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Walter A. Rosenbaum

Environmental POLITICS and POLICY

Eleventh Edition

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Walter A. Rosenbaum

University of Florida

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PREFACE

We are now living in an extraordinary period, perhaps *the* most extraordinary period, in American environmental governance since the first Earth Day. What happened in the twenty-four hours of the 2016 presidential election initiated the most abrupt, radical revision of U.S. environmental policymaking in fifty years. Donald Trump's administration has quickly redefined, and certainly intensified, policy discourse in every domain of environmental policymaking discussed in this book. This transformation in environmental governance is recognized by timely revisions in substance and detail throughout each of the following chapters. Still, readers familiar with *Environmental Politics and Policy* will recognize a continuity with previous editions in conceptual framework and substantive policy concerns.

The foundational chapters that explain and illustrate the essential components of the policymaking process (Chapters 2 and 3) still cover these key areas, but they have been carefully reorganized for greater clarity and continuity. Chapter 2 now focuses entirely on the policymaking process, whereas Chapter 3 covers the institutions and politics of policymaking. Throughout the book, case studies and other examples have been updated comprehensively, where appropriate, to ensure timeliness and relevance. Each chapter has been edited rigorously to eliminate material from previous editions that is no longer essential. The result is a more concise narrative that does not sacrifice fundamentals, such as the conceptual design, the careful explanation of substantive policy, and the abundant illustrations, that have appealed to the readers of previous editions. As always, a major subtext is the continuing challenge, inherent to environmental policymaking, of reconciling sound science with practical politics.

The revisions emphasizing the strategic transformations that have taken place in domestic environmental governance from the Obama to Trump administrations appear in every chapter. These revisions include:

- A new discussion in Chapter 1 of the radical transition from the Obama to the Trump environmental policy agendas, with particular attention on the Trump environmental deregulatory initiatives and energy policies in contrast to the evolution of national environmental policy since Earth Day 1970.
- A recurring discussion of the nationally publicized controversies over the Trump administration's alleged misuse of scientific information for environmental policymaking, particularly by the Environmental

Protection Agency (EPA, Chapter 3) and, most notably, in issues related to climate-warming regulations (Chapter 10).

- An updated narrative about the policymaking process. This includes in Chapter 2 a new case study illustrating environmental decision-making in the federal government's decision to list a bumblebee species as endangered. This chapter also notes the shifting texture and discontinuities of public opinion concerning the environment and its impact on environmental policymaking and voting behavior. The chapter also includes new public opinion polls about public environmental concerns in the 2016 presidential election and new data about increasing polarization of opinion between Republican and Democratic partisans over important domestic energy issues, such as climate change, as well as a discussion of the important Republican "war on coal" campaign theme in the 2016 election and data on political spending and activism by environmental groups.
- A recognition of continuing change in environmental trends and indicators. The shelf life of environmental data is short. Data need continual updating and pruning to remain relevant. Tables and figures from earlier editions that are no longer useful have been removed. The remaining tables and figures presenting the most essential data—current trends in national air pollution emissions, water quality, and toxic waste discharges, for example—have been updated as much as possible.
- A description of major Trump changes in the organization of executive environmental agencies, illustrated in Chapter 3 by a rewrite of the introductory case study to include the suspension of EPA's new, stricter Clean Water Act regulations for surface water. Other updates include a description of the Trump administration's controversial reorganization of EPA's scientific advisory committees and reductions in EPA budget, staff, and regulatory resources.
- An updated discussion of environmental justice issues, including a new case study in Chapter 4 concerning the discovery of drinking water contamination in Flint, Michigan, and the resulting political controversy.
- A comprehensive discussion of the Trump administration's highly controversial suspension of the Obama Clean Power Plan to control domestic climate-warming emissions and the crucial scientific and political implications. The analysis includes a Chapter 6 summary of the plan, the critical Trump revisions, and implications of these revisions scientifically and politically.

- A description of the changes in national energy policy created by the Trump administration's increased promotion of fossil fuel exploration and production on federal lands (Chapter 9) and by related efforts to rapidly increase domestic coal production and combustion (Chapter 8). A related discussion of the challenges involved in creating "clean coal" technologies has also been added (Chapter 8).
- The Trump administration's rejection of U.S. participation in the international Paris Accord to limit global climate warming emissions and the implications for national climate diplomacy are discussed (Chapter 10) in an extensively updated chapter on U.S. climate change policy.

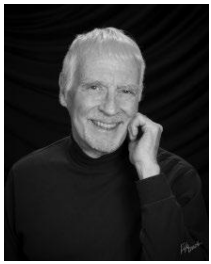
I have tried to keep faith with colleagues, students, reviewers, and others who have found the narrative design informative, accessible, and durable. That includes an implicit commitment to material that is interesting as well as balanced and teachable—in the end, a book that is both a good read and a fair read.

ACKNOWLEDGMENTS

As usual, the talents of many other people were enlisted in the writing of this new edition, and I am deeply indebted to them for the continuing acceptance of this book. Like most teachers, I recognized long ago that my students are often my best instructors and critics. To them, I express my continuing gratitude. A number of reviewers made constructive suggestions during the revision and writing of this edition. I thank Marjorie Hershey, Indiana University; Dr. Ninian R. Stein, Environmental Studies and Anthropology, Tufts University; and Robert Holahan, Associate Professor, Environmental Studies and Political Science, Binghamton University, for their thorough reviews. To my current CQ Press editor Scott Greenan and to copyeditor Diane Wainwright, I offer a well-deserved thanks for the many hours of planning, reviewing, and patience invested in the work. Faults of omission and commission—alas!—are my own.

—Walter A. Rosenbaum

ABOUT THE AUTHOR



Walter A. Rosenbaum is professor emeritus of political science at the University of Florida and director emeritus of the University of Florida's Bob Graham Center for Public Service. His recent activities include an analysis of the EPA's capacity for climate change regulation, prepared for the Brookings Institution; an examination of the data requirements for a new Federal Environmental Legacy Act; preparation of an energy policy text for CQ Press; and an analysis of U.S. energy governance for MIT Press. He has also served as a staff member of the U.S. Environmental Protection Agency and an adjunct professor in the School of Public Health, Tulane University Medical College. In addition to his teaching and research, he has been a consultant to the EPA, the U.S. Department of Energy, the Federal Emergency Management Agency, and the South Florida Ecosystem (Everglades) Restoration Project. He is currently the Editor-in-Chief of the *Journal for Environmental Studies and Sciences.*

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AFTER EARTH DAY

A few miles north from Denver, along Colorado's Front Range, the busy urban corridor straddling Interstate 25 along the eastern range of the Rocky Mountains, lies the small, picturesque town of Erie. In 2005, Erie was little more than an historic, old coal town consisting of two paved roads, a miniature urban center with a few restaurants, a handful of retail stores, a post office, and a bar boasting continuous service since 1926. Then along came fracking, and everything changed.

Within a few years, Erie and surrounding Weld County were suddenly, uneasily, riding the crest of an economic boom. Since 2005, more than 23,000 active oil and gas production wells, mostly fracking sites, have appeared in Weld County, so numerous they seemed to one journalist "more common than trees."[1] In Erie, the population tripled from 6,291 to 19,723 in little more than a decade. The explosive growth of oil and gas production rapidly transformed the town's retail economy, workforce, and households. By 2015, the median family income was $103,796, almost double the national average. The surge of new residents produced a thriving and expensive market for housing construction—many homes costing in excess of $300,000. New homes? "They'll sell in a night," one local businesswoman told a reporter. "I'll have people come in here and say, 'Yup, it was up there for two hours and it sold.'"[2] Rising tax revenues, retail sales, and many other economic windfalls from robust oil and gas production have brought new wealth and a multitude of desirable community amenities to Erie and Weld County. But less than a decade after fracking arrived, middle school children and their parents were parading through a drilling site chanting "Hey, hey! Ho, Ho! These fracking wells have got to go."[3]

By 2015, the *Washington Examiner* reported that controversy over Erie's fracking sites "has grown so bitter that Erie residents don't tell neighbors if their spouse works for the oil industry. Many won't discuss the issue with reporters . . . " Remarked one woman to a reporter: "You don't tell them your husband works for an oil company. When they say, 'Hey, what does your husband do?' you just smile and change the subject." Fracking technology has brought Erie, like numerous other communities across the United States, not only prosperity

but divisive controversy, environmental disruption, and a problematic future. In 2014, Erie was selected among "The Best Places to Live" in America.[4] The same year, the fracking battle catapulted Erie into national attention and earned it the unwelcome distinction as "ground zero for the disputes over property rights and environmental protection that fracking has unleashed."[5] Most important, the fracking conflict is U.S. environmental politics in the present tense. The rapidly enlarging contention is a showcase for many issues inseparable from environmental policymaking and certain to appear in variation throughout later chapters.

"FRACK, BABY, FRACK"

By 2009, when the drilling sites first appeared in Erie, fracking technology had already spread rapidly across the United States. More than thirty-five major oil shale formations exist beneath the United States and the Gulf of Mexico. Virtually every U.S. state is or could become a fracking site for natural gas and petroleum. The fracking rigs arriving in Erie were the leading edge of the fracking boom rapidly expanding to exploit Colorado's Niobrara shale deposit, the fourth largest oil and gas shale formation in the United States.

A Spreading Technology

A relatively recent innovation called high-volume hydraulic fracturing and horizontal drilling has greatly increased fracking's efficiency and economic profitability, thus dramatically accelerating its growth across the natural gas industry into what many industry experts now call a revolution in oil and natural gas production. Like almost all environmental issues, fracking is a complex mix of politics, economics, technology, science, and health risks—in Erie's case, with a generous seasoning of neighborhood conflict and intergovernmental dissention.

Oil shale is a densely packed sedimentary material formed millions of years ago containing oil and natural gas combined like an egg in cake batter within the densely packed rock. Fracking technology is designed especially to reach and capture these petroleum resources locked in deep sedimentary layers.

