

PRINCIPLES AND PROGRESS

To come to terms with these questions, it is necessary to identify the commitments that originally helped to spur national risk regulation in United States (and elsewhere). Though they extended well beyond the environmental movement, those commitments were embodied in what might be called 1970s environmentalism.

What were the sources of 1970s environmentalism? Undoubtedly the civil rights movement provided both a model and an inspiration, helping to breed distrust of established institutions and to suggest the possibility of large-scale change through law. One of the key contributions of the civil rights movement was to expand the possibilities of conceiving of certain interests as "rights," to the extent that President Richard Nixon himself proclaimed, "Clean air, clean water, open spaces — these should again be the birthright for every American."³ In this period, it became increasingly common to think that "freedom from risk" consisted of a kind of right, properly guaranteed by government. Of course this notion was bound to run into difficulty once it became clear that safety is a matter of degree, and that no "on-off" switch can tell whether we are in the domain of safety or danger.

Without offering anything like a full account of a complex social movement, I emphasize two additional points here. The first involves the nature of risk-related judgments, in the 1970s, within the public at large. The second involves the response by public officials. As we shall see, environmental commitments arose through a kind of "call to arms," one that accomplished a great deal of good, but one that did not (to say the least) involve anything like a careful analysis of the consequences of different approaches to regulation. As we shall also see, the response of public officials involved a quest for public credit and acclaim, not an assessment of the scientific and economic variables involved. In short, it is important to see that the "initial successes of the environmental movement in securing passages of laws . . . were not the result of normal group politics. Rather, these laws emerged from a period in which mass attention had been drawn to environmental concerns through the media and the activities of politicians and policy entrepreneurs who worked from relatively narrow organizational bases."⁴ The same is true for much risk-related legislation.

³ Annual Message to the Congress on the State of the Union, reprinted in *Public Papers of the President: Richard M. Nixon* 8, 13 (Washington, D.C.: GPO, 1970).

⁴ David Tribek & William Gillen, *Environmental Defense, II: Examining the Limits of Public Interest Advocacy*, in *Public Interest Law*, B. Weisbrod et al., eds. (Berkeley: Univ. California Press, 1978).

Beyond 1970s Environmentalism

What sets the new synthetic insecticides apart is their enormous biological potency. They have immense power not only to poison but to enter into the most vital processes of the body and change them in sinister and often deadly ways.¹

Americans may disagree about a lot of things, but arsenic isn't one of them. When you turn on the kitchen sink, you ought to be able to drink what comes out, without worrying about being poisoned.²

To many people, it seems entirely obvious that risk regulation should not be rooted in intuitions and fears and should be based instead on an assessment of the consequences. To such people, cost-benefit analysis seems extremely attractive, as a way of getting the consequences on the table. On what other basis could government possibly act? But to others, the judgments of ordinary people seem to be a good starting point for policy, and the very idea of cost-benefit analysis seems quite preposterous. Should the government hesitate to prevent environmental degradation merely because prevention would cost polluters a great deal? If people are genuinely fearful, shouldn't government try to protect people's safety and health, whatever the numbers might say? Don't people have rights, and shouldn't those rights "trump" the outcome of cost-benefit balancing? Why should the numbers matter in any case? Aren't any numbers based on controversial assumptions, and shouldn't the assumptions be revealed as such? Why should policy be made by a technocratic elite, consisting mostly of scientists and economists?

¹ Rachel Carson, *Silent Spring* 16 (Boston: Houghton Mifflin, 1962).

² Rep. David Bonior, quoted in the *Chicago Tribune*, July 28, 2001, at p. 1.

THE RISE OF PUBLIC COMMITMENTS: CHAINS OF EVIL, ELIXIRS OF DEATH

In the 1960s and 1970s, shifts in public opinion had many sources. To understand those shifts in a manageable space, we can do no better than to take a glimpse at Rachel Carson's extraordinary book, *Silent Spring*, published in 1962. *Silent Spring* qualifies as a genuine classic of environmental thinking, and it says a great deal about the relationship among technology, nature, and risk. In the twentieth century, it is the most influential book of its kind, and it had a large effect on environmental thought throughout the world. In many circles it is credited with starting the modern environmental movement, with producing the ban on DDT, even with creating the Environmental Protection Agency, for which Carson argued in congressional testimony shortly after her book was published. Carson was a specialist in environment issues. For many years, she had been a marine biologist for the U.S. Fish and Wildlife Service. She was also a renowned nature writer. In fact, Carson was also something of a poet. In memorable terms, *Silent Spring* drew attention to the risks associated with pesticides and insecticides.

