviewed the radiation measurements, the credibility of "their" data was never questioned.

In support of this effort, two interesting experiences in interacting with the public took place in 1984 in the middle of the Nevada desert about 100 miles north of Las Vegas and just at the edge of the test site. One was spontaneous and unannounced. We simply dropped in on a family at the largest ranch in the area, devoured large pieces of their homemade berry pie, presented them with some recent popular magazines that had just arrived in Las Vegas, and discussed how they could participate in monitoring radiation in the area. The family was delighted to have visitors from the city, and they were clearly satisfied that radiation would not seep into their ranch.

The second event—a public meeting to discuss radiation from the test site—was formally announced in the local papers and advertised by word of mouth in the desert communities. About 25 local residents showed up to meet with several government officials in a lone café which interrupted the barren countryside along an infrequently traveled desert road. The informal EPA presentation describing nuclear testing was delayed by occasional horseplay at the bar but was greatly appreciated. The many beers consumed by all reinforced the stereotype of the EPA officials, at least in southern Nevada, as real people.

In summary, the meeting at Three Mile Island was not successful largely because of a lack of government sensitivity to the orientation and interests of the pastors. The clergymen simply considered technical details a low priority. Their primary concern was the immorality of nuclear energy. Had the government spokesmen at least acknowledged at the outset that views differ over the morality of nuclear power and invited comments, they might then have had at least an outside chance of reaching the pastors with their technical message. At Love Canal the meeting succeeded in providing residents with some understanding of the results of a highly publicized "definitive" study. At the same time, the mere presence of officials from Washington in the city served as a lightning rod for the frustrations of an entire community after years of study and indecision by federal and state agencies. In Nevada, the personal touch worked well in establishing critical awareness for serious, if informal, discussions. Of course the number of residents of the area around the test site is very small. But even when government officials must deal with much larger populations, taking the time to

interact informally but seriously with a few key public leaders can have substantial payoff in building mutual confidence and respect.

The Conventional Wisdom for Communicating with the Public

Why doesn't the public trust government agencies responsible for environmental decisions? Is it because of the unacceptable behavior of the EPA leadership during the early 1980s, and specifically their activities that involved collusion with industry, perjury by key officials before the Congress, and a jail sentence for a top official? Is it because the Department of Energy, behind the shield of national security, dumped nuclear wastes at its facilities with insufficient regard to the lasting damage that would ensue if the wastes were not properly handled? Is it because the public won't accept the idea that there must be losers in every environmental decision? Or is it simply a matter of poor communications between the government and the public? Public mistrust is rooted in all of these factors.

Now as the government agencies struggle for a degree of public confidence in their activities, *effective* programs for communicating with the public have become a high priority. Every environmental agency throughout the country has a public relations program. Many of these programs have assumed a refreshingly high level of sophistication. They no longer simply distribute press releases but genuinely seek to engage the public in discussions of issues. Thousands of public meetings concerning environmental issues are organized each year by these agencies. Most importantly, decision officials have become the principal participants in efforts to communicate with the public.

Meanwhile, risk communication has become a trendy topic for academic researchers. What can environmental experts say now concerning the effective communication of risks after two decades of intensive experience in addressing environmental and health problems—other than noting that there is no simple formula for successful communications?

First of all, the American public simply will not accept the naïveté reflected in the following statement which was recently published by

specialists in risk communication: "The job of risk communication is . . . to explain risk assessment findings to the public so that the public accepts the judgments of the experts, thus saving the day for rational risk management."[5]

More sensible communications experts note that differences in the ways risks are expressed can have a major impact on public perceptions and personal decisions. For example, if a hazard is described as a risk to a general population (e.g., the incidence of cancer in the area will increase by one tenth of one percent), it is much less worrisome to individuals than if it is described in terms of personal impact on those individuals (e.g., your children are in a higher risk category than children living in other areas). Also, when people are informed about an unfamiliar hazard, say a pesticide with a complicated chemical name, they often will generalize to other hazards, such as other better-known pesticides or other chemicals used around the house. Risks linked to dreaded diseases such as cancer and birth deformities are generally perceived as more threatening than risks which might have less familiar effects such as nervous disorders.[6]