Fracking involves igniting underground explosives to fracture oil shale. Engineers then combine a vertical pipe, often miles deep, with a horizontally drilled pipe to pump into the shale millions of gallons of heated, salty water mixed with numerous chemicals to produce a brine, under pressure high enough to penetrate the fractures. The heated brine releases petroleum and natural gas embedded in the shale. The whole mix is captured, pumped to the surface, and separated into petroleum materials and wastewater.[6] Fracking involves massive water consumption, the potential contamination of surface and subsurface water resources by the drilling brine, and disposal of the millions of gallons of wastewater. Most drilling companies assert that the drilling brine is environmentally safe and that the brine's diffusion through the oil shale and its eventual disposal

above ground pose few ecological hazards. (One mining company executive even publicly—and harmlessly—drank a small glass of the drilling brine to demonstrate its safety.)[7] Most drillers believe that any additional environmental regulation, when needed, can be provided by the relevant state or local governments.

Contested Environmental Impacts

There is little doubt, however, that the newest fracking technology can pose significant health risks and create potentially severe ecological damage, unless properly managed by mining companies and carefully regulated by government. An extensive review of the available research, reported by the highly respected National Academies of Science, concluded that oil shale mining "is much more costly, energy intensive, and environmentally damaging than drilling for conventional oil. The processes . . . involve significant disturbance of the land, extensive use of water (a particular concern in dry regions where oil shale is often found), and potential emissions of pollutants to the air and groundwater. . . ."[8]

Fracking's potential impact upon the nation's rivers, lakes, streams, and underground water has become especially contentious. Even a relatively small drilling site pours millions of gallons of chemically treated water into a fracking well. Fracking sites currently operating or planned near large urban drinking water sources or infrastructure, for instance, might create significant contamination and extremely costly remediation. Small, repeated earthquakes have occasionally been linked to fracking operations. Farmers near fracking operations have complained about methane-contaminated wells, poisoned cattle, and drilling access roads destroying timber and isolating croplands. Clear and convincing evidence of these and other environmental impacts attributed to fracking technology, however, is fragmentary and controversial. A 2015 EPA investigation of fracking's geologic impact found no evidence that fracking had created "widespread, systemic impacts on drinking water resources in the United States" but admitted the conclusion was very tentative.[9] Some limited university studies have found no evidence of groundwater contamination at a few southwestern fracking sites; other research reveals no earthquakes associated in other regions. Illness directly linked to fracking-contaminated soil and water among farmers and ranchers remains unproven. Thus, the fracking boom advances, even as government regulators, property owners, the drilling companies, health scientists, and environmentalists debate when, where, and how to regulate it.

Neighbor Against Neighbor

Whatever else fracking's impacted, it has divided communities and governments while setting neighbors against each other. It also has produced substantial income for property owners living atop a shale formation and for local governments. In Erie, for example, property owners with mineral rights received an average of $25,000 to lease their land for drilling. Local retail sales and new store

openings rapidly increased. Controversy began, however, with construction of the earliest among more than 200 drilling sites erected within the city by 2016 and has continued unabated.

The Erie controversy was incited by many events. In 2012, an early drilling site near Red Hawk Elementary School, within the range permitted by state law, soon provoked teachers, parents, and neighbors to complain that the noise disrupted school work and the sleep of nearby residents. Truck traffic crowded local roadways. Concern about possibly hazardous emissions from drilling sites and geologic disturbances, based upon news from other communities, circulated among residents. In 2014, the National Oceanic and Atmospheric Administration released a study revealing that propane levels in Erie were ten times higher than the recommended limits for high-extraction communities.[10] That same year, a new drilling site produced noise twenty-four hours daily, violating state regulations and forcing some residents to cover their bedroom windows with four-inch upholstery foam to smother the noise.[11]

Governments in Conflict

Erie's government, the fracking corporations, local residents, community business, and state regulators have struggled to find a satisfactory political strategy to reconcile their often dissonant interests. The controversy is intensified by federalism. Environmental regulation involves federalism, which usually proceeds with considerable cooperation among federal, state, and local governments. But federalism has raw edges, exposed when federal and state governments disagree about regulation. In Erie, local, state, and federal governments all have asserted competing claims to regulatory authority over fracking. The state, not Erie's city government, regulates all oil and gas drilling sites and resists regulation by local authorities; state officials, in turn, resist Washington preempting state regulation. Colorado's property law separates property rights above ground from mineral rights below. Thus, a landowner with property overlying shale deposits may refuse to allow fracking at the surface, but it can—and does—happen that "a person or company who wants to develop the minerals can go to a more willing neighbor and bore laterally underneath the property of the recalcitrant anti-fracker."[12] Some residents want fracking entirely prohibited; some just want the drilling off their property, and others, citing Erie's sudden prosperity, oppose any prohibition of local drilling.

Local community activists, a coalition of longtime residents and new middle-class arrivals, organized public forums and informal gatherings and hosted wine-and-cheese house parties where strategies were developed to pressure local and state governments to resolve the fracking issues. Since then, local efforts have failed to persuade Erie's state and congressional representatives to invest Erie and Weld County with authority to regulate local drilling. Both a local and a state referendum to freeze further drilling have failed. The drillers have worked diligently to earn Erie's acceptance and to mitigate, if not eliminate, many of the problems

arousing community criticism. One drilling corporation, for example, has spent about $3.3 million in Weld County since 2007 on philanthropic endeavors, such as buying solar panels to power the Erie Community Center.[13] At some drilling pads, the company has voluntarily moved beyond required boundaries, and others removed or rescheduled drilling hours to diminish the neighborhood noise.

A Continuing Controversy

The collision of community and corporate interests remains, and some conflicts defy compromise. By early 2018, Colorado's energy regulators had received more than 900 complaints about fracking from Weld County, and Erie's local government had passed an ordinance—which drillers claim is illegal—intended to control objectionable odors originating at drilling sites.[14]

The issue has outgrown Erie. The simmering political conflict has provoked attention and engagement from national advocacy groups representing a multitude of environmental, petroleum industry, and state and local government interests that regard Erie and Colorado as a showcase for the larger national debate over which governments should regulate fracking and how it should be done. As the Colorado fracking conflict evolves, however, it could be overtaken by the sudden, rapid decline in global petroleum prices starting in 2014—an economic shock already driving many small fracking operations out of production. In Colorado, as elsewhere in the United States, communities like Erie seem perched precariously between an economic boom and a potential bust.

Whatever the outcome, the fracking battles, wherever fought across the United States, have become environmental politics in the present tense, testimony that environmental issues are bundled inextricably in economic, political, scientific, and social issues certain to appear in variation throughout later chapters. These are a permanent legacy of an American Environmental Era hardly a generation old.

AMERICA'S ENVIRONMENTAL LEGACY

By the time Donald Trump entered the White House, America's environmental movement had transformed the nation's environment and its politics in many enduring ways. Perhaps most impressive has been the improvement of the nation's air quality. Ambient concentrations of sulfur oxides, carbon monoxide, nitrogen oxides, particulates, and ozone—all associated with serious human health disorders—had decreased by 73 percent between 1970 and 2016, and many more acutely dangerous ambient air toxics, especially formaldehyde and lead, have been reduced or virtually eliminated.[15] Dangerous chemical and biological pollutants of major U.S. waterways, such as the Mississippi, Potomac, and Ohio rivers, have been reduced sharply.

Aggressive regulatory programs have reduced significantly the number of abandoned hazardous waste sites across the United States and, for the first time, compelled the manufacturers and distributors of hazardous or toxic chemicals to

comply with national standards for their transport and disposal. National testing programs now require more rigorous screening and testing of newly manufactured chemicals to protect human health and the environment. Numerous plant and animal species that were threatened with extinction, including the American bald eagle and the American panther, have been protected and, in a few instances, restored to vitality. Equally important, the United States was committed to numerous regional and international treaties, such as the Montreal Protocol, to reduce the global ozone hole, testifying to a growing recognition that the quality of the nation's domestic environment and global environmental quality have become interdependent. Most important politically, these transformations seemed securely grounded in a durable national consensus that environmental protection must now be a first-order public concern—a remarkable emergence of a national ecological consciousness that was nonexistent a few decades ago.

Despite these transformations, the U.S. environment remains significantly degraded in critical respects. In 2017, more than 123 million Americans lived in a county where one or more of eight regulated air pollutants exceed National Air Quality Standards.[16] More than half the total area of the nation's biologically essential estuaries and almost half the nation's river miles are considered unacceptably polluted. The primary cause of this water degradation is still largely unregulated. Surprisingly little information is available about the extent to which Americans are exposed to thousands of existing chemicals or about the possible health risks involved. Federal government estimates suggest that information on public exposure is available for less than 6 percent of more than 1,400 naturally occurring and manufactured chemicals considered to pose a human health threat.[17] The EPA has been able to assess the public health risks for an even smaller proportion of the about 1,500 new chemicals introduced annually into commerce and industry. "EPA's review of new chemicals provides only limited assurance that health and environmental risks are identified," according to a report by the U.S. Government Accountability Office (GAO; formerly the Government Accounting Office), "because the agency has limited information with which to review them."[18] In fact, one of the most compelling national environmental problems is the pervasive lack of reliable scientific information about current environmental quality and human exposure to environmental contaminants—data that are absolutely essential for sound environmental policymaking.[19]

It is increasingly apparent that the scope and scale of this ecological degradation were often gravely underestimated and that the social and economic costs of pollution regulation were frequently miscalculated badly when the nation's major environmental policies were enacted. For instance, when Congress wrote legislation in 1976 requiring the EPA to ban or regulate any chemicals posing an unreasonable risk to human health, it did not anticipate that more than 62,000 chemical substances might have to be evaluated to determine their toxicity. Nor did Congress predict when it wrote the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, popularly known as Superfund) to clean up the nation's worst abandoned chemical waste sites that more than 40,000 sites

would be discovered, that 500 new sites would be identified annually, and that the initial funding would be virtually exhausted by the mid-1990s, thus requiring annual additional appropriations of $1.2 billion through at least 2015.[20] We know now that the seemingly inexorable expansion in the scale and costs of environmental restoration is often the consequence of better environmental monitoring and research revealing, often to considerable surprise, the true reach and complexity of environmental problems. Thus, environmental protection is a work in progress.