For the first time in the history of the world, every human being is now subjected to contact with dangerous chemicals, from the moment of conception until death. In the less than two decades of their use, the synthetic pesticides have been so thoroughly distributed throughout the animate and inanimate world that they occur virtually everywhere.... For these chemicals are now stored in the bodies of the vast majority of human beings, regardless of age. They occur in the mother's milk, and probably in the tissues of the unborn child.⁵

Carson was especially concerned with the adverse effects of DDT. Her attack on that chemical was particularly important because DDT had been hailed as a health-care miracle, saving millions of lives by stopping the spread of insect-carried diseases, above all malaria. During World War II, *Newsweek* proclaimed, "One of the three greatest medical discoveries to come out of the war (plasma and penicillin are the others), DDT has enormous possibilities as an insecticide. A representative of the Surgeon General's office said last week: 'DDT will be to preventative medicine what Lister's discovery of antiseptic was to surgery.' But Carson saw things quite differently. It is worthwhile to spend some time on her account because it tells us a great deal about the virtues and vices of 1970s environmentalism.

⁵ Rachel Carson, *supra* note 1 in this chapter, p. 10.

Carson warned of a situation in which human intervention into natural processes was creating significant threats to all living creatures. "The most alarming of all man's assaults upon the environment is the contamination of air, earth, rivers, and sea with dangerous and even lethal materials. This pollution is for the most part irrecoverable; the chain of evil it initiates not only in the world that must support life but in living tissues is for the most part irreversible. In this now universal contamination of the environment, chemicals are the sinister and little-recognized partners in changing the very nature of the world — the very nature of life."⁶ It is worth pausing over those words. Thus Carson referred to the "500 new chemicals to which the bodies of men and animals are required somehow to adapt each year, chemicals totally outside the limits of biologic experience," and representing a kind of human "war against nature."⁷

Carson focussed particularly on DDT, which she described as an "elixir of death":

One of the most sinister features of DDT and related chemicals is the way they are passed on from one organism to another through all the links of the food chain.... The poison may also be passed on from mother to offspring.... This means that the breast-fed human infant is receiving small but regular additions to the load of toxic chemicals building up in his body.... There has been no such parallel situation in medical history. No one yet knows what the ultimate consequences may be.⁸

These ominous words had real consequences. They helped spur an international movement to prohibit the use of DDT. In the United States, DDT was banned in 1972.

AFTERMATH

Carson's argument, and the banning of DDT, tell us a great deal about 1970s environmentalism, which it helped to inspire. Congressman John V. Lindsay inserted whole paragraphs of *Silent Spring* into the *Congressional Record*. Having read the book personally, President John F. Kennedy ordered the Science Advisory Committee to study the effects of pesticides. On May 15, 1963, the Committee vindicated much of Carson's argument, calling for decreased use of toxic chemical and emphasizing that "until the publication of *Silent Spring*, people were generally

⁶ *Id.* at 6.

⁷ *Id.* at 7.

⁸ *Id.* at 23.

unaware of the toxicity of pesticides." In the words of the Natural Resources Defense Council, the

most important legacy of *Silent Spring*... was a new public awareness that nature was vulnerable to human intervention.... [T]he threats Carson had outlined – the contamination of the food chain, cancer, genetic damage, the deaths of entire species – were too frightening to ignore. For the first time, the need to regulate industry in order to protect the environment became widely accepted, and environmentalism was born.

And there can be no doubt that Carson was, in many ways, sounding an appropriate alarm. Insecticides can harm all living creatures, including human beings, and it is important to have regulatory institutions in place. (See "The Story on *Silent Spring*," available at www.mrdc.org/health/pesticides/carson.asp.)

But in the particular case of DDT, there is another side to the story. In 2001, a number of poor nations began to use DDT as the cheapest and most effective way to prevent the spread of malaria. Officials in all these nations, most prominently South Africa, are alert to the risks associated with DDT but insist that those risks are worth incurring in order to counteract the growing death toll from malaria. In fact, the use of DDT has contributed to substantial declines in malaria-related deaths. Although millions of people have been exposed to DDT, the World Health Organization contends that "the only confirmed cases of injury" from DDT "have been the result of massive accidental or suicidal ingestion."⁹ It does appear that DDT is a human carcinogen, but this point is not entirely clear, and there is no clear evidence that DDT has produced a significant number of cancers or other adverse effects in human beings.

