5 Ruckelshaus and Risk: Representing the EPA

March 1983 is an important date in the history of the institutionalization of risk-based decision-making more generally. That month, two events took place almost simultaneously in Washington, D.C., the conjunction of which defined and installed a particular design at the heart of federal policymaking and regulatory practice. The first was the awaited publication of RAFG. A day before it came out, the report was presented to an assembly of regulators, risk professionals, industry representatives, and congresspeople at a well-attended dinner at NAS on February 28, and publicly released the next day. The second event occurred eight days later, when EPA Administrator Ann Gorsuch resigned. President Ronald Reagan had appointed her in March 1981 to apply his deregulatory, antienvironment policy agenda at the EPA. Gorsuch did so with a vengeance, severely cutting the staff, implementing drastic budget reductions, confiscating important dossiers to make decisions alone, and slowing and discouraging the development of regulations and enforcement efforts at her own agency. She gradually corroded not only the staff morale, but also the effectiveness and image of the EPA in the industry, as well as in the wider public. She resigned after the House of Representatives cited her for contempt of Congress for refusing to hand in agency records that congressional committees wanted to investigate to clarify allegations of mismanagement of the Superfund program. On March 17, 1983, Reagan reappointed William Ruckelshaus to the position he had held a decade earlier, with the goal of restoring the image of the agency and the morale of its staff. Ruckelshaus returned to the agency with revived energy, vision, and fresh ideas to make it effective and credible again.

The governance of risk and its constituent risk assessment–risk management framework are overwhelmingly sourced to RAFG.[1] But the NRC's

report would probably have been just another well-regarded but confidential text if Ruckelshaus and his aides had not picked up on the architecture of categories and processes that it advanced and people in the EPA had not already started to conceptualize what risk assessment and risk analysis comprised. The particularity of what happened then was that Ruckelshaus implemented—and solidified at the same time—a knowledge representation that RAFG had distilled, because it provided an image of EPA's processes and outputs that concurred with the expectations of various audiences of the agency simultaneously. Indeed, various designs were included in RAFG and in the interpretation that Ruckelshaus and his staff made of it, including the decisionistic logic of deriving decisions from set cancer theories, the commensuration logic of risk-ranking and prioritization, and a third, deliberative logic of constructing images of public concern interactively with the public (i.e., *risk communication*). The categories emerging in RAFG, the political crisis surrounding the existence of the latter, and Ruckelshaus's enterprise of legitimation of the agency formed a unique combination of factors leading to the material and symbolic reorganization of the agency and its way of making decisions.

The Dissemination of RAFG in Washington, D.C.

Anticipating a larger-than-usual impact for RAFG, the president of the academies, Frank Press, decided to hold a dinner the day before its official launch. More than 100 guests attended this highly successful event at the NAS in Washington, D.C., on February 28. Having collected impressions from around town at the dinner, Larry McCray, the NRC staff director for the project, wrote to members of the panel on April 18 that it had been deemed a success by most of those who were present. Press himself characterized the dinner as "probably the best the Academy has had,"[2] with high attendance by members of Congress—twenty-seven of them—and the heads of affected regulatory programs, as well as high-quality presentations by Reuel Stallones, Gil Omenn, Richard Merrill, and Joseph Rodricks. Omenn also considered the dinner an effective event.

The report was published the next day as a neat, readable, accessible document with a vivid red cover (hence the nickname it will later be given, "the Red Book"; see chapter 9). The *Washington Post* signaled its release in a short article. The NRC distributed hundreds of copies of the RAFG, but

it hardly needed to: the report instantly found its readers. This was soon confirmed by the sales numbers: the Academies Press reported that it had sold 600 copies as of April 8, and 1,250 copies by June 24. By all appearances, then, the report was a hit. Less than a month after the release of the report, Philip Smith, the NRC's executive officer, received a letter from Joe Penick, senior vice president of Mobil Oil Corporation and a key player in the AIHC. On the whole, Penick approved of the report and congratulated himself on the fact that it both supported the AIHC's intention in proposing a central risk assessment panel, and was more constructive, offering "a better fit with current procedures of the regulatory agencies." In short, it had a better chance to succeed politically and institutionally. Penick also acknowledged that the report brought about a key conceptual shift: "We agree to the need to distinguish the scientific 'risk assessment' process from the social-economic considerations for 'risk management' required in regulation and standard setting."[3]

The work of disseminating the report was not limited to standard editorial marketing. A significant share of the members of the panel sent copies in person to key contacts or traveled to present the essence of their recommendations to various organizations in Washington, D.C., and in the country more generally. Immediately after the launch, Press wrote to various congresspersons, to the director of the National Institute for Environmental Health Sciences, and to Ruckelshaus, who had just been appointed by Reagan as EPA administrator. Press's executive officer, Phil Smith, sent the report to Jim Tozzi, deputy administrator of the White House's Office for Information and Regulatory Affairs (OIRA), and to Douglas Costle, former administrator of the EPA and a member of the Council for Environmental Quality under President Jimmy Carter. In May 1983, Joe Rodricks testified before the House Committee on Agriculture, Subcommittee on Department Operations, Research and Foreign Agriculture. He testified again before the Senate Subcommittee on Natural Resources, Agriculture Research, and Environment in May 1984. Stallones summarized the report before members of the Toxicology Forum in Aspen that same year.

Those multiple contacts left no doubt about the general reaction to the RAFG. In Washington, D.C. at least, regulators, bureaucrats, lawyers, industry representatives, and risk professionals—that small, nascent risk regulation community—broadly accepted the analysis presented in the report. Most of the reactions that were recorded show that it was interpreted as a

report dealing with the problem of the relation between science and policy—though it replaced these categories with risk assessment and risk management, each embedding a kind of policy content. Other members of the panel, who were defending the more sophisticated "risk assessment policy" concept, were frustrated by this perspective (North 2003).[4] The interpretation of RAFG as saying science should be separate from policy, however, was not completely germane to what the author said in the report. The first few pages introduced risk assessment as a "factual base," not mentioning the role of assumptions and policy judgments involved in choosing parameters to calculate risks at low doses, for instance. And the graph "Elements of risk assessment and risk management," on page 21 of RAFG (figure 0.1), so often reproduced, did not convey the role of uncertainties in a seemingly unstoppable, flowing process of learning from research to produce an estimate of the risk. It does not feature risk assessment policy either. Even Gil Omenn, though a full participant in the panel's work, considered that it was essentially saying the same thing that he had argued in the OSTP report of 1980: that science and decision-making were two separate elements.