THE EVOLUTION OF U.S. ENVIRONMENTALISM

The first Earth Day in April 1970 was the big bang of U.S. environmental politics, launching the country on a sweeping social learning curve about ecological management never before experienced or attempted in any other nation. No challenge has been more fundamental to U.S. environmentalism since Earth Day 1970 than the constructive adaptation of the original vision of environmental conservation and a renewal, once written into law and embedded into the political and economic structure of U.S. life, to domestic and global changes.

The Environmental Decade: From Richard Nixon to Ronald Reagan

The 1970s, the decade spanning the presidencies of Richard Nixon, Gerald Ford, and Jimmy Carter, remain the most remarkably creative legislative period in the history of U.S. environmentalism.[21] During this decade, almost all of the major environmental laws, federal environmental regulatory institutions, and environmental interest groups that now define the contours of the nation's environmental politics and policy appeared.

A Republican, Richard Nixon himself was no environmentalist, nor were most congressional Republicans. But both congressional parties recognized the enormous political capital to be gained by riding the crest of the upwelling public concern for environmental protection. In Congress, a vigorous, broad coalition of Democrats and Republicans in both chambers collaborated in creating the legislative majorities essential to firmly establish the legal and political foundations of the U.S. environmental era.[22]

By the time Richard Nixon's presidency abruptly ended in 1974, Congress had written the National Environmental Policy Act of 1969, which required all federal agencies to prepare environmental impact statements for any significant actions affecting the environment, declared a national policy "to encourage productive and enjoyable harmony between man and his environment," and created the Council on Environmental Quality within the White House to advise the president on environmental matters. During this period, the Clean Air

Amendments of 1970 for the first time mandated national air pollution standards and regulatory laws to enforce them. Two years later, the Federal Water Pollution Control Act Amendments of 1972 (Clean Water Act) set national water quality goals, established a national pollution discharge permit system, and created federal grants to the states to improve municipal waste treatment plants. To administer these new laws, Nixon created by executive order the EPA, the largest federal regulatory agency and the first of its kind in any national government.

A cascade of environmental legislation continued throughout the 1970s. The Endangered Species Act (1973) broadened federal authority to protect all endangered and threatened species, and the Safe Drinking Water Act (SDWA, 1974) authorized the federal government for the first time to set standards protecting the quality of the nation's drinking water. The Toxic Substances Control Act of 1976 (TSCA) required premarket testing of chemical substances and authorized the EPA to regulate or ban the manufacture, sale, and use of chemicals posing "an unreasonable risk of injury to health or to the environment," and the Resource Conservation and Recovery Act of 1976 (RCRA), requiring the EPA to set national standards for hazardous waste treatment, storage, and disposal.

By the time Jimmy Carter entered the White House in 1977, public support for environmental protection had become so broadly and deeply founded that it was, in effect, a part of the national consensus—that array of issues publicly accepted as an essential and priority concern of government. Carter's term began with his successful promotion of the Surface Mining Control and Reclamation Act (1977), establishing for the first time federal standards for strip mining and requiring mine operators to environmentally restore mined lands. Carter was also instrumental in the congressional passage of amendments to the Clean Air Act (CAA) and Clean Water Act in 1977. Powerfully aided by national revelation of the extensive, buried toxic waste dump discovered under the suburban settlement at New York's Love Canal, Carter was able to collaborate with Congress in the creation of CERCLA.

But Carter's administration was also beset from the outset by an energy crisis, created when the Organization of Petroleum Exporting Countries (OPEC) in 1973 imposed an embargo on U.S. imports of Middle Eastern petroleum.[23] The economic shock of the embargo and the political turbulence in its aftermath compelled the federal government for the first time since World War II to regulate domestic petroleum prices and supply, to set energy-efficiency standards for transportation and consumer products, and to create a national energy plan. Carter proposed and Congress enacted legislation establishing the new Department of Energy (DOE).

Policy Deadlock: From Ronald Reagan to George W. Bush

The environmental movement had prospered through the 1970s. That changed with the advent of the Reagan administration (1981–1989). Reagan and

his advisers, abetted by a new cadre of sympathetic congressional Republicans and the collapse of bipartisan congressional environmentalism, believed they had been elected to bring regulatory relief to the U.S. economy, and environmental regulations were an early priority on their hit list of laws needing regulatory reform. The environmental movement regarded the Reagan administration as the most environmentally hostile in a half century and Reagan's regulatory reform as the cutting edge of an implacable assault on the institutional foundations of federal environmental laws enacted during the 1970s.[24]

The Reagan years severely tested the foundations of the environmental movement. Although the foundations held, little was done to advance the implementation of existing policies or to address new and urgent environmental issues. Accompanied by polarizing partisan infighting and protracted legislative delays, Congress was able to pass important amendments to the Clean Water Act, the SDWA, CERCLA, and the RCRA. The future of commercial nuclear power seemed to plunge from bleak to barren when the deadly 1984 reactor meltdowns at the Soviet Union's Chernobyl nuclear power facility released a catastrophic cloud of high levels of atmospheric radioactivity over the Soviet Union and its adjacent European neighbors.

President George Bush (1989–1993) ended the pernicious policy impasse of the Reagan years. The EPA's morale and resources, severely depleted during the Reagan years, improved. The Bush administration sponsored and adeptly promoted the CAA Amendments of 1990, a long-overdue reform of the CAA of 1970. The Energy Policy Act of 1992 for the first time created a comprehensive federal energy plan to reduce U.S. dependence on imported oil, encouraged energy efficiency and conservation, and promoted renewable energy.

The environmental movement expected much of Bill Clinton, especially because Vice President Al Gore was an outspoken environmentalist and Clinton had cultivated the environmentalist vote. In the end, the Clinton administration was distinguished more by its ambitions than by its accomplishments.[25] Clinton generally reinvigorated environmental regulation and installed aggressive environmentalist administrators in strategic executive agencies such as the Department of the Interior and the EPA. He revived U.S. engagement in international environmental policymaking, eventually committing the United States to the Kyoto Protocol to control global climate change (which the U.S. Senate, for its part, refused to ratify).

But Clinton confronted throughout most of his administration a hostile Republican congressional majority that thwarted most of his legislative initiatives.[26]

Environmental Leadership Revived: From George W. Bush to Barack Obama

Then came Republican George W. Bush (2001–2009). To the wary environmental movement, Bush's succession to the White House seemed to announce

a profoundly unsettling new regime emerging from the shadows of the bitterly remembered Reagan administration, and it enthusiastically embraced its environmental attitudes. The environmental movement and most passionate environmentalists vigorously opposed Bush's election, even though Bush strongly represented himself as a moderate environmentalist, a prudent reformer rather than an anti-environmental zealot.

Bush's relationship with the environmental movement was confrontational from the outset. His appointment of individuals closely associated with energy production and natural resource consumption to strategic leadership positions in the executive branch, especially in the Department of the Interior and the DOE, and the close association of Vice President Dick Cheney with the oil and gas industry provoked deep misgivings among environmentalists.[27] The Energy Policy Act of 2005 and the subsequent Energy Independence and Security Act of 2009 exemplified the Bush administration's ambitious effort to create a long-term energy strategy for the United States. Although the environmental community generally welcomed these initiatives aimed at increasing energy efficiency and developing renewable energy resources, environmentalists continued to criticize the heavy emphasis on accelerated fossil fuel exploration, new commercial nuclear power, and coal-fired utilities in the Energy Independence and Security Act.

During the Bush administration, the EPA did strengthen national air pollution controls on particulates and mercury emissions, but to environmentalists, these and other administration initiatives were too laggard and limited. Christie Todd Whitman, Bush's first EPA administrator, had complained at the end of her term that the Bush administration seemed condemned to "an eternal fistfight" with environmental groups.[28] Her remark became prophetic.

A Collision of Expectations: The Obama Presidency

The election of Barack Obama and the return of Democratic majorities to both congressional chambers in 2009 seemed to signify a renewed White House commitment to innovative and new environmental initiatives and a relief from the adversarial, polarizing environmental legislative politics of the Bush administration. Obama's first term began with a bold program of ambitious environmental legislation, regulations, and other initiatives that never quite materialized. The White House environmental agenda was soon depleted by a severe economic recession and embattled by a tenacious partisan deadlock afflicting Congress for the duration of his presidency.

During its first term, the Obama administration created a significant record of environmental achievements. Among the most important legislation was the administration's American Recovery and Reinvestment Act of 2009, the massive economic recovery program that included more than $100 billion in spending, tax incentives, and loan guarantees to promote energy efficiency, renewable energy development, fuel-efficient cars, and control of climate-warming

emissions, among other programs appealing to environmentalists. The administration promoted new congressional initiatives to create a regulatory program to control domestic climate-warming emissions. The EPA enacted numerous new and revised environmental regulatory programs, including revised regulations to limit mercury emissions from industrial fossil fuel combustion, further regulations to improve control of other toxic air pollutants, and new, stricter mileage standards for automobiles and light trucks. White House guidelines were written to strengthen protection of federal scientific research and regulation from White House political interference.

The president, however, inherited the most severe economic recession since the Great Depression and was compelled to weaken or eliminate many regulatory and legislative environmental initiatives in order to reduce federal expenditures and regulatory costs. Moreover, the 2010 congressional elections returned to the House of Representatives a Republican majority hostile to most White House environmental initiatives and preoccupied with reducing federal spending and regulation. A divided congress virtually assured legislative deadlock and the failure of almost all Obama's environmental legislative proposals.

The White House effort to enact new legislation to control climate-warming emissions failed despite an enormous investment of time and political resources. The EPA postponed its widely anticipated reform of regulations controlling atmospheric ozone and weakened its initial plan to strengthen regulation of atmospheric soot (particulates). Facing continuing budget deficits, the administration reduced the EPA's budget for three successive years.[29] Thus, the Obama administration, caught between conflicting demands to revive a severely weakened economy, to achieve legislative leadership in a bitterly divided Congress, and to satisfy the environmentalist expectations, was almost predestined to create disappointment and division within the environmentalist community. The second term, however, was a very different matter.