Carson was entirely correct to say that DDT is toxic to birds and can cause serious reproductive problems for many bird species. But at least in its early years, the ban on DDT itself had significant harmful consequences, for human beings and animals alike. Some substitutes were highly toxic; some were quite expensive; some failed to work. Sweden was the first country to ban DDT, in 1969, but it lifted its ban after it found that alternative pesticides were less effective, risking losses of at least \$15 million annually. In some domains, the substitutes themselves produced toxic effects. One analysis concludes: "The health loss from the ban has been much greater than the health gain... completely banning DDT did more harm than good."¹⁰ This is a controversial conclusion, but at least it raises some questions about Carson's analysis and about 1970s environmentalism

in general – the same sorts of questions that I will be pressing throughout this book.

POLITICIANS

By the late 1960s and early 1970s, it was clear that the public would support aggressive steps to protect the environment, and indeed to reduce risks in general. But legislation often depends on the existence of well-organized interest groups, and in this period, the young movement for environmental protection lacked many such groups. Instead the relevant statutes seem to have arisen through a form of "competitive credit-claiming" by politicians.¹¹ In this process, public officials try to obtain public credit by proclaiming their commitment to environmental protection or to some other form of risk reduction. To obtain that credit, the particular content of the resulting law does not greatly matter. What matters is that politicians seem especially or unusually committed to the environment.

The National Environmental Policy Act, enacted in 1969, was a case in point. This ambitious statute required all agencies of the federal government to produce "environmental impact statements" before engaging in action that might harm the environment. The statute was spearheaded by officials treating it as a kind of "motherhood" bill, without much consideration of its concrete consequences. Still more remarkable were the Clean Air Act Amendments of 1970, which imposed a range of stringent regulations in the interest of health and environmental protection. For example, the amendments required car manufacturers to reduce pollution by no less than 90 percent within five years, in the process telling the EPA to ignore the economic and technological feasibility of the reductions.

How did these astonishing amendments become law? The answer is that they arose not from a careful analysis of the air pollution problem, but in large part from a contest between President Richard M. Nixon and Senator Edmund Muskie, both of whom sought to claim, before the public, the mantle of leading environmentalist. As each submitted his preferred version, and each sought to demonstrate a "stronger" commitment to risk reduction, the content of the proposed law began to change fundamentally. The original Muskie bill was a genuine shift in the law, but quite tepid in comparison to the subsequent Nixon proposal. Trying to obtain public approval, Nixon submitted an aggressive bill that would call for 90 percent reductions in emissions from new cars within ten years, would require compliance with national standards "within the limits of

⁹ Aaron Wildavsky, *But Is It True? A Citizen's Guide to Environmental Health and Safety* (Issues 61) (Cambridge, Mass.: Harvard Univ. Press, 1995).

¹⁰ *Id.* at 79.

¹¹ See the excellent discussion in E. Donald Elliott et al., *Toward a Theory of Statutory Evolution: The Federalization of Environmental Law*, 1 J. L. Econ. & Org. 313 (1985).

existing technology," and would require states to submit plans to comply with federal air quality requirements within a year.

The original Muskie proposal was sharply challenged by a task force led by Ralph Nader. The highly publicized task force report described Muskie as being soft on industry and as supporting "a 'business-as-usual' license to pollute for countless companies across the country." Evidently stung by the Nader criticism, Muskie's subcommittee came to support a dramatically revised bill, going well beyond Muskie's original proposal or even Nixon's counterproposal. As revised, the Muskie bill would require states to comply with federal standards within nine months, rather than one year; would require compliance regardless of whether it was technologically feasible; and would require a 90 percent reduction in emissions from new cars within five years, rather than ten. Seeking not to be outdone, Nixon signed a bill very much like the Muskie proposal — not because of any kind of analysis of its contents, but because of the political dynamics. "The result was the passage of the Clean Air Act of 1970 in a form which was more stringent than either of them would have preferred."¹²

One of the most striking features of this contest, and the new legislation, is the absence of sustained congressional attention to what would appear to be the key questions. Should the limitations of existing technology be taken into account when the EPA sets standards? Why and why not? Congress did little to explore this question. Perhaps this silence is excusable in light of the fact that the Environmental Protection Agency was asked to set federal standards, and perhaps it could be assumed to be reasonable, forcing companies to go beyond existing technology only when that step made overall sense. But even if so, why did Congress ask car companies to cut pollution by 90% in five years? Why not 75% in three years, or 50% in four years, or 95% in six years, or 50% in three years and 90% in ten? Only slightly more subtly: Is there a risk that antipollution technology will make cars less safe or compromise a national need, actual or perceived, for low-cost energy? Might such technology prove expensive, and if so, might consumers be led to keep old, dirty cars on the road longer, thus aggravating air pollution problems?

Congress did not investigate these crucial questions. Ironically, the Clean Air Act Amendments of 1970 nonetheless produced far more good than harm, as we shall see. More ironically still, a congressional effort to ask and answer the key questions might have led Congress to inaction — a point that contains a large lesson about the danger of "paralysis by analysis." Nonetheless, good questions and good answers would have undoubtedly led to a better clean air act. But to say this is to get ahead of the story.