Two of the most helpful documents in introducing both specialists and laypersons to the science of risk communications as this neglected field moves from the backwater of cognitive psychology to the center stage of public policy were recently published by the EPA and by the American Chemical Society. These brochures have been distributed to thousands of local public health officials and local community leaders, and they have become very popular in schools as well.[7]

The pamphlets recognize the difficulties that arise as communities and individuals try to understand the significance of industrial releases of chemicals into nearby communities—releases that can excite fears and anxieties regardless of the extent of the risk to human health. The pamphlets note that government officials must frequently face public outrage or total apathy concerning local problems. Citizens often demand absolute answers. In the absence of very persuasive data, the public will be reluctant to change strongly held views. Government agencies often have difficulty communicating with the public due to their own limited understanding of the interests, concerns, fears, priorities, preferences, and values of individual citizens and public groups.

Given these realities, the documents offer the following guidelines

for government officials responsible for communicating with the public about chemical risks at the local level:

- ☐ Accept and involve as legitimate partners all parties with an interest or stake in the issue. The goal should never be to manipulate the public into accepting decisions that have already been made or to justify avoidance of action. Adequate time should be set aside for hearing concerns, generating alternatives and solutions, and making decisions.
- ☐ Listen to the audience. Assumptions should not be made as to what is bothering people. Sometimes people are more interested in the social and psychological dimensions of risks (e.g., voluntariness and controllability) and in the trustworthiness, competence, and credibility of industry officials and community leaders rather than in the scientific intricacies of the problems.
- ☐ Assess and nurture government credibility. Credibility is difficult to earn, easy to lose, and, once lost, almost impossible to regain. It is of great importance that concrete actions follow promising words.
- ☐ Plan carefully before communicating. There are many publics, each with its own interests, needs, concerns, priorities, perceptions, and preferences. Communications should be targeted to specific audiences.
- ☐ Be honest, frank, and open. The strengths, limitations, and uncertainties in data and in assumptions, including judgments of other credible sources, should be discussed openly. Mistakes should be acknowledged.
- ☐ Speak clearly and with compassion. Technical language and jargon pose substantial barriers in communicating with the public. Of particular importance, the qualitative dimensions of risks such as equity and fairness should be acknowledged.
- ☐ Coordinate with other credible sources. Third-party experts can be very useful in enhancing perceptions of objectivity. Conflicting interpretations are usually unavoidable and may help illuminate different points of view.
- ☐ Meet the needs of the news media. The media is often more

> interested in simplicity than in complexity. Officials should take special pains to be accessible to the media and should respect the space and time constraints of the media.

After living through the EPA scandals of the early 1980s, environmentalists and indeed many other segments of the public were heartened when in 1985 they read the following instructions from the new administrator of the EPA to his employees:

> Most important is the integrity of the EPA; we must do business in the open. The nation is interested in the values we reflect in our work—in how we work as well as what we do. EPA managers should actively solicit and respond to the advice of interested parties, such as states, industries, environmental groups, and the general public . . . . Our proposed actions to improve environmental quality must be explained in ways that encourage people to suggest changes that may make our actions conform more closely to public values.[8]

Yes, a few ground rules for communication between government agencies and the public have been set forth. Now the challenge is for all interested parties to respect these guidelines in ensuring that diverse points of view are presented in a timely manner and are fairly considered.

Withholding Scientific Data from the Public

A particularly difficult issue confronting environmental agencies is when to release scientific data to the public that suggest the possibility of a toxic hazard. New information showing adverse biological effects may be developed during laboratory or epidemiological studies. Scientists may obtain monitoring measurements which indicate high levels of chemical pollutants in the environment. They may uncover new evidence of excessive discharges of chemicals from manufacturing facilities.

If a scientific study is still under way, should data being analyzed during the course of the study be released before the study is completed? Would withholding the data jeopardize the health of residents who would leave an area if they were aware of a possible hazard? Would piecemeal release of the data suggest a degree of hazard or a

level of complacency that might prove erroneous upon completion of the study?