Closing the Crisis

A report or a study, however well written and authoritative, generally has very little impact on politicians' strategies and decisions because they simply lack the time to consider ideas and pore over long texts. But the contrary may be true when the study comes at just the right time and place, when and where the politicians need it. In this case, the Academy "got the timing nearly perfect" (Barnes 1993, 8). The report came out just as Reagan was searching for Gorsuch's replacement. Reagan soon decided to bring Ruckelshaus back to the agency to solve this full-blown, open crisis.[5] By his own admission, Ruckelshaus did his best to find alternative people for the job, but eventually decided it was his duty, and challenge, to accept the mission. He finally accepted the mission offered by Reagan on the condition that the budget of the EPA be restored to the 1981 level and that he keep control over the choice of political appointees. Reagan made an exception to his "administrative presidency" strategy (Golden 2013) and agreed to supervise the actions of the EPA less closely than in the preceding years, confident that Ruckelshaus was the man for the situation and that a depoliticization of the agency would help in deflating the crisis surrounding

the environmental issue. He secured an increase in the agency's budget, particularly that of the ORD. While the White House held a discussion of each and every proposed candidate, there was no veto on any of the people chosen by Ruckelshaus and his chosen deputy administrator, Alvin Alm.

Ruckelshaus's persona was that of an effective, dutiful, and impartial civil servant of the highest capacity, whom Reagan trusted to restore the image of the agency and the morale of its staff, as well as the overall credibility of that administration with regard to environmental problems. Many of the people who commented on his nomination used the word *integrity* to describe his reputation (Shabeccoff 1983). Environmental groups, though not opposed to Ruckelshaus's renomination, did not explicitly support it either (Lippincott 1985). They were not reassured by his intention, expressed at confirmation hearings, to hardly change the substance of Reagan's policies but rather focus on adapting the EPA's management style (Layzer 2012).

Ruckelshaus knew he was on a mission. He had little time to restore the reputation and functioning of the agency, and indeed had given himself a tight deadline (he wanted to leave the job after only a couple of years). Before officially taking office in May, he spent time consulting with a wide range of actors of environmental policy, from environmental activists to various industry groups to EPA staffers, to get a sense of what they viewed as the most important and urgent problems to be dealt with when he returned to the job. What he gathered from these conversations was that the agency needed to demonstrate that it was active and effective in protecting the environment and people's health—a point on which Gorsuch had truly instilled doubt in the population. According to Ruckelshaus, starting to intervene again "very clearly and vey publicly" was also in the interests of industry, where there was indeed even a demand by some segments (Anonymous 2008). Ruckelshaus took his time to reflect on the best language to use to reshape the agency's image among its staff and the public. Thinking in terms of "risk assessment" and, more innovatively, "risk management," was how he framed it.

Ruckelshaus already had been given draft copies of RAFG by the president of the Academies in February. He was well prepared to consider its ideas because he was immersed in the intellectual climate of the time and the ongoing conversations about science-based regulation and risk assessment. He had refused to serve on the RAC but had served on Howard Raiffa's CORADM. He knew several members of the panel. In his position, he could

not ignore the debates surrounding the competences and legitimacy of agencies to employ science, as well as the AIHC's campaign for a science panel—a proposal that made little sense to him.[6] Most of his take on risk was inherited from intellectual work around the EPA, in the newly created SRA, in the NRC, and in intellectual references used there, such as the notion that safety is a judgment rather than a calculation (inherited from William Lowrance's influential book *Of Acceptable Risk*), and the distinction between voluntary and involuntary risk. In the words of his future assistant administrator for ORD, Bernie Goldstein, he "jumped on the Red Book."[7] Ruckelshaus's subsequent reconstruction of this choice was the following:

> I was looking for a way of sort of calming the controversy down that existed with my predecessor at EPA, Ann Bedford, and to put the focus of the issue in front of the country in a reasonable way, and the Red Book was a very good tool that helped me accomplish that. Because it allowed me to talk about a lot of issues involving the assessment of risk, which as I say, should be a process that should not in any way be subject to political intervention, and the policy judgments, which are political, with a small p, they should not be a big p political, which society decides for itself what the risk is and what to do about it. And that is a difficult problem, under the best of circumstances. And I was trying to get that whole debate or discussion of the issue of risk assessment and risk management out of the political debate and this Red Book allowed me to do that.[8]

Ruckelshaus was recognized as an effective and skilled public communicator. In the first few months of his second term as EPA administrator, he gave multiple speeches in a number of prestigious locations, addressing a variety of audiences. The first full representation of the EPA as a risk agency was in a speech he delivered before an audience of scientists at NAS on June 22, 1983. The speech opened by depicting a public full of panic and fear, concerning its natural environment, public health, and economic survival. It rapidly moved to name the "idea of science" as one of the fundamental answers to these fears. Science alone could not provide the answer, though, because of its dissonance with public policymaking in a democratic system: "Nowhere is this more troublesome than in formal risk assessment—the estimation of the association between the exposure to a substance and the incidence of some disease, based on scientific data" (Ruckelshaus 1983, 1026). Ruckelshaus then brought in the new notion of risk management:

> Scientists assess a risk to find out what the problems are. The process of deciding what to do about the problems is risk management. The second process involves a much broader array of disciplines and is aimed toward a decision about control.