¹² Id. at 335.

Table 1.1 Risk regulation in the 1970s:
New institutions

Environmental Protection Agency (1970)
National Highway Traffic Safety Administration (1970)
Consumer Product Safety Commission (1972)
Occupational Safety and Health Administration (1973)
Mine Safety and Health Administration (1973)
Nuclear Regulatory Commission (1975)
Department of Energy (1977)

WHAT HAPPENED

Whatever we may think of congressional performance, it is hard to overemphasize the great significance of the period, in which much of federal regulation has its origin. The Environmental Protection Agency, for example, was created in 1970, so too for the National Highway Traffic Safety Administration. The Consumer Product Safety Commission was created in 1972. It was followed the next year by the Occupational Safety and Health Administration. Many of the most important federal statutes were enacted in the same years, and government continues to do much of its work under those statutes. Tables 1.1 and 1.2 give a sense of the period.

The basic commitments of 1970s environmentalism are captured in many of these statutes. In this period, legislators and regulators

- (a) placed a high premium on the need for immediate, large-scale responses to long-neglected problems;
- (b) favored aggressive regulatory controls, often in the form of federal "command and control" via strict emissions limitations or technological requirements;
- (c) emphasized the *existence* of problems rather than their *magnitude*, and for that reason did not much attend to the whole question of priority-setting;
- (d) were indifferent to, or at least not focused on, the costs of achieving regulatory goals;
- (e) seemed to see regulatory statutes as promoting *distributive* goals, as in the view that occupational safety and health regulation would promote worker safety at the expense of corporate profits; and
- (f) often showed moral indignation against the behavior of those who created pollution and other risks to safety and health.

Table 1.2 Risk regulation circa the 1970s: New laws

Endangered Species Act (1969)
National Environmental Policy Act (1969)
Clean Air Act Amendments (1970)
Occupational Safety and Health Act (1970)
Federal Insecticide, Fungicide, and Rodenticide Act (1972)
Marine Mammal Protection Act (1972)
Marine Protection, Research, and Sanctuaries Act (1972)
Noise Control Act (1972)
Coastal Zone Management Act (1972)
Federal Water Pollution Control Act (1972)
Endangered Species Act (1973)
Safe Water Drinking Act (1974)
Toxic Substances Control Act (1976)
Resource Conservation and Recovery Act (1977)
Federal Mine Safety and Health Act (1977)
Black Lung Benefits Revenue Act (1977)
Safe Drinking Water Act Amendments (1977)
Clean Air Act Amendments (1977)
Federal Water Pollution Act Amendments (1977)
Soil and Water Resources Conservation Act (1977)
National Ocean Pollution Planning Act (1978)
Port and Tanker Safety Act (1978)
Fish and Wildlife Conservation Act (1980)
Comprehensive Environmental Response, Compensation, and Liability Act (1980)

The basic commitments of 1970s environmentalism can be found in many places. Consider, for example, the key provisions of the Clean Air Act,¹³ which require air quality standards to be set without reference to cost; provisions of the Clean Air Act and Water Pollution Control Act, which require emission levels that would come from use of the best available technology, without a careful balancing of costs against benefits¹⁴, and the Occupational Safety and Health Act's provisions, which require employers to provide safe workplaces "to the extent feasible." And 1970s environmentalism is very much with us today, especially in the form of the widespread view that companies should be required to do "whatever they can" to reduce risks to safety and health.

¹³ 42 USC 7409(b).

¹⁴ See, for example, 33 USC 1311(b)(1) (A), 42 USC 7411(a)(1), 7412(d)(2), 7475(a)(4), 7502(c)(1).

THE RISE OF COST-BENEFIT BALANCING

I have noted that the last two decades have seen increasing enthusiasm for cost-benefit analysis of regulatory problems. As we will see, federal courts have taken a keen interest in disciplining regulation by ensuring a kind of proportionality between costs and benefits. Congress has hardly been on a steady path, but national legislators have shown some enthusiasm for ensuring a public accounting. But it is within the executive branch that the cost-benefit state has really started to emerge. A crucial step came with a cost-benefit executive order in 1980, from President Reagan, but President Reagan's order had important precursors. To understand what is happening, it is worthwhile to offer a brief overview of these developments.¹⁵

Notably, the interest in cost-benefit balancing began not through interest in the technique itself but through efforts to assert greater presidential control over administration and regulation. An initial step was the system of "Quality of Life" reviews initiated in the Nixon Administration. Nixon's response to the expanding administrative bureaucracy was to create a "counterbureaucracy" in the White House. He doubled the executive office staff, created the modern Office of Management and Budget (OMB), and established the Domestic Council (chaired by a top aide, John Ehrlichman). The council met with representatives of different departments having jurisdiction over a problem and tried to develop coordinated policy positions for presidential approval.¹⁶ In the "Quality of Life" review process, agencies were required to submit significant rules to OMB in advance of publication in the Federal Register. OMB's principal duty was to circulate the agency draft to other agencies for review and comment. OMB's function was rarely substantive; it served instead a coordinating function.