Let me cite an example. In 1975 the EPA began sampling rivers and streams throughout the country for the presence of asbestos. During preliminary testing of the Schuylkill River which fed the Philadelphia drinking water system, the EPA found asbestos fibers in one of two samples taken from the river above the drinking water intake. Obviously, more extensive sampling was needed. However, only one laboratory in Chicago was equipped to analyze water samples for low levels of asbestos, and a delay of several weeks could be expected before a significant number of samples could be analyzed.

In the meantime, EPA specialists postulated that asbestos fibers were released from manufacturers in clumps and transported in mini-packets through the discharge pipes and then downstream. Thus, they concluded, the sample may have been a "fluke" that was typical of the overall conditions of the river. Still, the EPA had found asbestos, a hazardous material, in the river, and the Agency felt obliged to inform local officials. The city immediately released the information to the press, and headlines soon blared the threat of asbestos fibers in the city's water supply. Subsequent monitoring confirmed the initial hypothesis that the samples were indeed atypical and that asbestos was not present to any significant extent in the water supply. A false alarm which greatly exaggerated the environmental threat was sounded to the public. Some residents undoubtedly shifted to bottled water on the basis of the press reports. Fortunately, the city environmental experts who did not want to release the data in the first place successfully argued with the city politicians against any action to tamper with the water supply until the results of additional monitoring had become available.

In the environmental field, scientists never have "adequate" data. Environmental officials have become accustomed to acting on the basis of limited data. The public too must frequently cope with limited information. But should data be released before the accuracy of the measurements has been confirmed? Before confirmatory data have even been collected? Before scientists have had an opportunity to review the data for inconsistencies, trends, and patterns? Before scientists and decision officials have assessed the significance of the data?

While each case is different, political factors almost always affect the timing of data releases. In some cases, policy officials and other interested parties may agree well in advance on a specific date for a public release, and scientists try their best to adjust their timetables to meet this deadline. Often an environmental agency asks, "Do we have enough information for a press release that will not unduly excite the interested parties but will satisfy them until the study is completed?" Finally, the press may become aware of preliminary findings through its own channels, leaving the government with no choice but to release the available data. The approach of simply holding back information until an agency has finished its studies is very difficult to support in the face of political pressures. Also, a myriad of ethical considerations cloud almost every decision when public health is at stake.

Given the scientific uncertainty associated with partial data but also recognizing the right of the public to know promptly about the results of government investigations, I have several suggestions concerning the release of information obtained by the government on environmental hazards. First, data which have not been validated for their accuracy through duplicative measurements or other cross-checks should not be released, even with caveats. Agencies should not attempt to interpret data which could be biased by poor collection or laboratory practices, nor should they expect the public to wrestle with data distortions. If the press obtains unvalidated data, the government should simply respond that at that time no comments can be offered on questionable data. Second, whenever an agency releases partial data concerning an environmental problem, the agency should explain how far along the overall study has progressed and should present its preliminary views, if any, on the significance of the partial data. Finally, if there is a question as to whether to release *validated* data, the agency should tilt toward releasing rather than withholding the data.

Industry too is often saddled with conflicting impulses on when to release data to the public. The public relations departments of companies are usually eager to provide nearby residents with accurate information about the operations of their plants. They want to nip in the bud any false allegations about environmental contamination resulting from manufacturing processes. On the other hand, corporate legal staffs argue for releasing information only when required by law or regulations. Any additional information might unexpectedly be used in legal

actions against the company, they contend. Indeed, corporate lawyers worry about releasing information even to plant workers who in turn might disperse information to others or who might use the information in claims for workers' compensation.

Meanwhile, industry is required to report to government agencies information on spills of chemicals and on other hazards posed to workers by their activities. Also, since the mid-1980s federal regulations call for industry to provide annual estimates to the EPA on a plant-by-plant basis of the amounts of several hundred chemicals being discharged into the air and water or being sent to waste storage sites. The EPA in turn makes this information available to the public through press releases, through reports containing compilations of data that are submitted, and through computer printouts of the raw data.[6]

The community's right to know about chemical activities is now embedded in other regulations as well. Industry is required to provide the EPA with any evidence it uncovers suggesting that chemicals which it manufactures might be hazardous to health or the environment. For example, a company may at its own initiative conduct a study of the effects of a chemical on laboratory animals. If the results of the study suggest that the chemical might induce adverse reactions, the company now must promptly inform the EPA—a requirement triggered by industry's withholding of laboratory studies indicating harmful effects of exposure to vinyl chloride as discussed in Chapter 2. The Agency then decides whether the information should be widely disseminated. Also, companies must affix appropriate labels on chemical containers setting forth any hazards associated with the chemicals.