By the end of his second term, Obama had created an unprecedented environmental presidency he expected would endure. This legacy was crafted almost entirely through the exercise of the president's inherent executive powers, which did not require congressional collaboration to implement—a strategy that increased Republican determination to revoke most of Obama's regulatory enactments if they won the White House in 2016. Obama became the first president to actively and consistently promote climate change as a major priority in his regulatory agenda, legislative initiatives, and public speeches.

The foundation of Obama's second-term climate agenda was the president's regulatory power created by the Clean Air Act and exercised through the EPA. Using this authority, in 2015 the EPA drafted the Clean Power Plan, a rule establishing state-by-state goals for carbon emission reductions from electric utilities—a major source of climate-warming gases—and permitting states great discretion in determining how to meet goals. The EPA estimated that the rule would reduce these national emissions by an estimated 32 percent below 2005 levels by 2030.[30] This rule, coupled with a 2015 EPA rule mandating tougher emission rules for

trucks and heavy-duty vehicles and an agreement with China to jointly reduce national carbon emissions significantly, constituted the fundamentals of the climate agenda. Late in his second term, to the satisfaction of environmentalists, the president rejected the Keystone XL pipeline proposal, the long-disputed plan to build a 1,179-mile pipeline to transport 800,000 barrels a day of carbon-heavy petroleum from the Canadian oil sands to the Gulf Coast.

Virtually all these and other environmental regulations enacted during Obama's second term, however, have been challenged by a great diversity of opponents in most of the federal court venues, a strategy that seemed certain to delay their implementation and mire them in prolonged legal wrangling. Whether all or part of the Obama administration's environmental legacy would endure under this siege of litigation remained an open question when Obama exited the White House.

A Radical Redirection: The Trump Environmental Agenda

A year after his startling election, Donald Trump appeared in the White House before the national media and beside six piles of office paper six-feet tall to dramatize his "war on Washington's regulatory industry."[31] One relentless target of the Republican presidential campaign had been federal environmental regulations that, Trump asserted, created unemployment, inhibited economic growth, and inflicted excessive, unnecessary costs upon American industry. And no federal agency epitomized all that Trump and congressional Republicans considered wrong with environmental management more than the EPA. Trump promised a sweeping "regulatory rollback" at the EPA and across a vast expanse of other environmental agencies and laws, creating what Republicans believed was a long overdue, radical retrenchment of excessive federal authority.

The Trump initiatives struck especially hard at the Obama administration's major environmental enactments to control domestic climate-warming emissions, to accelerate renewable power development, and to enlarge the scope of national air and water pollution standards. Trump also promised to liberate domestic fossil fuel industries from production restrictions, to open previously restricted public lands for energy exploration, and to revoke the Obama administration's Clean Power Plan and the Paris Climate Agreement, the foundations of the federal government's program to reduce domestic climate-warming emissions. And the president promised concurrently to reduce drastically the personnel and regulatory power of the EPA.[32] Trump's agenda seemed blessed by political circumstances. Republican majorities, enlarged by the 2016 presidential elections, controlled both congressional chambers and responded enthusiastically to Trump's attacks on environmental regulation. Powerful business and industrial interests vigorously supported the Trump deregulation agenda. Additionally, voters showed scant interest or concern about environmental issues, thus apparently giving Republicans considerable latitude to propose comprehensive policy reforms.[33]

The White House environmental agenda also created the most politically toxic relationship between environmentalists and the White House since the first Earth Day. The scope and vehemence of Trump's assault on environmental regulation alarmed and deeply angered environmentalists who overwhelmingly opposed Trump's election, which they considered the prelude to a massive subversion of the nation's environmental quality. The Trump agenda "takes a wrecking ball to agencies that protect our health, safety and environment," asserted the president of the Union of Concerned Scientists.[34] The Sierra Club's executive director, Michael Brune, exemplified the mood of most national environmental organizations. "Trump can't reverse our clean energy and climate progress with the stroke of a pen," he warned, "and we'll fight Trump in the courts, in the streets, and at the state and local level across America to protect the health of every community."[35]

By the end of the administration's second year, practically every federal environmental agency's staff and authority, especially the EPA's regulatory programs, had been critically altered by the Trump administration's regulatory rollback. The first year box score: twenty-nine regulatory rules cancelled, twenty-four additional rollbacks underway, and seven more regulations rewritten.[36] Among Trump's most important executive orders were a cancellation of the EPA's Clean Power Plan restricting national climate-warming emissions, an end to the moratorium on federal coal leases on public land, and a cancellation of the mandate that federal officials consider climate-change impacts during decision making. The president had also ordered a severe reduction of references to climate change, renewable energy, and related issues across federal agency websites, and the virtual elimination of the EPA's climate-warming website with climate data links. The president also repeated his promise to withdraw the U.S. commitment to the Paris Climate Agreement limiting international climate-warming emissions.

The Trump administration, however, faced a long, contentious political struggle with environmentalists and their allies if the promised regulatory rollbacks were to succeed. Revising existing EPA regulations, for example, involves extensive procedural requirements sure to mobilize strong opposition. Opponents of major regulatory revisions have also turned to the courts, launching a flood tide of litigation that may delay, and perhaps defeat, many proposed regulatory reforms. Many important White House legislative initiatives will require uncertain congressional collaboration to succeed.

ONGOING CHALLENGES: PRESENT AND FUTURE

On that first Earth Day in 1970, more than half the Americans living today had not been born. A whole new generation has matured. Americans now have more than fifty years of collective experience with unprecedented experimentation in environmental management. The ultimate test of the ambitious U.S. regime of

environmental regulation will be not how well it was conceived but how well it endures. That endurance depends largely on how well U.S. science, political culture, and environmental leadership can learn from past experience and creatively apply the lessons learned to several profound problems now recognized as inherent in all environmental policymaking.

Keeping Environmentalism Contemporary

The environmental movement is now almost a half century old. Environmentalism is no longer the fresh, growing, politically ascending force that propelled environmental issues to unprecedented importance in national politics and policy. The Trump environmental program is the latest among many challenges environmental organizations face that have come with a now-familiar presence of environmentalists among the nation's major advocacy groups. Environmental organizations continually struggle to keep environmental issues a priority on the national policy agenda, to sustain a large, politically robust membership base, and to keep their messages politically relevant to a new generation of Americans. These challenges are especially significant because the membership of many major environmental organizations has been aging. (One of the largest and most influential conservation organizations, for example, reported that the average age of their membership is sixty-five, and only 5 percent of its million members are younger than fifty.)[37] In politics, moreover, public perceptions can become more important than environmental realities in creating priority for environmentalism on the national policy agenda. Many environmental problems, such as visibly polluted air and water, public pesticide exposures, and threatening toxic waste sites, that effectively dramatized the immediate need for environmental regulation now may seem—whatever the reality—less publicly important. Many newer, profoundly important environmental issues, such as global climate change or the relentless decline in the quality and quantity of fresh water, are difficult to characterize with a powerful, persuasive imagery that makes them immediately important and relevant to the public.

Thus, among the nation's environmental leadership, a growing, often heated discussion has evolved concerning whether environmentalist language is stale, the issues no longer compelling, and the major advocacy groups too unimaginative and complacent about delivering their political messages. A vigorous constituency within the environmental community is advocating new strategies and a fresh language to inspire a more contemporary image and wider public appeal for environmentalism, especially among the young, ethnic minorities, the economically underprivileged, and middle-income Americans recovering from a severe economic recession.

Modernizing Environmental Laws

The nation's environmental management is grounded on an essential but aging legal foundation of federal legislation and regulations. Many of these laws

need updating and adaptation to remain relevant to contemporary environmental conditions and responsive to a rapidly enlarging and diversifying body of new knowledge created by environmental science. "Our environmental laws," environmental journalist and advocate Greg Esterbrook has noted, "are a generation or more out of date," and he cites what he believes are compelling examples: "The Clean Air Act, signed by President Richard M. Nixon in 1970, has not been amended since 1990, a quarter-century ago. The Clean Water Act, passed in 1972, has not been updated since 1987. The Endangered Species Act, passed in 1973, was last amended in 1982. The National Environmental Policy Act, the law that mandates environmental impact statements, was passed in 1970 and last amended in 1982."[38]

When the Toxic Substances Control Act was written in 1972, for example, it was unrecognized that more than 50,000 chemicals would be subject to its review and possible regulation, and consequently, complete and faithful implementation of the legislation has been impossible—an impasse long recognized and requiring a revised, updated regulatory strategy to relieve.[39]

Modernizing these laws has been difficult for several reasons. Party polarization over environmental regulation has become deeply entrenched within Congress and between Republican and Democratic presidents since 2000, imposing a policy deadlock that forestalls any sustained and comprehensive partisan collaboration to revise comprehensively existing environmental laws. Additionally, the nation's slow recovery from the severe 2008 economic recession, health care issues, and a growing national preoccupation with terrorism and national security have driven environmental issues down the list of governmental and public priorities. Without a compelling national emergency or a timely emergence of party collaboration on national environmental issues, modernizing the nation's environmental governance will continue to be slow and extremely incremental.

Implementing Policy

The character and pace of policy implementation changes continually in response to shifting public moods; to ebbs and flows in crucial resources, such as money and personnel invested in carrying out environmental policies; to changes in political party control of Congress, the White House, and state governments; and to other changes discussed in later chapters. In short, policy implementation is unfolding and variable, powerfully driven by economic, political, and cultural forces. Practically every important environmental ill has been targeted by a major federal law, but the majority of important environmental laws have been implemented at a plodding pace, and portions of all the laws exhibit regulatory rigor mortis.