President Ford continued the interagency review process and added an initial step toward cost-benefit balancing: a process designed to control the effects of regulation on inflation. The Council on Wage and Price Stability (CWPS) was asked to review regulations for their effects on inflation. In addition, OMB promulgated an important circular to agencies, arguing that the inflationary impact of a proposed rule could best be assessed through a quantitative cost-benefit comparison. But the council's role was principally technical, consultative, and advisory. It was understood that the relevant agency might well

¹⁵ This overview draws heavily from Richard Pildes & Cass R. Sunstein, Reinventing the Regulatory State, 62 U. Chi. L. Rev. 1 (1995).

¹⁶ Richard Nathan, *The Administrative Presidency* 28–38 (New York: Wiley, 1983).

persist in the face of CWPS disagreement. Congress ultimately enacted a statute allowing CWPS to participate in rulemaking and to explore adverse effects on inflation.

President Carter built directly on the Ford precedent through a successor to CWPS, the Regulatory Analysis Review Group (RARG). RARG consisted of representatives from major agencies, OMB, CWPS, and the Council on Economic Advisors. The purpose of this fifteen-agency group was to conduct interagency review of cost-effectiveness analyses, which were required of "significant" rules from relevant agencies. Notably, the executive order establishing the RARG review process did not require cost-benefit analysis. In fact, RARG reviewed relatively few rules, though the president did resolve a few highly controversial issues.

All these efforts were designed to increase interagency dialogue, coordination, and analytical precision, as well as to reduce regulatory costs. But the decisive step came within a week of President Reagan's inauguration in 1980, with the formal creation of a mechanism for OMB review of major regulations. The most important of the new innovations, contained in Executive Order 12291, were (1) a set of substantive principles for all agencies to follow, "to the extent permitted by law," including a commitment to cost-benefit analysis; (2) a requirement that a Regulatory Impact Analysis, including cost-benefit analysis, accompany all "major" rules; and (3) a formal mechanism for OMB oversight, with a general understanding that OMB had some (undefined) substantive control. President Reagan considered subjecting the independent agencies to the new order but ultimately declined to do so, partly because of concerns about legal authority but mostly because of fears of an adverse congressional reaction. The independent agencies were asked voluntarily to comply with Executive Order 12291; all of them declined.

Executive Order 12291 proved extremely controversial. Nonetheless, President Reagan expanded on the basic idea four years later with Executive Order 12498. That order established a requirement that agencies submit "annual regulatory plans" to OMB for review. The result was an annual publication, the Regulatory Program of the United States, which contained a discussion of all proposed actions that might be either costly or controversial. Executive Order 12498 served to increase the authority of agency heads over their staffs by exposing proposals to top-level review at an early stage. But it also increased the authority of OMB by allowing OMB supervision over basic plans and by making it hard for agencies to proceed without OMB preclearance.

Under the first President George Bush, the principal innovation was the Council on Competitiveness, chaired by the vice president. The council engaged in occasional review of agency rules, operating as a kind of supervisor of OMB itself. It also set out a number of principles and proposals for regulatory

reform. In essence, however, the Bush Administration followed the basic approach of its predecessor, with OMB review under the two Reagan executive orders.

The election of President Clinton raised a number of questions about whether cost-benefit balancing would continue to have a role within the executive branch. Many environmentalists have been skeptical of the idea, and environmentalists were expected to have a significant influence in the Clinton Administration. But in a significant and dramatic step, President Clinton endorsed the essential features of the Reagan-Bush orders in his Executive Order 12866.¹⁷ The crucial point about Clinton's order is that it accepted the basic commitments of the two Reagan-Bush orders, by requiring agencies to assess both costs and benefits and to proceed only when the latter exceeded the former. At the same time, President Clinton offered several changes to the Reagan-Bush processes. First, he attempted to diminish public concerns about interest-group power over regulation by providing a process to resolve conflicts and procedures for greater openness. Second, he included references to "equity," to "distributive impacts," and to qualitative as well as quantitative factors, evidently to ensure that agencies could make adjustments in the process of decision and abandon the cost-benefit assessment where this seems sensible.