Cutting across these obligations of industry to report on their activities to government agencies are the requirements of the Freedom of Information Act. This law provides for public access, on demand, to information which the government possesses. At the same time, however, industry is guaranteed protection of its industrial secrets. Both government and industry devote considerable effort to devising techniques for complying with these two seemingly contradictory requirements. For example, a common approach to protecting the secretive molecular formula of a chemical is for the company to identify for public release the class of chemicals within which the protected chemical falls. Generally, chemicals in the same classes tend to have similar hazards, and therefore the public is warned about the potential hazard

of a class of chemicals. This approach is not completely sound since even very similar chemicals behave differently, but it still provides a reasonably good indication of hazard.

Mediation Tempers Confrontation

The generators of pollution, environmental groups, and other segments of the general public all want to be informed of governmental studies and regulatory actions. However, each frequently wants to exert influence on these activities as well. Each can, of course, participate in the highly structured legal proceedings for "public input" established under many laws. But those outside the government often feel that such participation is little more than perfunctory and cannot truly influence large governmental organizations.

For more than 15 years, a few environmental organizations in Washington and in other regions of the country have searched for effective approaches to speedily resolve environmental problems among the key interested parties themselves, and particularly those types of problems that frequently become entangled in a time warp of legal proceedings. Many environmental activists and industrialists as well have simply lost patience with the high administrative and legal costs in resolving contentious environmental stalemates. The costs of formal hearings, written rebuttals, and court rulings that drag on for years have become legendary.

Environmental mediation can be an attractive alternative. It can encourage the public to participate in debates over environmental disputes while reducing the factors of time and cost. This approach was conceived as analogous to labor–management bargaining under the auspices of an impartial mediator. Participants at the table include representatives from industrial, municipal, or other organizations whose actions may disrupt the environment and representatives from the public segments who would be most closely affected by the environmental impacts. The mediator may be a university professor, a respected local figure, or someone else who is perceived by all parties as objective.

The idea is to reach a consensus on some or all aspects of a specific environmental problem during relatively unconstrained discussions among the key parties. Such discussions, free of the formality of

a judicial setting, can lead to agreements which are immediately implemented by the participating parties or alternatively presented to a regulatory agency or to a judicial body for legal codification. Early environmental mediation efforts were directed to issues of land use such as the siting of dams, the zoning of real estate, and the routing of high-tension lines. Then in the late 1970s, representatives of labor and industry attempted to close the gap between these two interest groups over the regulation of carcinogens in the workplace, but this topic was soon perceived as too important to be left to informal mediation efforts. More recently industrial and environmental groups have successfully worked out some of the procedures to be followed by the EPA in requiring industrial testing of chemicals under the Toxic Substances Control Act.

One highly publicized mediation effort helped resolve a landfill siting dispute in East Troy, Wisconsin, in the late 1980s. Under state law, the state agencies were charged with determining the need for the landfill. Despite the protests of local citizens, the state ruled in favor of the landfill and supported the engineering soundness of the proposed facility. However, the state determined that the town was to have a say on the "economic and social" dimensions of the landfill.

In the formal negotiations, six local citizens, supported by a lawyer, represented the town and county while the owner of the proposed landfill also hired a lawyer. For a year, negotiations remained on dead center which was fine with the townspeople who preferred that the landfill never arrive. Then, the landfill owner hired a new lawyer from a more powerful legal firm, and the dress code in the negotiations changed from flannel shirts to three-piece suits. The owner decided to demonstrate to the local waste-siting board that the townspeople were not negotiating in good faith and therefore local approval was no longer necessary. The board disagreed. Meanwhile, the local citizens in turn charged the owner with not acting in good faith since the new lawyer withdrew all previous informal agreements.