One reason for this plodding pace is the growing complexity of the regulatory process. The average size of major environmental statutes has inflated from about fifty pages in the 1970s to more than 500 pages currently. The original CAA (1970) was sixty-eight pages, the CAA Amendments of 1990 weighed in at 788 pages, and the regulations required for their implementation will exceed 10,000

pages. Like an augury of the future, the American Clean Energy and Security Act (2009), the first climate change regulatory legislation to be proposed by the House of Representatives, bloated to more than 1,400 pages. To create the elephantine regulations necessary to implement these complex laws and to apply the procedures in the appropriate instances can consume an enormous amount of time.[40]

Another important source of regulatory delay is the increasing mismatch between the responsibilities assigned to environmental agencies and the budgetary resources required to accomplish them. Although the EPA's workload has increased enormously since its creation in 1970, its budget has failed to keep pace.[41] Decades of underfunding has left the EPA overwhelmed by the scientific and administrative complexity of its regulatory tasks. For example, by 2018 the EPA was decades behind in the required risk assessment—each of which might require eight years—for hundreds of chemicals on a growing list for which it was responsible.[42]

Enforcement of most environmental legislation also depends on voluntary compliance by regulated interests, public and private, but the responsible federal and state agencies often lack the resources to monitor compliance with the law. Few states, for example, routinely inspect public and private drinking water systems, even though such inspections are required by the SDWA (1974).[43] Many states lack the technical resources to develop numerical standards for many groundwater contaminants and, instead, depend on evidence of environmental damage or public health risks before acting to control these substances.

Controlling Costs

By most estimates, the national cost of environmental regulation does not seem excessive, particularly when compared with estimated economic benefits, nor likely to inhibit healthy economic growth.[44] Currently, the United States spends about $120 billion annually for environmental control or about 2 percent of the gross national product.[45] Overall, the annual proportion of national expenditures invested in pollution control appears to have decreased since 1990.[46] But these expenditures sometimes conceal troublesome details. The cost of individual regulatory programs is soaring, often inflicting heavy, unanticipated costs on specific economic sectors, depleting regulatory resources, and compelling a search for scarce, new funding sources, as the following examples illustrates:

- *Superfund* was created to clean up the nation's numerous abandoned hazardous waste sites. After originally authorizing $1.6 billion for the project, Congress was compelled in the mid-1980s to increase spending to $15.2 billion, and estimates suggest the program will require annual congressional supplements of at least $1.5 billion after 2010.[47]
- *Federal storm water runoff regulations* will require the District of Columbia to spend $1.9 billion to completely renovate its antiquated sewer system.[48]

The roster of inflationary programs has become a virtual catalog of the nation's major environmental laws. Unanticipated environmental problems, unexpected scientific complexities, and inexperience with new regulations are the common causes of cost overruns. The litany of other inflationary provocations includes administrative delay, litigation, bureaucratic bungling, waste, missing information, and political obstruction. Whatever the reasons, excessive costs divert public and private capital from more productive investment, promote economic inefficiency, impair competitiveness in some industries, and increase consumer costs. Bloated budgets become a cudgel in the hands of opponents eager to beat back demands for essential improvements in environmental management.

Environmentalists traditionally suspect, often correctly, that the estimates of regulatory costs produced by businesses or other regulated interests are inflated deliberately. (However, they are seldom dubious about the considerably lower estimates they usually produce.) They also believe that benefit–cost comparisons applied to environmental policies are usually biased, because it is much easier to monetize the costs of regulation than the benefits. Leaving aside predictable and usually unresolvable arguments over the "real" costs of environmental regulations, the fact of sharply rising costs has compelled many major environmental leaders to seek creative strategies for reducing the expense and to collaborate in this effort with the businesses and industries being regulated.

Responding to Evolving Science

When the political leadership of U.S. environmentalism set out its initial policy agenda following Earth Day 1970, the ozone hole, global climate change, genetically altered foods, endocrine disrupters, leaking underground toxic storage tanks, ionizing radiation, indoor air pollution, and a multitude of other environmental issues—as well as many thousands of chemicals now common in U.S. commerce and industry—were unknown. All these matters and many more currently on the environmental movement's priority list are largely the product of scientific research in the past several decades. In later chapters, we observe how science contributes constructively to environmental management through, for example, the discovery of environmentally benign substitutes for more harmful chemicals such as chlorofluorocarbons. But the relentless evolution of scientific research can also frustrate, confuse, and discredit existing environmental policy by producing all sorts of new and unexpected discoveries. For example, to meet the public health standards of the CAA, the EPA in 2006 slightly lowered the short-term threshold for public exposure to particulates (soot) as a result of scientific research conducted since the original standard had been set several decades previously. Although the new standard, described by the EPA as "the most health-protective in U.S. history," is assumed to create from $9 billion to $70 billion in long-term health and visibility benefits, it is also estimated to cost electric utilities alone about $400 million yearly to implement.[49]

A rising tide of ecological science poses several continuing challenges to environmental scientists and policymakers. First, it can produce new data indicating

that prior policy decisions may have been based on inadequate information and must be revised—perhaps with great political or legal difficulty and at considerable expense.[50]

Scientific research can also produce ambiguous, fragmentary, or contradictory data concerning the existence or extent of an environmental problem—especially at an early stage in the research—at a time when policymakers feel compelled to do something about the issue. Sometimes a solution—or the appearance of one—seems so urgent that policymakers believe that they cannot wait for additional research or perhaps that additional research may never satisfactorily resolve the issue, because the impact of an environmental regulation will remain inconclusive. The continuing scientific ambiguity about the ecological impact of human-made chemicals mimicking human hormones (often called endocrine disrupters) and the persisting controversy about the ecological impact of species loss illustrate this sort of science problem.

Finally, scientific research can complicate environmental policymaking and, in the process, drive up the cost and time involved in remedying environmental ills by disclosing, instead of timely or quick answers to an ecological problem, the unanticipated need for new information. Pentagon planners call these discoveries the *unk-unks*—the unknown unknowns, the kinds of information they don't know are needed until a problem is investigated. Consider, for instance, the experience of scientists trying to explain the sudden dramatic increase in fish kills between 1991 and 1993 in North Carolina's vast estuaries. Unprecedented millions of fish were floating to the water surface with large, bleeding sores, often accompanied by a strange smell that burned the eyes and throat—not the smell of decaying fish. At first, investigators assumed the familiar explanation—lack of dissolved oxygen in the water, a seasonal deficiency in the estuarine environment that is sometimes fatal to fish. Instead, extensive fish biopsies gradually revealed something wholly unexpected—the presence of enormous quantities of a tiny, one-celled creature, a dinoflagellate of the species *Pfiesteria piscicida,* an apparently harmless organism seldom studied and never associated with extensive fish kills. So biologists began to observe *Pfiesteria* habits intensively. They discovered that, when estuarine nutrient levels of nitrogen and phosphorous increased significantly, *Pfiesteria* can transform into a murderous organism with a personality akin to the star of the science fiction movie *Alien,* multiplying in staggering numbers and aggressively attacking and consuming huge fish populations. Thus, an unk-unk—in this case, the complete life cycle of *Pfiesteria*—was unexpectedly uncovered in the course of investigating a fish kill and became a critical component in understanding and eliminating the problem itself.[51]

The Challenge of Sustainability

In September 2018, the Swedish manufacturer of Legos, the tough, brightly colored little plastic blocks found worldwide, announced it would soon create its toys "sustainably" by replacing with less polluting materials the plastic in the

100 million bricks it produced daily. Across the Atlantic, that same month, the Mayor's Office of Sustainability in New York announced that it was giving to 320,000 students in public and charter high schools a reusable, stainless-steel water bottle to replace single-use plastic bottles in an effort to reduce landfill waste.[52,53] By the time New York's students received their new water bottles, more than 400 American colleges were offering sustainability-related bachelor's degrees and the United Nations had declared Seventeen Sustainable Development Goals as an essential metric to measure national progress globally. Sustainability planning, in one form or another, has become a global enterprise.

The concept of "sustainability" or "sustainable development," as a transcendent vision for public policymaking, has permeated deeply into the philosophy of American environmentalism and its image of a sound civic culture. Yet sustainability is often an imprecise and contested vision, at once compelling and formidable to translate into viable public policy. And Washington's once enlarging commitment to promoting sustainable national development through public policy, culminating with the Obama administration's ambitious national plans, has rapidly receded as the Trump environmental agenda gives priority to other matters.

Sustainability and Federal Policy

In 1987, sustainable development crossed the threshold from an emerging concern to a transcendent goal for many within the national environmental movement. In that year, *Our Common Future* (often called the Brundtland Report) was published by the World Commission on Environment and Development. This report responded to increasing worldwide apprehension about the long-term environmental impact of national growth by concisely proposing that nations balance present and future development by "meeting the needs of the present without compromising the ability of future generations to meet their own needs." While the report's definition has become virtually synonymous with the concept itself, sustainable development in the United States has been translated nationally into a multitude of variations. The EPA, for example, defines sustainability to mean "to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations."[54] Different definitions often imply different policy agendas focused on different resources and development metrics.

Beginning with the Clinton administration (1992–2000), the federal government became increasingly active in promoting national sustainability planning and research. Clinton attained national visibility to sustainability issues by creating the President's Council on Sustainable Development, headed by Vice President Al Gore, to advise the White House on sustainability matters. While sustainability never assumed White House importance during George W. Bush's administration (2000–2008), state and local governments began increasingly to introduce sustainability as an operational concept in land and resource planning. By 2010, a U.S. national directory cited more than 2,700 private or public entities involved with environmental sustainability.[55]

The Obama administration promoted sustainability as a major environmental priority, investing considerable political capital and federal resources in advancing sustainability planning in both the public and private sectors. Among Obama's five executive orders promoting sustainability, the last and most comprehensive, EO 13514, required all federal agencies to publish an annual Strategic Sustainability Plan, mandated that all federal buildings progressively achieve standards for federal sustainable buildings, ordered the federal government to achieve greater energy efficiency and reliance on renewable energy, and committed the federal government to reduce climate-warming emissions.

The election of Donald Trump brought an end to the Obama sustainability initiatives. While Obama's executive orders were not revoked—with the exception of the mandate for federal reduction of climate-warming emissions—sustainability planning appeared to be a White House cast off, unattended, underfunded, and largely unmentioned.