All in all, Executive Order 12866 did not seem to have much impact under President Clinton. The office in charge of administering the order—the Office of Information and Regulatory Affairs (OIRA)—was largely passive and toothless, serving a coordinating function without trying to steer regulation in any particular direction. Cost-benefit analysis operated not as a sharp constraint on agency action but as a technique for gathering information about the effects of government policies. The real source of activity in the Clinton Administration was the series of "reinventing government" initiatives designed to shift attention to governmental performance and to increase flexibility for the private sector. We will return to these initiatives in Chapter 10. For present purposes, the key point is that the idea of "reinvention" was designed to focus on results and to allow the private sector more flexibility in deciding how to achieve those results—and that to the extent, there was a real effort to ensure that the costs of compliance would be as low as possible.

What about Congress? Several statutes expressly require agencies to compare costs against benefits before issuing regulations. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) calls for such balancing, as does the Toxic Substances Control Act. A key provision of the Safe Water Drinking Act allows the EPA to soften health-based regulations if it concludes that the health benefits do not justify the expense (see Chapter 7 for details). But most

¹⁷ 58 Fed. Reg. 51735 (1993).

federal statutes do not call for cost-benefit balancing, and many of them seem to preclude it. At most, Congress tends to incorporate costs through a requirement that agencies "consider" costs alongside other variables.

For years, however, Congress has been considering more aggressive "super-mandates" cutting across all existing legislation in order to require all agencies to balance costs against benefits.¹⁸ Some of the proposed mandates would be more substantive: They would make cost-benefit balancing the basis for the decision. An enactment of this kind would be extremely dramatic. It would alter the full universe of provisions described earlier, converting them all into cost-benefit provisions. To date, however, no such legislation has been enacted. Thus Congress has restricted itself to more particular procedural requirements, asking for an accounting of costs and benefits to ensure that the public has relevant information. The Unfunded Mandates Reform Act takes some modest steps in the direction of statutory cost-benefit requirements for all regulations. In cases in which a federal mandate "may result" in an aggregate expenditure of \$100 million or more, that act requires the government to provide "a qualitative and quantitative assessment of the anticipated costs and benefits of the Federal mandate," alongside an estimate of its "future compliance costs" and of its "effect on the national economy, such as the effect on productivity, economic growth, full employment, creative of productive jobs, and international competitiveness of United States goods and services." But this assessment seems to be only procedural; it has not affected the judgments of regulatory agencies, and indeed it lacks any legal authority at all.

THE RECORD

No one should deny that 1970s environmentalism has done an enormous amount of good. The resulting regulation has helped to produce dramatic improvements in many domains, above all in the context of air pollution, where ambient air quality has improved for all major pollutants.¹⁹ Consider some numbers. EPA's own estimates suggest that as a result of the Clean Air Act, there were no less than 206,000 fewer premature deaths among people thirty years of age or older in 1990 – and also that there were 39,000 fewer cases of congestive heart failure, 89,000 fewer cases of hospital admissions for respiratory

problems, 674,000 fewer cases of chronic bronchitis, 850,000 fewer asthma attacks, and 22,600,000 fewer lost work days.²⁰ Indeed, 1970s environmentalism appears, by most accounts, to survive cost-benefit balancing, producing aggregate benefits sometimes estimated in the trillions of dollars, and in any case well in excess of the aggregate costs.²¹ EPA finds annual costs of air pollution control at \$32 billion, hardly a trivial number, but less than 4 percent of the annual benefits of \$1.1 trillion.²² Even if the EPA's own numbers show an implausibly high ratio, significant adjustments still reveal benefits far higher than costs.²³

More generally, the Office of Management and Budget has, for the last several years, engaged in an extensive accounting of the costs and benefits of regulation.²⁴ In general, the report shows benefits in excess of cost. Even though the government's own numbers should be discounted – agency accounts may well be self-serving and OMB's reports leave much to be desired – at least they provide a place to start. I will say a great deal later about what the dollar figures specifically represent; for now let us use them as a shorthand way to get a sense of the consequences of regulation, with the knowledge that if the benefits are high, there are likely to be large savings in terms of fatalities and illnesses prevented. In its 2000 report, OMB finds total regulatory benefits ranging from \$254 billion to \$1.8 trillion, with total costs ranging from \$146 billion to \$229 billion, for net benefits ranging from \$25 billion to \$1.65 trillion. A more disaggregated picture is also encouraging. In the transportation sector, for example, the benefits range from \$84 billion to \$110 billion, with the costs from \$15 billion to \$18 billion, for net benefits of \$66 billion to \$95 billion. A great deal of the uncertainty stems from scientific doubt about the extent of environmental benefits and costs, producing a possible range from –\$73 billion in net benefits to over \$1.5 trillion in net benefits.