> In risk management it is assumed that we have assessed the health risk of a suspect chemical. We must then factor in its benefits, the costs of the various methods available for its control, and the statutory framework for decision. The NAS report recommends that these two functions—risk assessment and risk management—be separated as much as possible within a regulatory agency. This is what we now do at EPA, and it makes sense. (Ibid., 1027)

This speech was probably the first public declaration in which the EPA *as a whole*—all of its statutes, offices, and modes of intervention—was redefined using the language of risk: a sort of official birth of risk-based governance. Being delivered at the NAS, to an audience of scientists, and featuring many poignant lines about science, the speech was noted as a commitment to the use of science in federal policymaking.[9] It figures in several books and essays on environmental policymaking and risk regulation (e.g., Dietz and Rycroft 1983; Levenstein and Wooding 1997), and is frequently cited in the academic and policy literature.[10] But there were other reactions to it. The *New York Times*, for instance, emphasized those parts of the speech where Ruckelshaus announced a new cross-government, interagency initiative on risk management. He wanted other agencies to embrace risk and its dilemmas, to relieve pressure from the EPA, and convey more effectively to the public the difficult problems that the federal government in general was facing (Shabecoff 1983).

The main objective was to project in public the internal dilemmas and difficulties of the administrative and scientific processes that the EPA had to operate, perhaps much more than the actual development of risk assessment science at the agency. The redefinition of the EPA's identity in these terms was a direct, transparent response to the accusations against Gorsuch and the concerns of EPA staff. Whereas Gorsuch and John W. Hernandez were accused of manipulating the process of evaluating scientific data in closed meetings with industry, Ruckelshaus gave autonomy to the process of risk assessment, separating it from risk management. Whereas Gorsuch had severely curtailed the agency's budget for research, Ruckelshaus defined science as its most critical resource and announced that the budget of the ORD would be increased. He also stated that he would work to develop long-range research in the agency, thus responding to a plea by many in Congress, industry, and academia. Whereas the policies of Gorsuch seemed to be motivated entirely by the idea of reducing federal interventions, Ruckelshaus focused on considerations of safety, scientific robustness, effectiveness, and costs. Finally, whereas controversies arose from the

misunderstanding of how the EPA assessed risks and derived regulatory measures from it, the risk assessment/risk management architecture was in place to convey to the public a much more direct and approachable image of the agency, one that spoke to expectations about its action in Congress, in regulated industries, in the media, or in the environmental community.

The EPA as a Whole

The risk representation contained, first, a clear, integrated agenda. The administrator insisted that the nature of the issues that the agency was dealing with had fundamentally shifted. While the pollutions the agency took on in the past were material, with identifiable offenders, toxics now represented a more diffuse, evasive, and general threat.[11] This appreciation, arguably a very political judgment about the issues that comprised its agenda, was compounded by internal qualitative and quantitative surveys. One of the reports that Ruckelshaus used was a document called "Trends Likely to Affect the EPA in the Next Ten years," which contained the graph shown in figure 5.1.

Risk assessment, second, not only established the EPA as a scientific agency, but also highlighted the dilemmas involved in using science. Ruckelshaus spent time in his speech outlining the conflict between the work of science and the work of making laws on the environment and health. He reminded the public of this in a sentence that strongly resonated with most recent expert reports on risk assessment, including RAFG: "In assessing a suspected carcinogen, for example, there are uncertainties at every point where an assumption must be made" (Ruckelshaus 1983, 1027).

In the June 1983 speech, Ruckelshaus distorted what RAFG meant, as well as this emergent common wisdom among risk researchers. He spoke about science as much as about risk assessment, betraying his belief about the objectivity of knowledge on risk. He defined risk assessment simply as knowledge about "the nature of the risk," and risk management as the question of "what to do about the risk," as if the risk were easy to capture. Accordingly, this speech called for a clear separation of the two aspects, arguing that this was what RAFG had recommended and seemingly claiming that a neat separation between the objective world of facts on the nature of the risk and the world of choosing what to do about it, based on other, more political considerations, could easily be found (Jasanoff 1987). In fact,

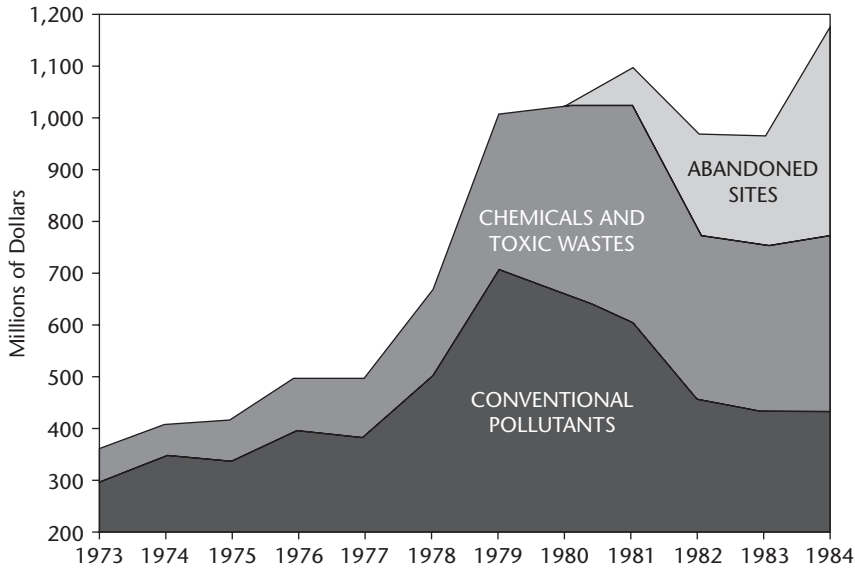


Figure 5.1
Funding history of EPA operating programs by class of problem (adapted from EPA 1983c).

several members of the RAC were embarrassed about the way the report was used by Ruckelshaus as well as others in order to stress this separation of science and policy. Warner North, for instance, recalls that he was troubled by the call for separation, which he considered a misinterpretation of RAFG: "We had encouraged conceptual distinction, but not organizational separation, and we had stressed the need for ongoing communication between the risk assessors and the risk managers. Ruckelshaus went on to give more speeches subsequently published in leading journals.... But he repeated the language that encouraged misinterpretation of what the Red Book actually said" (North 2003, 1150–1151). Some of the very same scientists who were advising the agency were also thinking, contra Ruckelshaus, that uncertainties were inherent to science as and when it dealt with risk, and that risk assessment was inherently limited, in its precision, accuracy, and credibility, by the choices at the level of parameters that were made to compensate for data gaps[12] that constituted risk assessment policy.