State and Local Government Initiatives

Local governments, and to a lesser extent the states, are gradually introducing sustainability into their planning procedures. A third of American cities have adopted sustainability plans within the last decade, almost a fifth of local governments have specific budget allocations for sustainability-related activities, and about a fifth have dedicated staff for sustainability planning.[56] Efforts continue in numerous state legislatures to create legal mandates requiring some form of statewide sustainability planning or state sustainability staff position. Nonetheless, the states have been slower than local governments to introduce sustainability planning into their governing process.

Sustainability's Many Meanings

Over time, as Jonathan M. Harris, an international environmental scholar, has observed, the definition of a sustainable society has been interpreted to include at least three qualities:

- *Economic:* "An economically sustainable system must be able to produce goods and services on a continuing basis, to maintain manageable levels of government and external debt, and to avoid extreme sectoral imbalances which damage agricultural and industrial production."
- *Social:* "A socially sustainable system must achieve distributional equity, adequate provision for social services including health and education, gender equality, and political accountability and participation."
- *Environmental:* "An environmentally sustainable system must maintain a stable resource base, avoiding over-exploitation of renewable resource systems . . . and depleting non-renewable resources. . . . This includes maintenance of biodiversity, atmospheric stability, and other ecosystem functions."[57]

Sustainability, however, is still loaded with ambiguities that can reduce it to a cliché weighted with goals that can seem competitive, even contradictory. This ambiguity easily leads to dissimilar, sometimes conflicting or contested definitions that become apparent especially when translating sustainability into specific public policy goals or creating a metric to measure progress toward sustainable development.

Protection of nonrenewable resources, for instance, may appear inconsistent with sustained economic production. Adequate provision of health and education services may appear to require reduction of public spending to protect biodiversity. Should sustainable energy consumption be measured by growth of renewable energy production or by reduction in per capita energy consumption? Decisions inevitably involve political, economic, and social trade-offs between competing policy goals and competing stakeholders. Some of the most divisive political controversies within the environmental movement arise from these decisions. Nonetheless, decisions, inspired by some vision of sustainability, are continually being made by American governments, corporations, and educational institutions that do translate sustainability into public policies, corporate growth strategies, and educational curricula.

PLAN FOR THE BOOK

This chapter has introduced, broadly and briefly, the major themes that later chapters explore in more depth and detail. It has also provided a review of many significant events since Earth Day 1970 that define the political setting for environmental policymaking today, thus creating a present sense of place in the rapidly evolving politics of U.S. environmentalism. The chapters that follow progress from a broad overview of the major governmental institutions, private interests, and political forces shaping all environmental policy today to an increasingly sharp focus on the distinctive issues, actors, and interests involved with specific environmental problems.

Chapter 2 (Making Policy: The Process) describes the phases of the policy cycle that shape all major environmental policies. Included is an exploration of the influence of the U.S. Constitution and U.S. political culture on this process. Also discussed is the nature of environmental pressure groups and other stakeholders in the policy process and the important role of public opinion and the scientific community in policymaking.

Chapter 3 (Making Policy: Governmental Institutions and Politics) describes the specific U.S. governmental institutions, private interests, and political forces engaged in environmental policymaking. The narrative includes a discussion of the presidency, the important bureaucracies, Congress, and the courts. Also discussed is the importance of political events such as changing congressional majorities, economic growth or recession, and shifting public moods.

Almost all environmental policymaking entails some common issues. Chapter 4 (Common Policy Challenges: Risk Assessment and Environmental Justice)

explores two of the most scientifically contentious and politically controversial of these issues: risk analysis and environmental justice. Risk analysis is concerned with determining whether specific chemicals, industrial processes, consumer products, and environmental contaminants, among many other things, pose a significant threat to public health or the environment and, if they do, how they should be regulated. Environmental justice investigates whether various social groups, particularly minorities of color and economically disadvantaged individuals, are disproportionately exposed to environmental risks or denied reasonable opportunity to protect themselves from such risks.

Among the longest-running and least-resolvable conflicts in environmental policymaking is over the economic cost and fairness of environmental regulations. Chapter 5 (More Choice: The Battle Over Regulatory Economics) looks at two major aspects of this issue: the use of benefit–cost analysis to evaluate environmental regulations and proposals to replace current methods of environmental regulation with policies that rely on market forces to achieve results. Discussed are the major arguments and interests aligned on different sides of these issues together with evidence about the impact of proposed economic reforms when they have been instituted.

Chapter 6 (Command and Control in Action: Air and Water Pollution Regulation) describes the nation's major air and water pollution control laws, evaluates their impacts, and discusses the impact of new Trump administration regulatory reforms. The chapter explains how these laws illustrate the command-and-control style of regulation now common in the United States. Also described are the substantive elements of the CAA (1970) and the Federal Water Pollution Control Act Amendments (1972). The accomplishments and deficiencies resulting from these major air and water pollution laws are reviewed together with characteristic policymaking challenges created by the scientific and economic requirements of air and water pollution control.

Chapter 7 (A Regulatory Thicket: Toxic and Hazardous Substances) focuses on the major regulatory legislation to control environmental dangers posed by chemical, biological, and radioactive agents. The major laws examined include the TSCA (1976), the RCRA (1974), and Superfund legislation. The chapter briefly describes the major elements of these important laws and examines their impacts in the context of determining whether they have accomplished their purpose to control the manufacture and distribution of ecologically harmful chemicals and to safely regulate toxic waste from the cradle to the grave.

Chapter 8 (Energy: America's Energy Politics in Transformation) describes the nation's primary energy resources and increasing reliance on fossil fuels together with the ecological, economic, and political risks entailed. The Trump administration's new fossil fuel regulatory changes and promotion of coal production are explained and evaluated. The chapter focuses special attention on increasing petroleum supplies, the attractions and environmental dangers associated with increased coal production, and the environmental problems linked to nuclear power. Also explored are future energy policy options and the ecological

implications, especially in the contentious trade-off between coal and nuclear power as future energy sources and the challenges created by greater reliance on energy conservation and energy efficiency as alternatives to major reliance on traditional energy sources.

Chapter 9 (635 Million Acres of Politics: The Contested Resources of Public Lands) focuses on the historic political battle over the use of more than 600 million acres of public land, mostly controlled by the federal government. The narrative examines the major economic and environmental interests engaged in a century-long battle over access to timber, natural gas, petroleum, grazing land, hydroelectric power, and other important resources on federal land. Described are the major federal agencies caught in the middle of these conflicts, such as the Department of the Interior and the U.S. Forest Service. The chapter also discusses new Trump administration federal land use policies, the major legislation land use agencies are expected to implement in managing these resources, and the resulting problems, including the obstacles to achieving ecosystem management on federal lands.

Chapter 10 (The Politics and Policy of Global Climate Change) focuses on the scientific and political status of domestic climate policy and the Trump administration's impact on national climate regulations. The scientific evidence of global climate change, the political and scientific conflict associated with control of climate-warming emissions, and the impact of climate issues on public opinion and voting is examined. The Trump administration's major revisions of national climate emissions regulations are described and evaluated. The growing importance of states in national climate policy is discussed. The Trump administration's withdrawal from the Paris Accord to control global climate-warming emissions is explained and evaluated.

CONCLUSION

In calendar time, the presidential election of Donald Trump preceded the fifth decade of the U.S. Environmental Era proclaimed in the 1970s. In political time, it commenced an uncertain season for environmentalists now deep into that era, a season of conflicting implications and richly contradictory experiences. From the perspective of policymaking, a sense of frustration and impasse nurtured by often bitterly divisive conflict between organized environmentalism and the White House has permeated the era. Yet evidence is abundant that environmental leaders have enormously enlarged the temporal and geographical scope of their policy vision to embrace sustainable development, ecosystem management, and global ecological restoration. Improvements in environmental quality have become increasingly apparent and sometimes impressive, yet regulatory achievements fall gravely below expectations. Environmentalism has matured to the point where its organizational advocates can reflect critically on past experience and accept the need for rethinking and reforming their policy agendas, especially

the need to moderate the escalating cost of environmental protection and to find more effective ways to implement pollution regulation. At the same time, the rapid progress of environmental science reveals with increasing acuteness the need to improve significantly the quality of the science base on which environmental policy is grounded. Environmentalism is now firmly rooted in U.S. political culture, yet its electoral force often seems surprisingly feeble.

The election of Donald Trump, however, has abruptly and radically altered the political trajectory of American environmental policymaking. The Trump administration's ambitious agenda of environmental deregulation, accelerated fossil fuel energy development, and federal divestment of protected public lands constitutes the most pervasive constriction of national environmental governance since Earth Day 1970. While the ultimate impact of these unprecedented White House initiatives may be determined by the federal courts, Congressional elections, and public opinion, the short-term impact has been uncertainty, diminished capacity, and a retreat of federal authority in environmental governance.

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2

MAKING POLICY

The Process

In 2014, a once common bumblebee had become so uncommon that it earned the attention of the White House. The rusty patched bumblebee, one of the insect pollinators essential to production of American's fruit, nut, and vegetable crops, was rapidly disappearing. All 4,000 U.S. bee species appeared in decline but none so severely as the rusty patched bee.[1] In the previous twenty years, the bumblebee's population had fallen by almost 90 percent, and many scientists predicted that the bee was facing extinction unless the federal government initiated a plan to save it. By 2014, a movement to protect the bee had gathered sufficient political momentum to enlist support of President Barack Obama. Thus, the fate of the rusty patched bumblebee arrived on the federal government's policy agenda.

PROTECTING THE BEE: THE PATHWAYS OF POLICY

The prolonged and contentious effort that followed Obama's decision to protect the bee and the multibillion-dollar economy it supports displayed many of the enduring qualities, and provoked many of the conflicts, deeply embedded in the government's environmental policymaking. This chapter concerns the basic design of this policymaking and the fundamentals that shape most public policies. The bumblebee's Washington odyssey is part of that larger story.