Finally, after three years of haggling, the parties agreed to engage a mediator. Within a few months, the mediator succeeded in developing an acceptable 41-page agreement that became binding on both parties and enforceable in the courts. A key issue was the monetary compensation to be paid by the owner to the town. The landfill soon began to operate.[9]

In this case mediation brought a long and contentious process to an

end in a reasonably short time. It provided the community with some assurance that local interests had been protected. If the community must have a second landfill, monetary compensation and stringent environmental safeguards beyond those required by state law were some consolation.

Environmental mediation remains an attractive and underutilized alternative to the more formal procedures for regulating chemicals. However, the public official who is ultimately responsible for ensuring that the environmental hazards under discussion are controlled must be fully committed to mediation as a serious effort. In effect, a governor or an EPA regional administrator, for example, must delegate some of his or her authority to the mediation process and must be prepared to accept the outcome.

One of the most difficult issues in structuring environmental mediation deliberations is who is to represent each side, particularly the public. Can two or three local or even regional organizations adequately speak for a broad public? A second issue relates to the continued mistrust between environmental groups and industry. If industry makes concessions during mediation efforts, will the environmentalists nonetheless resort to the courts for additional concessions after mediation ends? Conversely, is industry to be trusted in implementing everything it promises?

Chemical problems confined to small geographical areas lend themselves more readily to informal resolution than those which permeate the entire country. If only one or a few manufacturers are involved, and if there is good faith on the part of industry and the local residents, satisfactory solutions to specific problems can often be worked out.

A second type of bargaining that has gained wide acceptance is the *consent decree* which is now used routinely as an alternative to lengthy court proceedings for resolving contentious issues. Under this procedure a judge oversees negotiations between the interested parties outside the courtroom to come to agreement on steps to resolve an environmental dispute. For example, they may come to agreement on acceptable levels of pollutants draining into a specific stream.

At the national level, the National Resources Defense Council frequently takes legal action through the courts to force the EPA to initiate or strengthen specific regulations. Sometimes other organizations also join as parties to these legal actions. These parties then work

out an approach with the EPA which they all deem acceptable, operating under court-mandated deadlines. They eventually sign a consent decree which is approved by the judge and has legal standing. This environmental version of plea bargaining is also mirrored in some states to resolve contentious issues.

Finally, in another variation of environmental bargaining the EPA and state agencies negotiate daily with industry, government facilities, and municipalities on the details of many types of permits for discharging chemicals. Also, in Washington EPA specialists are in a continuous dialogue with manufacturers of pesticides and industrial chemicals over requirements for laboratory testing and about limitations that should be placed on the manufacture and use of these chemicals.

Environmental groups bemoan the lack of public involvement in these types of discussions. In my view, the current system which calls upon the EPA to represent the public interest in such detailed negotiations within boundary conditions set forth by law is quite appropriate. There is no need to further complicate the already complicated negotiations through greater involvement of the public in these very detailed and often very technical discussions. Indeed, regular congressional reviews of these activities should provide the necessary watchdog function for the public.

Conducting the Business of Government in a Glass House

In general, the EPA and most state environmental agencies have been on the right track in their efforts to involve a broad segment of the public in developing approaches to reducing risks from toxic chemicals without becoming bogged down in so many details that action is indefinitely delayed. The agencies are continuously improving their approaches to respond to the oft-repeated adage, "The challenge is to ensure that everyone is in on the action and to still have action."

At its very inception, the EPA prided itself that it would be a glass house open to all. After an unfortunate detour in the early 1980s when the Agency's leaders decided that they alone should chart the nation's future environmental course, the EPA has returned to its initial tack of reaching out for suggestions from all quarters. This open attitude has

been strikingly different from the approach of the Department of Energy, for example, which until 1989 suppressed its environmental transgressions behind the mystical veil of national security. Now, as the Department of Energy and many other federal and state agencies try to open their deliberations to greater public scrutiny, they can learn a great deal from the EPA's record.