But there are reasons to believe that North misinterpreted Ruckelshaus's misinterpretation of RAFG. While Ruckelshaus was speaking before an

audience of scientists, his speech was clearly addressed to other audiences of the agency. He was there to save the agency from accusations that its political appointees manipulated science to legitimize the controversial choice of leaving the chemicals in use. It was sensible politically to proclaim and demonstrate, through concrete descriptions of administrative processes, that EPA top officials would not tinker with the scientific data to impose their preferred regulatory options or dictate to risk assessors what their calculations had to be.[13] To be sure, the conceptual refinements and organizational recommendations of the NRC about inference options and risk assessment policy were lost in his public presentation.[14] Ruckelshaus was not indifferent to these sophistications, but the benefits of the framework in terms of explaining to the public the problems that the agency was dealing with, and its use of science, far outweighed the cost of localized internal critique.

This time, an internal reaction to his representation of the new EPA concerned the emphasis on health risk. Stressing the health agenda, Ruckelshaus was putting forward the action of certain parts of the agency. That focus seemed inappropriate for those who remained primarily interested in dealing with environmental pollution and contamination, as under the hazardous waste and Superfund programs. To correct the imbalance, Lee Thomas, the assistant administrator in charge of these programs, had to point out on the occasion of the establishment of a cross-agency report on risk assessment and risk management, that risks to flora, fauna, and natural resources were part of the agency's mission, as much as risks to human health.[15] By stressing assessment of risks to health as the agency's central commitment and resource, the administrator gave the impression of forgetting some of the fundamental roots of the agency's research programs: namely, the work of its engineers in designing and testing technologies for pollution control and reduction. This was an area in which the agency had amassed a few important successes by developing technologies that would not have existed otherwise—the main example being the catalytic converter.[16] In September 1983, a group of engineers from various labs of the ORD wrote a joint letter to Ruckelshaus to indicate that, by stressing health issues and risk analysis, he was in essence giving up on a fundamental part of the identity and defining source of legitimacy of the agency. They asked him for guarantees that research funding would continue to accrue to them. Those budgets overall declined, as did the ORD's budget over the years, but the EPA's investment in the area declined under a conjunction

of trends: the privatization of much of these technological developments and the concomitant shift of regulatory agencies toward the instrument of performance-based standards in the area (Vinsel 2012).

While Ruckelshaus stressed risk assessment and its separation from policy in many of its public discourses, the most innovative part of this discourse was the use of the notion of risk management, to speak about policy and government of the environment. Risk management nicely bridged different goals and modalities of what the agency was supposed to be doing. It could easily be interchanged with the notion of "risk reduction," which Ruckelshaus readily employed in communication with the general public, notably through the press. He argued that if risks needed to be measured and assessed, then it followed that levels of risk could be acted on, and the EPA would be acting to move these levels downward—not to eliminate them entirely. The notion of risk reduction became one of the central themes in the agency, and lastingly so (EPA 1988). At the same time, risk management, as defined in RAFG as a weighing of different considerations, including costs, was appealing to industrial audiences. It helped demonstrate to the public that the agency was keeping economic and industrial questions in mind. In the first lines of his June speech, Ruckelshaus hinted at the problem of "economic survival," along with the challenge of safety and environmental protection. He also explicitly spoke of costs and benefits as elements of risk management decisions. Ruckelshaus was not an environmental zealot; he was a seasoned Republican, with the environmentally conservative sensitivity that defined a substantial portion of the party back in those years. He also had a good track record in terms of environmental decisions made since his first stint as head of the EPA. But he was not indifferent to the issue of industrial development.

In his view, environmental protection was to be weighed up against industrial development and economic growth—which count as benefits in the language of risk management. This was particularly important with regard to air pollutants, in which the EPA had to face some of the most complicated cases of decision-making, such as ozone. The Clean Air Act was a pure risk statute, with no reference to any consideration of costs and benefits. Ruckelshaus, early on in his mandate, wrote to Vice President George H. W. Bush, calling for a less restrictive Clean Air Act (Layzer 2012). He clearly used the language of risk management to give a place to the consideration of costs and benefits, and more generally to regulatory analysis,

in line with Reagan's regulatory reform agenda, and to weigh in on this legal issue. The separation of risk assessment from risk management was not simply a way of insulating the science, or a promise not to cover up his decisions in technical language. It was also a way of isolating a space of risk management in which he could freely weigh scientific considerations—and the conservative options that often came with them—against other motives of decision-making, such as costs, benefits and political feasibility.[17]

In doing so, Ruckelshaus was executing the kind of engagement with audiences that he thought was crucial to his job. He was in fact instituting a clear division of work between himself and his deputy administrator. His main job was to be active in communicating to the various audiences and interest groups the agency's decisions, operations, and knowledge, not to manage it day to day. As his successor, Bill Reilly, noted, "Ruckelshaus had a very clear concept of the need not only to ensure integrity in public service, in government, as a government official, but also to communicate to the country what a government agency was doing and why" (EPA 1995b). At a moment when the public at large, Congress, and environmental groups seemed to react primarily to issues of health risks and to the problem of the quality and integrity of the science that the EPA used in its decisions, it seemed entirely rational, from a political communication point of view, to stress these aspects. The configuration of political crisis around Gorsuch and other EPA managers created an opening for new discourse about the organization. The fact that the representation that Ruckelshaus used originated in the work of a prestigious, highly credible scientific body and carried its imprimatur made it a natural political choice.

Representing the EPA's Action

The renewed legitimacy that the framework gave to the EPA was so strong, in fact, that Ruckelshaus also felt authorized to put the agency at the center of a governmental branch, redefined as risk management. In the summer of 1983, he contacted the heads of agencies and departments involved in making decisions about toxics and risks to health. Some were in a similar situation as the EPA, applying statutes that made it mandatory for them to measure the risks and safety of chemicals, and to forge regulatory decisions, such as the FDA (food additives), OSHA (chemicals present in the workplace),

or the CSPC (risks from exposure to chemicals in consumer products). But the three departments of health, of transportation, and agriculture were also included in the plan. The idea developed over the summer by Ruckelshaus and his aides was for a council chaired by one of the heads of agencies, rather than by the White House, to exchange information or coordinate decisions on chemicals of common interest, harmonize risk assessment methods, and more—provided that all the agencies agreed. Ruckelshaus built on the IRLG (see chapter 2), but because the risk assessment–risk management framework had tied science to regulatory decisions, regulatory work was now explicitly included in the mandate of this new interagency group as well.