Multiple Agencies Deliberate

The decline of the rusty patched bumblebee resulted in a widely reported presidential policy initiative in mid-2014 to protect America's endangered pollinating

insects. "Pollinators contribute more than $24 billion to the United States economy," emphasized the president, "of which honeybees account for more than $15 billion through their vital role in keeping fruits, nuts, and vegetables in our diets."[2] Obama then created a task force to investigate the rapid decline of honeybees and other pollinators. The task force originated in the White House, but like many other White House policy initiatives, this required multiagency collaboration. Obama directed two other executive agencies, the Department of Agriculture and the Environmental Protection Agency, to lead in discovering why the pollinators were declining and to develop a conservation plan.

More executive departments were soon involved. If the rusty patched bee faced extinction, it might be protected by the Endangered Species Act of 1973, intended to preserve any species of wild animal or plant in danger of extinction throughout all or a significant portion of its range. This crucial decision rested with the Fish and Wildlife Service (FWS) in the Department of the Interior. If the FWS determined a species was endangered, the FWS could "list" the species, which would then be protected by the federal government. Only the president or Congress could overrule the decision.

After almost two years' research and consultation with other agencies, the FWS proposed in 2016 to list the bee. By this time, however, the bee's fate had incited an intense controversy between politically important stakeholders deeply divided concerning whether the rusty patched bumblebee should be listed. The embattled stakeholders had organized national campaigns to promote or oppose the "endangered" listing, pressured Congress to intervene, and enlisted the support of federal agencies with which they were closely allied—all common strategies in American public policymaking.

Pressure Groups Mobilize

Support for the endangered listing was widespread among organizations representing environmentalists, biological scientists, conservationists, and public health officials, joined by many congressional Democrats and numerous scientists working in the private sector. They were also joined by political leaders in many northern and midwestern states, where the agricultural economies depended heavily on pollinators, and by the commercial bee industry, whose bees were essential to pollinate major crop production and which had experienced a 44 percent loss of bee population in a single year. These interests looked to government scientists in the EPA, the FWS, the Department of the Interior, and other federal health and conservation agencies for additional support.

Opposition to the bee listing also mobilized a diversity of economically and politically potent interest groups. If the bee were listed, many farmers feared losing income and perhaps their farms because farmers might be forbidden to use powerful pesticides and insecticides that successfully protected crops but unintentionally and predictably killed millions of pollinators like bumblebees.[3] The farm protest, led by national organizations such as the American Farm Bureau

Federation and the National Association of State Departments of Agriculture, was joined by international chemical corporations such as Syngenta and Dow Chemical, which produced pesticides widely used in the United States to protect wheat, barley, corn, rice, sorghum, and potato crops. Other major interests opposed to the listing included the American Petroleum Institute, National Association of Home Builders, and the National Cotton Council of America. Many congressmen from midwestern and western farm districts also joined the antilisting coalition.

Scientific Controversy Prevails

As often happens in environmental policymaking, conflict prevailed over the quality of the science involved in the Obama initiative. Disagreement intensified among government scientists concerning whether the pesticides suspected of endangering the bees threatened the pollinators with extinction. Scientists in the Department of Agriculture, the EPA, the FWS, and the Department of the Interior, for example, advanced conflicting estimates of the pesticides' potency.

The Courts Intervene

Another predictable result of the bee controversy appeared when the federal courts were drawn into the conflict. Several national environmental organizations successfully petitioned federal judges to compel the FWS to hasten its deliberations about the bee listing. Opponents of the listing were also preparing legal strategies to contest the FWS listing if it occurred. Finally, nearing the end of the Obama administration in late 2016, the FWS finally announced its intention to list the rusty patched bumblebee in January 2017.[4] Proponents of the listing, however, had scant time to celebrate. The 2016 elections brought Donald Trump to the White House, much to the satisfaction of the listing opponents who anticipated that Trump would overturn the FWS endangerment finding.

Contested Policy Is Created

On January 20, 2017, Donald Trump, a fierce advocate for reduced governmental regulation, became president and immediately signed an executive order freezing all pending federal regulations—the bee listing included—for sixty days while the new administration reviewed them. "The Trump administration has put the rusty-patched bumblebee on the path to extinction," warned a senior attorney for a major environmentalist organization that promptly filed suit against the FWS, claiming the agency had illegally delayed its bee listing.[5] In mid-February, however, the FWS ruled that the bee was "balancing precariously on the brink of extinction" and announced its intention, despite White House displeasure, to officially list the bee as endangered by mid-March. And so, the rusty patched bumblebee became the first American bee to reach the endangered list.[6]

The bee might be protected environmentally but not yet politically. In February 2018, Congress joined the bee controversy when Senate Republicans organized a committee to consider "modernizing" the Endangered Species Act, which might make it possible to remove species, like the bee, already listed as endangered by the FWS. Also, the pesticides threatening bee populations are still widespread across American agriculture. Congressional Democrats, joined by many conservation, farmworker, and consumer groups, have repeatedly introduced legislation to limit the use of pesticides threatening bee populations. Policymaking, and policy controversy, over bee protection will continue indefinitely.[7]

Policymaking Is a Process

The bee controversy exemplifies the multitude of actors and institutions, the complex fabric of decisions, and the sometimes glacial, disjointed, and frequently contentious sequence of events involved in the making of national environmental policy.

Although environmental policies often develop less tumultuously, the bee listing incident features some characteristics common to environmental policymaking. First, policymaking is a process that involves a number of related decisions originating from different institutions and actors ranging across the whole domain of the federal government and private institutions. Moreover, policymaking is continuous; once made, decisions rarely are immutable. Environmental policy is therefore in some respects fluid and impermanent, always in metamorphosis. Second, policymakers—whether of the legislative, White House, or bureaucratic type—can seldom act without restraint. Their discretion is bounded and shaped by many constraints: the constitutional separation of powers, institutional rules and biases, statutory laws, shared understandings about the rules of the game for conflict resolution, political realities, and more. These constraints collectively are a given in the policy setting, which means government resolves most issues in a predictable style. Third, environmental policymaking is a volatile mixture of politics and science that readily erupts into controversy among politicians, bureaucrats, and scientists over their appropriate roles in the process as well as over the proper interpretation and use of scientific data in policy questions.

One useful way to understand public policy, and environmental policy specifically, is to view the process as a cycle of interrelated phases through which policy ordinarily evolves. Each phase involves a different mix of actors, institutions, and constraints. Although somewhat simplified, this approach illuminates particularly well the interrelated flow of decisions and the continual process of creation and modification that characterizes governmental policy development. This chapter continues by describing the significant phases of environmental policymaking and then examines important constitutional and political influences, deeply embedded in U.S. political culture, that continually animate and shape the environmental policies emerging from this policy cycle.

THE POLICY CYCLE

Governmental response to public issues—the business of converting an issue into a policy—customarily begins when an issue can be placed on the governmental agenda. The successful promotion of issues to the agenda does not ensure that public policies will result, but this step initiates the policy cycle. An environmental issue becomes an environmental policy as it passes through several policy phases.

Agenda Setting

Political scientist Charles O. Jones aptly calls agenda setting "the politics of getting problems to government."[8] It is the politics of imparting sufficient importance and urgency to an issue so that the government will feel compelled to place the matter on the official agenda of government—that is, the "set of items explicitly up for the serious and active consideration of authoritative decision-makers."[9] This means getting environmental issues on legislative calendars, before legislative committees, on a priority list for bill introduction by a senator or representative, on the schedule of a regulatory agency, or among the president's legislative proposals. In brief, getting an issue on the agenda means placing it where institutions and individuals with public authority can respond and feel a need to do so. Especially if an environmental issue is technical and somewhat esoteric, its prospects for making the agenda are bleak unless political sponsors are attracted to it. Former EPA assistant administrator and environmental activist Clarence Davies observes, "New technical information by itself does not significantly influence the political agenda. It must be assisted by some type of political propellant," such as an interest group, congressional committee, or the president.[10] Thus, the discovery of the stratospheric ozone hole and the ability of scientists to portray it in the most literal way—scientific photography enabled the public to see a hole—immensely hastened the Montreal Protocol to completion.

Formulation and Legitimation

The governmental agenda also can be a graveyard for public problems. Few issues reaching the governmental agenda reach the phase of policy formulation or legitimation. Policy formulation involves setting goals for policy, creating specific plans and proposals for these goals, and selecting the means to implement such plans. Policy formulation in the federal government is especially associated with the presidency and Congress. The State of the Union address and the avalanche of bills introduced annually in Congress represent the most obvious examples of formulated policies. Policies, once created, must also be legitimated and invested with the authority to evoke public acceptance. Such legitimation usually is done through constitutional, statutory, or administrative procedures, such as voting,

public hearings, presidential orders, or judicial decisions upholding the constitutionality of laws—rituals whose purposes are to signify that policies have now acquired the weight of public authority.

Implementation

Public policies remain statements of intention until they are translated into operational programs. Indeed, the impact of policies depends largely on how they are implemented. What government is doing about environmental problems relates primarily to how the programs have been implemented. Policy analyst Eugene Bardach compares the implementation of public policies to "an assembly process"; according to him, it is

> as if the original mandate . . . that set the policy or program in motion were a blueprint for a large machine that has to turn out rehabilitated psychotics or healthier old people or better educated children. . . . Putting the machine together and making it run is, at one level, what we mean by the "implementation" process.[11]

Policy implementation involves especially the bureaucracy, whose presence and style shape the impact of all public policies.

Impact and Reformulation

All the procedures involved in evaluating the social impact of governmental policies, in judging the desirability of these impacts, and in communicating these judgments to the government and the public can be called impact assessment. Often, the federal courts assume an active role in the process, as do the mass media. The White House, Congress, and the bureaucracy continually monitor and assess the impacts of public policy. As a consequence, once a policy has been formulated, it may pass through many phases of reformulation. All major institutions of government may play major roles in this process of reformulation.

Termination

The "deliberate conclusion or succession of specific governmental functions, programs, policies or organizations" amounts to policy termination, according to political scientist Peter deLeon.[12] Terminating policies, environmental or otherwise, is such a formidable process that most public programs, in spite of intentions to the contrary, become virtually immortal. Policies usually change through repeated reformulation and reassessment.