For most government action, however, the benefits seem to exceed the costs. As especially good examples, consider the regulations listed in Table 1.3, all of which are from recent years.

But even though the overall picture provides no cause for alarm, a closer look at federal regulatory policy shows a wide range of problems. Perhaps foremost is exceptionally poor priority-setting, with substantial resources sometimes going to small problems, and with little attention to some serious problems. There are also unnecessarily high costs, with no less than \$400 billion being

¹⁸ See the outline in Cass R. Sunstein, *Congress, Constitutional Moments, and the Cost-Benefit State*, in Cass R. Sunstein, *Free Markets and Social Justice* 348 (Oxford: Oxford Univ. Press, 1997).

¹⁹ See *Economic Analyses at EPA: Assessing Regulatory Impact* 455–6, Richard Morgenstern, ed. (Washington, D.C.: Resources for the Future, 1998); Paul Portney, *Air Pollution Policy, in Public Policies for Environmental Protection* 77, 101–5, Paul Portney & Robert Stavins, eds. (Washington, D.C.: Resources for the Future, 2000).

²⁰ Portney, *id.* at 102–3.

²¹ *Id.*

²² *Id.* at 109.

²³ *Id.* at 113 (showing a benefit-cost ratio of 3 to 1).

²⁴ Available at www.whitehouse.gov/omb/info/inforg/index.html

Table 1.3 Net benefits of selected regulations (\$ millions)

Regulation	2000	2005	2010	2015
Head impact protection	310-370	1,210-1,510	1,210-1,510	1,210-1,510
Conservation reserve program	1,100	1,100	1,100	1,100
Restriction on sale and distribution of tobacco	9,020-9,820	9,020-9,820	9,020-10,220	9,020-9,820
Acid rain controls	260-1,900	260-1,900	260-1,900	260-1,900
Energy conservation standards for refrigerators	330	330-360	510-580	440-500
New surface water treatment	50-1,200	50-1,200	50-1,200	50-1,200
Emission standards for new highway heavy-duty engines	0	110-1,200	110-1,200	110-1,200
Disposal of PCBs	136-736	136-736	136-736	136-736
Particulates standard	0	0	12,000-113,000	20,000-86,000

attributable to compliance costs each year,²⁵ including \$130 billion on environmental protection alone.²⁶ It is worthwhile to pause over this number, and to note that the dollar figures should not be taken as meaningless abstractions or as reflecting lower profits for "companies." If the cost of regulation is high, it is likely to be translated into higher prices, lower wages, fewer jobs, and greater poverty, or some combination of these things.

OMB's own report shows some disturbing numbers: For the next fifteen years, OSHA's methylene chloride regulation will have annual costs of \$100 million and annual benefits of \$40 million²⁷; a regulation calling for

²⁵ Thomas Hopkins, *The Costs of Federal Regulation*, 2 J. Reg. & Soc. Costs 5, 25 table 2 (1992).

²⁶ Paul Portney & Robert Stavins, *Regulatory Review of Environmental Policy: The Potential Role of Health-Health Analysis*, 8 J. Risk & Uncertainty 111, 119 n.1 (1995).

²⁷ Id., table 12.

Table 1.4 Net benefits of questionable regulations (\$ millions)

Regulation	2000	2005	2010	2015
Exposure to methylene chloride	-60	-60	-60	-60
Roadway worker protection	0	0	0	0
Financial assurance for municipal solid waste landfills	-100	-100	-100	-100
Pulp and paper effluent guidelines	-150 to 0	-150 to 0	-150 to 0	-240 to 0
Ozone standards	0	-235 to 240	-840 to 1,190	-9,200 to -1,000
Child restraint system	-40 to 40	-40 to 40	-40 to 40	-40 to 40
Vessel response plans	-220	-220	-220	-220
Nitrogen oxide emission from new fossil fuel fired steam generating units	-57 to 29	-57 to 29	-57 to 29	-57 to 29

roadway worker protection has benefits of \$30 million but equivalent costs; the cost-benefit ratio for airbag depowering regulation seems pretty bad, though there is uncertainty in the data²⁸; EPA's regulation for financial assurance for municipal solid waste landfills has monetized benefits of \$0, but costs of \$100 million, and this is expected for the next fifteen years.²⁹ By way of general illustration, consider Table 1.4,³⁰ all drawn from recent regulations.

These figures, drawn from regulations in a single year, show a less than coherent pattern of regulation, especially when Table 1.3 is put together with Table 1.4. According to one study, better allocations of health expenditures could save, each year, 60,000 additional lives at no additional cost — and such allocations could maintain the current level of lives saved with \$31 billion in

²⁸ Id.