Ruckelshaus had the green light from Reagan to take such an initiative, even though the OMB little enjoyed the enterprise.[18] But in any case, the fact that Ruckelshaus thought that he had the power to launch this initiative so soon after the White House had demoted the previous cross-agency coordination group showed that there was a new intellectual ground from which to observe Government (with a big *G,* as in Ruckelshaus's speech) as a whole. The initiative demonstrated how generic the fact of being faced with controversies, uncertainties, and challenges to decisions had become for many administrations, and how risk assessment and risk management redefined it.

Ruckelshaus argued for the new coordination initiative in the following terms in a letter to his counterparts in September 1983:

> Our agencies are becoming ever more involved in the most difficult kind of decisions: those where government must decide how much society is willing to pay to reduce health or environmental risks. Government always had to rule on such issues, but never before as explicitly or as frequently. Science's ability to detect harmful substances has increased so dramatically that it is no longer possible to suppose that risks can be wholly eliminated: trace amounts of chemicals appear everywhere. Despite substantial improvements in health care and longevity, polls show that the public believes that life is getting riskier, not safer. In my recent discussions with you and with others, I sense a recognition that we need to regain control of the terms of this important public policy debate—not let it become more polarized and destructive.[19]

The statement of purpose tabled at the inaugural meeting on December 15, 1983, also stressed controversy, contestation, and conflictual relations with the public as the new conditions with which governmental action had to deal. They demanded greater coordination and harmonization than ever attempted before. Many decisions of federal agencies in regulating chronic health hazards were controversial; the roots of the controversy lay

in changes in public expectations and concerns about health protection, as well as the fact that the costs and benefits of regulatory policies often fell unequally on different groups in American society: "There is therefore a serious need to articulate and clarify—internally and to the public—the necessary differences in how the agencies deal with controversial topics of risk management" (Anonymous 1983).[20]As the quote illustrates, it was the notion of risk assessment and risk management, and the whole scheme for producing decisions that they comprised, that enabled him to think that the action of these agencies, and of the federal government overall, despite its heterogeneity, could be streamlined and organized.

Design, Organizational Image, and the Deflection of Criticism

The recodification of EPA's actions in integrative terms of risk, assessment and management, was extended to defend the agency against a potential threat from Congress. Since 1979, in liaison with the AIHC that lobbied for it,[21] Congressman Don Ritter had been pushing legislative propositions to address some of the criticisms of risk assessment as it was carried out at the time.

The Ritter Bill had already been rejected in March 1983, but Ritter forged an alliance with Representative David Martin to push a new bill on risk assessment. In terms of that bill, the White House was to designate a regulatory agency to coordinate joint research projects with other regulatory agencies to improve the value of risk analysis. Title II of the bill included a proposal to create a Central Board of Scientific Risk Analysis under the NRC, with the role of establishing guidelines to be applied by agencies and reviewing specific analyses by agencies in view of a regulatory decision. The bill differentiated between "risk analysis" (quantifying probabilities of a risk) and the ambiguous task of "risk evaluation" (determining the acceptability of that risk to individuals and society). [22] This design, contrasting with RAFG and emerging knowledge representations inside the EPA, involved a reduction of the autonomy of the agency, to produce the science necessary to advance decisions. It denoted the altered legitimacy of the agency among Republicans in the House.

Since RAFG had been published, and the EPA had resurrected the IRLG under a new form, involving managers of agencies and not only its scientists (thanks in part to the platform articulated in RAFG), the agencies

were able to coalesce around the EPA to deflect Ritter's and Martin's ideas. Nearly everyone opposed the idea of creating greater supervision and dependence in the agency's regulatory decisions, including the NAS. In May 1983, Press wrote to Martin, warning that the governing bodies of the NRC had not, as yet, considered the establishment of a new, standing risk assessment board in the NAS or NRC, and that it seemed inappropriate for the risk assessment board to undertake specific risk assessments at the request of federal agencies. The procedure would be cumbersome and lead to prolonged delays.

Former members of the RAC also viewed the bill negatively and were sufficiently reassured by the ideas put forward in RAFG to oppose it. Ted Greenwood wrote to McCray to say that he was "appalled" by the use that Don Ritter and David Martin had made of the report in Congress, precisely because their proposed board for scientific criteria and principles denied the most important point of the report: that risk assessment is a mix of science and policy. Worst of all, the bill "seem[ed] to be trying to use the NAS committee's legitimizing ability for a set of concepts totally contrary to what we wrote and intended."[23] Most of those who were consulted by the House on this proposal regretted the fact that the congresspersons did not use the categories coined in RAFG. The risk assessment/risk management twosome was much more appropriate to capturing the political challenge involved in using scientific estimations of risk. Better than "analysis" and "evaluation," it conveyed the potentially controversial nature of the ties between science and decision, as well as the fact that science had to be carried out independently, yet also had to be performed in close connection with the exercise of making a decision. By insisting on this scheme once again, most of the people who came to the congressional hearing helped to demonstrate the amount of disorder, delay in regulatory decisions, and intractable conflict of scientific authority the bill would recreate.

Of course, the EPA was not the slowest to respond. Elizabeth Anderson, the toxicologist chief of OHEA, who was then heading the efforts of the EPA on cancer risk assessment and championing the use of cancer guidelines, had scanned the bill and developed a list of counterarguments, which she shared with key people in the agency.[24] She claimed that the creation of a central risk assessment panel would cause delays and would not bring closure to controversies because it would just be another point of discussion during risk assessments. It would deprive agencies of very important means, resources,

and competence. It would, furthermore, give the NAS a quasi-policy role (as under the language of "criteria"), inappropriate for an academy, the stature of which derived from its uncorrupted adherence to scientific excellence. Staff in the Office of Water analyzed the bill and its likely effects on the EPA in similar terms,[25] as did the scientific advisor to the chief of OPTS and the assistant administrator for OPPE[26]: elimination of some of its key powers to perform risk assessments, creation of more delays in delivering decisions on high-profile chemicals and, essentially, paralysis by analysis.