Policymaking Is a Combination of Phases

Because policymaking is a process, the various phases almost always affect each other, an important reason why understanding a policy often requires considering the whole development pattern. For instance, many problems encountered by the EPA when enforcing the Federal Water Pollution Control Act (1956) arose from the congressional failure to define clearly in the law what was meant by a *navigable waterway,* to which the legislation explicitly applied. Congress deliberately built in this ambiguity to facilitate the passage of the extraordinarily complicated legislation. In turn, the EPA sought early opportunities to bring the issue before the federal courts—to compel judicial assessment of the law's intent—so that the agency might have reliable guidance for its implementation of the provision. Also, many aspects of environmental policy may occur simultaneously. While the EPA was struggling to implement portions of the Superfund legislation allocating grants to the states for cleaning up abandoned toxic waste sites, Congress was considering a reformulation of the law to increase funding authorization to support more state grants.

CONSTITUTIONAL CONSTRAINTS

The design of governmental power intended more than two centuries ago for a nation of farmers still rests heavily on the flow of policymaking in a technological age. Like other public policies, environmental programs have been shaped and complicated by the enduring constitutional formula.

Checks and Balances

The Madisonian notion of setting "ambition against ambition," which inspired the constitutional structure, creates a government of countervailing and competitive institutions. The system of checks and balances disperses power and authority within the federal government among legislative, executive, and judicial institutions and thereby sows tenacious institutional rivalries that are repeatedly encountered in discussions of specific environmental laws. Yet as former presidential adviser Richard E. Neustadt has observed, these are separated institutions sharing power; effective public policy requires that public officials collaborate by discovering strategies to transcend these institutional conflicts.[13]

The U.S. federal system also disperses governmental power by fragmenting authority between the national and state governments. Despite the growth of vast federal powers, federalism remains a sturdy constitutional buttress supporting an edifice of authority—shared, independent, and countervailing—erected from the states within the federal system. "It is difficult to find any governmental activity which does not involve all three of the so-called 'levels' of the federal system."[14] No government institution monopolizes power. "There has never been a

time when it was possible to put neat labels on discrete 'federal,' 'state' and 'local' functions."[15]

Regulatory Federalism

Federalism introduces complexity, jurisdictional rivalries, confusion, and delay into the management of environmental problems. Authority over environmental issues inherently is fragmented among a multitude of governmental entities. Moreover, almost all new federal regulatory programs since 1970 permit or require implementation by the states. For instance, thirty-five states currently administer water pollution permits under the Clean Water Act. State implementation of federal laws may vary greatly in scope and detail. The federal government often attempts to reduce administrative complications in programs administered through the states by the use of common regulations, guidelines, and other devices to impose consistency on implementation. However, the practical problems of reconciling so many geographical interests within the arena of a single regulatory program often trigger major problems in implementing the programs.

Federal and state collaboration in environmental regulation is often cooperative but can be contentious. Many state authorities believe that numerous environmental problems now federally regulated would be best managed by state and local governments. Often, as in the emerging national controversy over the environmental impact of fracking to obtain petroleum from oil shale, many states want exclusive authority to regulate and often protest federal plans to assume that responsibility. Many state governments also resent the expense and administrative difficulty they must endure to implement the numerous environmental laws and regulations they believe the federal government has negligently piled on them. In the decade ending in 2010, for example, the EPA's major new environmental regulations imposed a minimum cost upon state governments of at least $23 billion.[16]

Organized Interests

The Constitution encourages a robust pluralism of organized interests. Constitutional guarantees of freedom of petition, expression, and assembly promote constant organization and political activism at all governmental levels among thousands of economic, occupational, ethnic, ideological, and geographical interests. To make public policy in the United States requires public officials and institutions to reconcile the conflicting interests of organized groups who claim not only influence but sometimes even authority in making public policy. The constitutional architecture of the U.S. government also provides numerous points of access to public power for such groups operating in a fragmented governmental milieu. The political influence broadly distributed across this vast constellation of organized private groups clouds the formal distinction between public and private power.[17] Instead, the course of policymaking moves routinely

and easily between public institutions and private organizations mobilized for political action.

These constitutional constraints have important implications for environmental policy. It is easier to defeat legislation than to enact it and to frustrate incisive governmental action than to create it. Furthermore, most policy decisions result from bargaining and compromise among institutions and actors all sharing some portion of diffused power. Formulating policy usually means coalition building in an effort to engineer consensus by reconciling diverse interests and aggregating sufficient strength among different interests to support effective policies. As economist James V. DeLong observes, agencies "like to achieve consensus on issues and policies. If they cannot bring everyone into the tent, they will try to get enough disparate groups together so as to make the remainder appear unreasonable. If the interested parties are too far apart for even partial consensus, then the agency will try to give everybody something."[18]

Bargaining and compromise often purchase consensus at the cost of disarray and contradiction in the resulting policies. "What happens is not chosen as a solution to a problem but rather results from compromise, conflict and confusion among officials with diverse interests and unequal influence," notes presidential adviser Graham Allison.[19]

INCREMENTALISM

Public officials strongly favor making and changing policy incrementally. "Policy making typically is part of a political process in which the only feasible political change is that which changes social states by relatively small steps," writes social analyst Charles A. Lindblom.[20] Gus Speth, a former chair of the Council on Environmental Quality and a veteran environmental policymaker, describes incrementalism as "working within the system." He explains:

> When today's environmentalism recognizes a problem, it believes it can solve that problem by calling public attention to it, framing policy and program responses for government and industry, lobbying for those actions, and litigating for their enforcement. It believes in the efficacy of environmental advocacy and government action. It believes that good-faith compliance with the law will be the norm. . . . Today's environmentalism tends to be pragmatic and incrementalist—its actions are aimed at solving problems and often doing so one at a time. . . . In the end, environmentalism accepts compromises as part of the process. It takes what it can get.[21]

Incrementalism is politically seductive. It permits policymakers to draw on their own experiences in the face of unfamiliar problems and encourages the making of small policy adjustments at the margins to reduce anticipated, perhaps irreversible,

and politically risky consequences. But incrementalism also can become a prison of the imagination by inhibiting policy innovation and stifling new solutions to issues. Especially when officials treat new policy issues as if they were familiar ones and deal with them in the customary ways, a futile and possibly dangerous repetition of the past can result in the face of issues requiring fresh approaches.

NEPA (1969), the CAA (1970), and the other innovative legislation of the early 1970s came only after Congress repeatedly failed when dealing with environmental issues incrementally.[22] For more than thirty years previously and despite growing evidence of serious environmental degradation, Congress had continued to treat pollution as a "uniquely local problem" requiring a traditional "partnership" between federal and state governments in which Washington gently prodded the states to deal more effectively with pollution. Finally, Congress put an end to this incrementalism with the avalanche of new, forceful federal environmental laws in the 1970s mandating national pollution standards and regulations that compelled state compliance and enforcement. To many observers, this was a sudden outburst of environmental reform. In fact, its rise to the national policy agenda had been achieved by years of increasingly skilled, patient, and persistent promotion by a multitude of groups.

INTEREST GROUP POLITICS

It is an implicit principle in U.S. politics, assumed by most public officials as well as those groups seeking access to them, that organized interests affected by public policy should have an important role in shaping those policies. Few special interests enjoy such pervasive and unchallenged access to government as business, but almost all major organized groups enjoy some measure of influence in public institutions. Many officials, in critic Theodore Lowi's terms, conduct their offices "as if it were supposed to be the practice of dealing only with organized claims in formulating policy, and of dealing exclusively through organized claims in implementing programs."[23]

Structuring Groups Into Government

Arrangements exist throughout governmental structures for giving groups access to strategic policy arenas. Lobbying is accepted as a normal, if not essential, arrangement for ensuring organized interests major roles in lawmaking. More than one thousand advisory committees exist within the federal bureaucracy to give interests affected by policies some access and voice in agency deliberations. Hundreds of large, quasi-public associations bring together legislators, administrators, White House staff, and private-group representatives to share policy concerns, thereby blurring the distinction between public and private interests. The Highway Users Federation for Safety and Mobility, for instance, diligently promotes the interstate highway system; and the Atomic Industrial Forum pursues the interests of commercial nuclear power corporations. Successful organized

groups so effectively control the exercise of governmental power that, in historian Grant McConnell's words, significant portions of the U.S. government have witnessed "the conquest of segments of formal state power by private groups and associations."[24] In effect, group activity at all governmental levels has been practiced so widely that it has become part of the constitutional order.

Business: Secure and Effective Access

No interest has exploited the right to take part in the governmental process more pervasively or successfully than has business. In environmental affairs, the sure access of business to government assumes enormous importance because business is a major regulated interest whose ability to represent itself and secure careful hearing before public agencies and officials often delays or complicates such regulation. During the 2013–2014 congressional session, for instance, business and energy organizations were exclusively represented among the top twenty interest groups in lobbying expenditures concerning climate change legislation. In contrast, the combined expenditures of all environmental groups concerning all legislation during the same period was only slightly greater than the total for Koch Industries, the largest business contributor.[25]

Business weighs especially heavily in the deliberations of public officials, because its leaders collectively manage much of the economy and perform such essential economic functions that the failure of these businesses would produce severe economic disorder and widespread suffering. According to Lindblom,

> government officials know this. They also know that widespread failure of business . . . will bring down the government. A democratically elected government cannot expect to survive in the face of widespread or prolonged distress. . . . Consequently, government policy makers show constant concern about business performance.[26]

So great is this concern that public officials usually give business not all it desires but enough to ensure its profitability. Out of this grows the privileged position of business in government and its widely accepted right to require that government officials often "give business needs precedence over demands from citizens through electoral, party, and interest-group channels."[27]

Business also enjoys practical political advantages in competition with other interests for access to and influence on government: far greater financial resources, greater ease in raising money for political purposes, and an already existing organization available for use in political action. These advantages in strategic resources and salience to public officials do not ensure the uncompromised acceptance of business's demands on government, nor do they spare business from defeat or frustration by opponents. But business often, if not usually, is able to exploit its privileged status in U.S. politics to ensure that its views are represented early and forcefully in any policy conflicts, its interests are pursued