²⁹ Id.

³⁰ Id.

annual savings.³¹ The point has been dramatized by repeated demonstrations that some regulations create significant substitute risks³² — and that with cheaper, more effective tools, regulation could achieve its basic goals while saving billions of dollars.³³

In these circumstances, the most attractive parts of the movement for cost-benefit analysis have been rooted not in especially controversial judgments about what government ought to be doing, but instead in a more mundane search for pragmatic instruments designed to reduce some central problems, many of them the social counterpart of difficulties we all face in thinking about risk: poor priority-setting, excessively costly tools, and inattention to unfortunate side-effects. I will connect cost-benefit balancing to problems in ordinary intuition in Chapter 2. For the moment, note simply that by drawing attention to costs and benefits, it should be possible to spur the most obviously desirable regulations, to deter the most obviously undesirable ones, to encourage a broader view of consequences, and to promote a search for least-cost methods of achieving regulatory goals.³⁴ Notice here that so defended, cost-benefit analysis is an obstacle to unjustified regulation, but it should be a spur to government as well, showing that it should attend to neglected problems. And indeed the Office of Information and Regulatory Affairs, charged with overseeing cost-benefit balancing, issues "prompt letters," asking agencies to initiate regulation, as well as "return letters," asking agencies to rethink the question whether regulation is really warranted. If cost-benefit balancing is supported on these highly pragmatic grounds, the central question is whether that form of balancing is actually producing what can be taken as policy improvements by people with diverse views about appropriate policy.

On these counts, the record of cost-benefit analysis, at least within the EPA, is generally encouraging.³⁵ Assessments of costs and benefits have, for example, helped produce more stringent and rapid regulation of lead in gasoline; promoted more stringent regulation of lead in drinking water; led to stronger controls on air pollution at the Grand Canyon and the Navaho Generating Station; and produced a reformulated gasoline rule that promotes stronger controls on

air pollutants.³⁶ In these areas, cost-benefit analysis, far from being only a check on regulation, has indeed spurred governmental attention to serious problems.

Cost-benefit analysis has also led to regulations that accomplish statutory goals at lower cost or that do not devote limited private and public resources to areas where they are unlikely to do much good. With respect to asbestos, for example, an analysis of benefits and costs led the EPA to tie the phase-down schedules to the costs of substitutes and also to exempt certain products from a flat ban.³⁷ With respect to lead in gasoline and control of CFCs (destructive of the ozone layer), cost-benefit analysis helped promote the use of economic incentives rather than command-and-control regulation³⁸, economic incentives are much cheaper and make more stringent regulation possible in the first place. For regulation of sludge, protection of farmworkers, water pollution regulation for the Great Lakes, and controls on organic chemicals, cost-benefit analysis helped regulators produce modifications that significantly reduced costs.³⁹ For modern government, one of the most serious problems appears to be, not agency use of cost-benefit analysis, but frequent noncompliance with executive branch requirements that agencies engage in such analysis.⁴⁰

If we take all these points together, we can see that the cost-benefit state is attentive to the three themes I have emphasized, all of which were overlooked by 1970s environmentalism. To recapitulate: The first is the need to assess magnitudes, if possible through numbers. It is hard to know whether a risk is worth reducing unless we have a sense of its size. The second is the need to take account of tradeoffs. It is hard to know what should be done about a risk, even a large one, without also knowing the consequences of trying to reduce it. The third is the importance of using sensible regulatory tools — instruments of protection that minimize rather than maximize costs, that maximize rather than minimize effectiveness, and that undermine rather than promote the influence of self-interested private groups with their own agendas. These three themes, each involving an effort to go beyond unreliable intuitions, will play a major role in the discussion to follow.

³⁶ See id. at 458.

³⁷ Id. at 458.

³⁸ Id. at 49–86; 131–69.

³⁹ Id. at 458.

⁴⁰ See Hahn, supra note 2 in the Introduction.

³¹ Tammy Tengs et al., *Five Hundred Life-Saving Interventions and Their Cost-Effectiveness, 15 Risk Analysis* 369 (1995).

³² See John Graham & Jonathan Wiener, *Risk vs. Risk: Tradeoffs in Protecting Health and the Environment* (Cambridge, Mass.: Harvard Univ. Press, 1995).

³³ See, for example, A. Denny Ellerman et al., *Markets in Clean Air* (New York: Cambridge Univ. Press, 2000); Robert Stavins, *Market-Based Environmental Policies*, in *Public Policies for Environmental Protection*, supra note 19 in Chapter 1.

³⁴ For many examples, see *Economic Analyses at EPA*, supra note 19 in Chapter 1.

³⁵ See id.