Finally, Ruckelshaus wrote to the OMB and to Representative James Scheuer (a Democrat from New York who was a supporter of the EPA) a six-page letter opposing the bill, and Bernie Goldstein presented the agency's argument at a hearing before the same congressperson. Given the amount of "semantic confusion" in the matter, the ability that this language offered to explain to the public what agencies knew (and did not know), and how this knowledge factored in final regulatory decisions, Goldstein made a plea for the bill to be aligned on the RAFG's scheme (US Congress 1985). The representatives of the FDA, the CSPC, and OSHA did likewise, representing the way that their agencies approached health and environment, and succeeded in producing slightly less controversial policies, now that they explicated uncertainties inherent in the risks considered, and took into account all other priorities and motives to balance this knowledge. The hearing ended up being an effective education and defense of regulatory agencies and of their actions, in the words of the chair of the subcommittee, James H. Scheuer, a Democratic representative and consistent supporter of environmental policy (ibid.). The idea of a science court and the industry's project to eventually curtail the power of regulatory agencies in the area of science seemed to have been halted.[27]

A Risk-Communicating Agency

Ruckelshaus conceived of his role in communicating to the public and engaging with audiences and constituencies of the agency as being of paramount importance, and he chose an experienced and effective manager to run the agency so that he could concentrate on this role. He believed that regardless of how important communication was for this role, it did not depend solely on him, and it needed to be designed within the organization.

Ruckelshaus asked Milton Russell, the new assistant administrator for policy, planning, and evaluation, to develop activities around communicating

with the public about the complexity and uncertainties surrounding risks and their reduction. Russell was an economist by training, with specialization in the study of energy markets and policies. In the 1970s, he had spent time both at the think tank Resources for the Future and at the White House. From 1974 to 1976, he was the senior economist for energy issues on the Council of Economic Advisers, where he met Al Alm, the agency's former head of policy (1973–1976). In March 1983, Alm had been chosen by Ruckelshaus to be his deputy administrator. He looked for dedicated, competent, and politically neutral administrators to reinvigorate the agency, and he offered Russell the job of assistant administrator for policy. The latter accepted despite his lack of experience on environmental issues, and soon went to work on ways of adapting the agency's routines to what Ruckelshaus thought was a new defining condition of legitimacy and authority for regulatory agencies: their dependence on the level of information in the public and the latter's understanding of the particular dilemmas facing the agency when dealing with uncertain issues.

Russell worked on explicating Ruckelshaus's initial hunch—that the EPA should be positioned as an agency aimed at reducing risks for the population, and that it should "do more to increase the public understanding of environmental risks and the considerations that must be taken into account in making risk management decisions."[28] In a memorandum on "Communicating with the Public on Issues of Environmental Risk,"[29] he showed that the question of the public, and of its understanding of the science and other components of regulatory decisions, was not one of the problems of the agency pertaining to external relations and public engagement. It was transversal and concerned the agency's scientists, rule-developing lawyers, and field-level officials in regional offices alike.

In this memo, Russell explained that one of the central problems in the area of risk assessment, for the agency as a whole, was that "DMs [decision-makers] and [the] public [are] unclear about [the] nature of estimates—how uncertain, how conservative?" When it came to risk management, the problem was that decision-makers did not base their decisions on information that the public could best understand, especially scientific information about the number of people who were actually exposed to the hazard in question; the dominant discipline in the agency for assessing effects on health was essentially experimental, calculating dose-responses in animals, not information about people—and information about the actual benefits for the population's health, accruing from the decisions that the agency

made. Finally, as concerned communication strictly, the public and Congress had trouble interpreting risk estimates and did not understand that absolute safety was not possible and that some trade-offs were inevitable.

At a noticeable distance from the claim that people's perceptions of risks were different from those of experts and were wrong by the logic of trained probabilistic judgment (e.g., Fischhoff et al. 1978), Russell worked from various assumptions: that uncertainties abounded; that the agency had its own particular ways of framing and interpreting risks, sometimes orthogonal to how people saw those same risks; and that disagreements between various segments of the public and the agency were there to stay. In the agency's efforts to reduce risk, the objective should be to frame and inform controversies, not to eradicate them through supposedly authoritative and objective calculations: "informed disagreement would be preferable to the present situation in many ways" (Russell 1984, 2). Accordingly, the operational problem of the agency should not be "how to convince people we are right," but rather how to capture the "environmental values" that different "public(s)" were most interested in seeing protected, and "how much environmental quality [these publics] want the country to buy" (ibid.). Russell went on to sketch out answers to the question of what decisions to communicate on, who should do the communicating, toward which publics, defined in what way, and through which channels and networks. With Roger Gale, Ruckelshaus's closest advisor at the time, he also began to standardize the messages to use in all EPA staff communication and in Ruckelshaus's communications outside the agency:

> There are a number of basic messages that we feel it is essential to emphasize. Among them:
>
> – We seek to reduce risk.
> – We will always have some risk.
> – We realize that issues are complex and that there is an element of uncertainty.
> – We attempt to anticipate problems before they bite us.
> – We distinguish between scientific assessment of risk and the management of risk.
> – We balance risk and benefit.
> – We enforce the law; the mighty are not above us.
> – We listen.
> – We protect the public.
> – We tell you everything we know.[30]

It was clear, thus, that risk communication first emerged as a discipline of communicating on the constraints, achievements, and overall legitimacy of an administrative organization dealing with uncertain risk, not simply about transmitting scientific information to the public. The 1984 report *Risk Assessment and Management: Framework for Decision Making,* which summarized and institutionalized the new image of the organization for the public, and in many ways was a testament of the transformations initiated at the time of Ruckelshaus's second term, endorsed the point in its final lines:

> The point can not be made too often. In one sense, risk management *is* a form of communication. Technical analysis of the costs and benefits of a proposed action is not a device for coming up with the "right" or "rational" answer: all such analyses are far too sensitive to subjective values and far too dependent on uncertain data for us to pretend that they are. Risk management, and the technical analysis that contributes to it, is largely the *exposition* of the information we believe is reliable, the values we wish to apply and the way that these two are linked to produce a set of policies … Obviously, not everybody will agree with the values so expressed, but in order for the debate about values to begin and for the democratic processes that ultimately establish values to take place, everyone has to know what the values underlying our decisions really are. (EPA 1984a, 35, emphasis in original)

Those messages served to anchor the image of an agency that was responsive to the public and to what it experienced of the agency in particularly controversial situations—those of the Gorsuch years and the still-frequent controversies that erupted here and there during 1983. The emerging message allowed Ruckelshaus to go toward audiences with which relations had been complicated or inexistent in the past. Russell's memo pleaded for engaging with a number of constituencies that the agency had not considered enough: "risk-oriented constituencies," media managers, state governors, and Congress (Russell 1984a). The risk assessment–risk management framework provided the structure for engaging with the public not as an agency that knew everything, but as one making the best possible decisions in the face of uncertainties.

Ruckelshaus put it in practice himself, in Tacoma, Washington. Taking the opportunity to make a decision on a high-profile, controversial case—arsenic—he initiated a new kind of public event: a town meeting for direct interaction between top EPA officials and an unselected public.[31] In July 1983, he proposed a mandatory pollution control technology for Arsaco's Copper Smelter, plants that represented the country's biggest source of

arsenic pollution. The technology was supposed to reduce the level of arsenic emissions by 17 percent. He announced that he would directly consult the residents of Tacoma, where Arsaco's Copper Smelter, the country's biggest source of arsenic pollution, was located, to collect comments about whether that level was acceptable and what other decisions could be made to address the situation. Ruckelshaus did not get away easily with that announcement. He was accused, first, of being lenient on a polluting industry: the proposed restriction on emissions was lower than expected, at least by environmental groups, particularly for a substance that caused cancer and, by convention, was believed to do so at any dose. The press and environmental groups claimed that Ruckelshaus had compromised health protection with job protection—particularly jobs in Washington, where he lived with his family during the 1970s. His initiative of a local public and open workshop on the risks of arsenic was hardly understood. The assistant attorney general of New York State, behind the 1978 lawsuit, argued that Ruckelshaus was giving up on the difficult task of arbitrating between health and jobs, placing the communities in Tacoma before this "artificial" choice. On July 23, Ruckelshaus replied to a *New York Times* editorial depicting him as Caesar, shying away from shouldering tough decisions. In this letter to the editor, he replied that by proposing the said standard (Ruckelshaus 1983):

> [W]e are proposing precisely what your editorial suggests we propose: that ASARCO installs controls on its Tacoma smelter to reduce arsenic emissions to the lowest level we believe is technologically achievable, and thus further reduce the cancer risk to the citizens of Tacoma … The people of Tacoma are not being asked to make the decision; they are being asked for their informed opinion. They know that the right to be heard is not the same thing as the right to be heeded. The final decision is mine.

The agency did not replicate the Tacoma experiment.[32] However, along with other complicated cases, this issue taught Ruckelshaus the need to have options in mind, present them, and demonstrate his decision-making skill and controlled judgment over the science by applying one option. That is precisely what the entire set of projects deployed in the agency on communicating risk to decision-makers, and on risk management and risk assessment, were about. That bureaucratic design was intended for an agency that would generate options for a central decision-maker, such as Ruckelshaus or Alm, to make decisions and carry them into the public space, with increased levels of potential acceptance.

This particular experimentation was not deemed to be a great accomplishment, but still, "the improvement in the Agency's ability to explain risk to the public" remained a key priority in those years.[33] This concern of the EPA about communicating with the public was not foreign to the risk assessment–risk management framework. The framework that emerged later, in 1988, which designated risk communication as its third pillar (NRC 1989), actually codified what the EPA had initiated. Those two categories were understood as the ideal way of producing communicable and understandable decisions. This concern was incorporated right from the start in various "risk projects" through which the agency was redesigned (including the training of regional staff to improve community relations; development of a strategy by the Press Office to advance the understanding in the media of the agency's approach to risk assessment and risk management and increase journalists' awareness of the dilemmas and difficulties involved in public health decision-making; identification of live cases on which to work to develop risk assessment/risk management techniques; and town meetings with the EPA administrator, to get the concepts of risk assessment and risk management introduced into the popular press).[34] In other words, the results of Tacoma and of Ruckelshaus's sensibility for direct communication with the public were what the EPA staff later called "live cases" and "town meetings."

Risk communication was soon systematized, thanks to a team formed by Milton Russell. Russell and the Office of Policy team on risk communication worked to ingrain this understanding of the public in the agency in several ways. They worked with Ruckelshaus directly, feeding him ideas and knowledge about the emerging field of risk perception. Russell organized "breakfast meetings" for Ruckelshaus, himself, and scholars versed in the philosophy, ethics, or sociology of risk. According to Russell, this was part of establishing "the milieu and the understanding at the highest level," so that people could deal with these issues and explain them to the public.[35] Ruckelshaus and Russell thus met Paul Slovic on January 25, 1984, which led to a formal proposal by Slovic to the OPPE, for activities pertaining to risk communication (monitoring and evaluation of efforts to increase public participation; communication of state-of-the-art knowledge of risk communication to EPA staff; and development of methods to communicate risks in a way that reduced conflict and to incorporated views elicited from the public, into regulatory decisions). Slovic confirmed that the agency should

change the presentation of risks that health assessment documents typically used: a single, synthetic figure expressing excess levels of cancer in broad populations (such as, "there is a one in a million chance of developing a cancer from exposure to that substance over a period of fifty years"). As he put it in a letter to Russell: "[A] robust conclusion of risk perception research is that one cannot simply present statistics and assume that people with different life experiences, training, etc., will understand them as intended."[36]