At the same time, EPA employees have been frustrated by the distortion of their own priorities resulting from heavy public involvement in the business of government. In 1987 a group of senior EPA career officials examined the impact of the Agency's programs on reducing all types of environmental risks and reached the following conclusion: "Overall, the EPA's priorities appeared to be more closely aligned with public opinion, often expressed through congressional mandates, than with estimated risk." These environmental professionals concluded, for example, that the Agency's high-priority programs to clean up hazardous waste were less important in reducing environmental risks than its lower priority programs directed to the control of pesticides and the reduction of indoor air contamination.[10] While some skeptics in the Congress and in the academic community take issue with the list of priorities developed by these EPA officials, none denies the importance of public perceptions and public pressures in setting the regulatory agenda.

Despite the commitment to reach out for meaningful input from the public, the EPA's efforts to involve interested parties in its regulatory activities are often in conflict with the realities of bureaucratic life. This situation is particularly evident in the development of national regulations. The EPA expends great effort, involving dozens and sometimes more than 100 specialists from the Agency and from other agencies, in the development of a major regulation. Consensus building is the order of the day, and the personal agreements that are reached within the Agency and among agencies are frequently tenuous at best. Thus, by the time a regulation is proposed for public review and comment, the EPA authors have a pretty firm opinion as to how the final regulation should read if it is to continue to command support throughout the bureaucracy regardless of the public comments received. Often in their view, changes proposed by the public simply complicate the task of retaining the consensus within government.

I have participated in public meetings on new regulations, both as an EPA proponent of regulations and on other occasions as a member of the interested public making suggestions for modifying regulations. At these hearings government officials dutifully record all comments and usually respond to questions. But these regulators usually are not interested in performing major surgery on proposed regulations regardless of the merits of the arguments. They already have devoted two to three years developing the regulation, and they have one overriding objective—namely, to publish the final regulation as soon as possible.

A different approach is necessary to avoid expediency at this point and to ensure that public comments are taken more seriously by the EPA as well as by state and local officials who prepare regulations. Specifically, the EPA official who is responsible for the development of a proposed regulation should not be responsible for the review of public comments on the regulation or for the preparation of the final regulations. He or she is simply too wedded to every nuance of the original proposal. Another official not involved in preparing the proposed regulation should be given the job of reviewing comments and shepherding the final regulation through the bureaucracy. This is contrary to current practice which usually calls for the same official to handle a proposed regulation over all the hurdles from inception to final promulgation.

Meanwhile, as previously discussed, debates of risk between government agencies and the public should not be confined just to hearings on regulations. They should not be viewed as special events orchestrated by specialists in public affairs. They should become a routine dialogue and an integral part of the job of every regulatory official.

In order to save time in meetings with the public, government officials often resort to films, slides, and other slick presentation material. However, this approach may be inviting negative reactions. I remember attending a public meeting organized by the Department of Energy in Henderson, Nevada, on nuclear waste. As soon as a film projector was set up, the crowd groaned and one attendee could be heard by all saying "another snow job." Too often the projector smacks of an elementary school setting, and the government is perceived in a patronizing role as the teacher with the public as the pupil.

In general, scientists are poorly prepared to interact effectively with the public. They usually try to be so precise that no one can

understand them. Who cares other than lawyers whether the concentration of a chemical in the soil is 5 ppb or 10 ppb? Who understands what is meant by a picocurie of radiation? Scientists may comprehend what happens to animals in laboratory experiments, but in the eyes of the public the scientists really don't look at human health risk the way the family doctor does. When the discussion turns to the uncertainty of risk, the dialogue becomes totally incomprehensible.

To some environmental specialists, the public is obsessed with the notion that minuscule levels of trace chemicals cause cancer or birth defects. To others, the government is callous to the contention that miscarriages, asthma, and cancer are being caused by the by-products of industrial processes.

The media will continue to play a crucial role in shaping public attitudes. While reporters may be paid simply to report, in the environmental field they cannot be dismissed as only messengers between government and the public. They have personal views on the issues at hand which often affect themselves as well as others. They must be recognized as important participants in the process of determining the societal response to risks.

However, newspapers and television are not substitutes for more intensive environmental education. Scientists must be retooled to communicate in simple, understandable language. The public must become more sophisticated in its appreciation of the risks and benefits of chemicals. We all need to become more sensitive to the interests and concerns of the many parties vying for a safer environment. Our nation simply cannot afford to be blown by the winds of public emotion lest social paralysis inhibit our advancement as an industrialized nation.

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