The agency entered into close cooperation with NSF's Vincent Covello, who was in charge of the National Science Foundation program on Technology Assessment and Risk Analysis, and one of the prominent scholars studying the social construction of risk and risk communication. A joint national conference on risk communication was organized in January 1986, where ample space was made for the EPA's experience through interventions by Ruckelshaus and Lee Thomas (who succeeded Ruckelshaus as EPA administrator in 1985) and discussions of prominent controversies handled by the agency, such as hazardous waste and ethylene dibromide (EDB). Later, Russell was contacted by the NRC to join the Committee on Risk Perception and Communication. With this panel, the NRC had decided to engage in an effort focusing on risk communication. The result of this work, the report *Improving Risk Communication*, is frequently cited as the initial recognition that risk communication forms an important institutional practice in health and environmental policy. The first lines of the preface of the 1989 report on risk communication noted: "This report [RAFG] focused on improving risk assessment and risk decisions within the government. However, a major element in risk management in a democratic society is communication about risk" (NRC 1989, ix). *Improving Risk Communication* reflected a high level of thinking and experience in dealing with communication with the public in situations of uncertainty, inconclusive scientific evidence, and controversy, and it took many strong positions on the need to factor in the public and the reception of knowledge by large audiences in risk assessment and risk management itself, as opposed to simply aiming to refine the communication of already-established calculations or regulatory decisions. This was pretty much what Ruckelshaus, Russell, and other EPA staff had experienced and conceptualized.[37]

Risk communication has produced a number of recipes. One example was the chemical EDB, from which the EPA learned a lesson through a case study (Sharlin 1985, 1987). The EPA's recipes for risk communication soon

stabilized and spread. The associate director of the Office of Policy Analysis, in the OPPE, Derry Allen, worked, first, to understand the research on perception and communication of risks, and then on assessing what could apply in the EPA's operations, developing material and trainings for the agency. The accumulated experience in risk communication translated into a short document entitled "The Seven Cardinal Rules of Risk Communication" (Covello and Allen 1988). The rules, given as follows, were the basis of a subsequent training program initiated in 1989 and were translated into program-specific guidance by regional staff:

- Accept and involve the public as a partner.
- Plan carefully and evaluate your efforts.
- Listen to the public's specific concerns.
- Be honest, frank, and open.
- Work with other credible sources.
- Meet the needs of the media.
- Speak clearly and with compassion.

Risk communication, as well as the deliberative rationale it embodies, continued to be an important point of reference for regulatory practice at the regional level, for the members of staff in regional offices that engaged most directly with communities.

Conclusion

In 1983, an unlikely encounter between three things occurred: a bureaucratic entrepreneur, ready for and capable of implementing new objectives and ways of working for an embattled agency; a set of notions constitutive of an integrated administrative design for managing risks thanks to science—the original risk assessment/risk management structure crafted by the authors of RAFG; and a political context (a crisis, really) created by the decisions of William Ruckelshaus's predecessor, and her resignation. The fact that the EPA leadership was caught in such turmoil, and that Ruckelshaus was picked by Reagan to return to the EPA and accepted this mission, constituted a totally unlikely series of events. That the RAC concluded its work, apparently successfully, exactly as and when Ruckelshaus needed a solution is also utterly random.

Altogether, still, this design configuration was not so unlikely. The crisis that the EPA found itself in, and the problems that Gorsuch caused, were known. The distortions of scientific assessment by political appointees, which heavily contributed to causing the crisis, were the kind of issues that courts, industry groups, scientific advisers, and EPA bureaucrats themselves had been reflecting on since at least the second half of the 1970s. These were the issues that motivated the formalization of logical decision-making processes in order to capture uncertainties and make credible decisions. In other words, what happened at the EPA in 1983 was as much the reflection of a long-lasting controversy about the administration's scientific legitimacy as the effect of a sudden, deep political crisis forged by the exceptional behavior of Gorsuch and her aides.

The redefinition of the EPA as a risk agency during the second term of Ruckelshaus as administrator also reflects the configuration of those days, particularly the dense set of relationships that emerged between officials and scientists interested in the administration of uncertain environmental and health issues. Ruckelshaus was a member of the loose network of bureaucrats and scientists that were then reflecting on the best, legitimate ways of making decisions about risks, inside and outside the agency. He was one of the bureaucratic leaders of the country that knew of these risk ideas, he knew the emergent methods of risk-based decision-making, and he even knew about the ongoing work of the NRC committee that was working on the institutional means of risk assessment. Most of the people whom he picked to return to the agency and restore its authority were in some manner aware of these notions. Some helped articulate them as well.

When March 1983 came, a full design, assembled from diverse notions of risk assessment, risk-ranking, and risk management, had emerged. And all the people who could reproduce it in the EPA, in its diversity, were available to do so then and there. They applied the scheme of risk-based decision-making in the operations of the agency and in communicating about the agency. Those years were special, in that a group of bureaucrats and advisers only just assembled by Ruckelshaus and Alm to take control of the agency shared a common way of speaking about the organization and its goals and modes of action. For a moment, the enduring political controversy about the use of science in policy and the power of experts transformed the EPA into an uncontroversial agency that used risk to define its image, the forms of knowledge that it used, and its concrete decision-making operations.

The Science of Bureaucracy

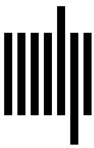
Risk Decision-Making and the US Environmental Protection Agency

By: David Demortain

Citation:

The Science of Bureaucracy: Risk Decision-Making and the US Environmental Protection Agency
By: David Demortain
DOI: 10.7551/mitpress/12248.001.0001
ISBN (electronic): 9780262356671
Publisher: The MIT Press
Published: 2020

The open access edition of this book was made possible by generous funding and support from MIT Libraries



The MIT Press

This book was set in Stone Serif and Stone Sans by Westchester Publishing Services.

Library of Congress Cataloging-in-Publication Data

Names: Demortain, David, author.
Title: The science of bureaucracy : risk decision-making and the US Environmental Protection Agency / David Demortain.
Description: Cambridge, MA : The MIT Press, [2019] | Series: Inside technology series | Includes bibliographical references and index.
Identifiers: LCCN 2019010651 | ISBN 9780262537940 (pbk. : alk. paper)
Subjects: LCSH: United States. Environmental Protection Agency--Management--History. | Risk management--Government policy--United States--History. | Environmental policy--United States--Decision making. | Environmental policy--United States--History.
Classification: LCC TD171 .D46 2019 | DDC 363.700973--dc23
LC record available at https://lccn.loc.gov/2019010651