CHAPTER ONE

A POLICYMAKING FRAMEWORK

Defining Problems and Portraying Solutions in U.S. Environmental Politics

Environmental politics concerns "how humanity organizes itself to relate to the nature that sustains it."[1] Because human life depends on well-functioning natural systems, one might think environmental protection would be uncontroversial. Yet bitter disputes have erupted over proposals to preserve undeveloped land, save endangered species, protect or restore ecosystems, clean up toxic dumps and spills, reduce air and water pollution, conserve energy, mitigate human-caused changes in the global climate, and ensure an equitable distribution of environmental hazards. These issues have become prominent in American politics, taking their place alongside more conventional social, economic, and foreign policy concerns, so it is essential to understand their political dynamics. Furthermore, although the policy process has many generic features, environmental policymaking has a host of distinct attributes and therefore warrants its own analytic niche. The goal of this book, then, is to illuminate how the American political system grapples with the environment as a particular object of public action.

This introductory chapter begins by laying out the following two-part argument: (1) environmental policy conflicts almost always concern fundamental differences in values, and (2) the way problems are defined and solutions depicted plays a central role in shaping how those values get translated into policies. The chapter goes on to describe the contributions of the system's major actors—policymakers, advocates, experts, and the media—in defining environmental problems, formulating and characterizing solutions, and ultimately making decisions. It then introduces a number of concepts that help explain the process by which environmental policy is made. The result is a general framework, the elements of which are treated in greater depth in the cases that follow. The chapter concludes by explaining the rationale behind the selection, organization, and presentation of the volume's sixteen case studies. Each of the cases is interesting in its own right; in combination, they offer important lessons for anyone who wants to understand why environmental policy controversies turn out the way they do.

TWO CRITICAL FEATURES OF U.S. ENVIRONMENTAL POLICYMAKING

Nearly all environmental policy disputes are, at heart, contests over values. To the casual observer, these conflicts may appear to revolve around arcane technical issues, but in fact almost all of them involve a fundamental disagreement over how humans ought to interact with the natural world. Even though environmental policy disputes are rooted in conflicting beliefs, the participants in those contests rarely make value-based arguments. Instead, they define problems and characterize their solutions in terms of science, economics, and risk. Because value differences divide participants, environmental policy conflicts are rarely resolved by appeals to reason; no amount of technical information is likely to convert adversaries in such disputes.[2]

The Clash of Values at the Heart of Environmental Policymaking

The participants in environmental debates fall into two broad camps based on entrenched differences in their beliefs about the appropriate relationship between humans and the natural world. Although each side incorporates a wide range of perspectives, for analytic purposes we can categorize them as environmentalists and cornucopians.

Environmentalists. Environmentalism is not a single philosophy but a congeries of beliefs with several roots. Environmental values, in one form or another, have been part of American culture and politics since before the arrival of white settlers on the North American continent. In fact, some contemporary environmentalists trace their values to the spiritual beliefs of Native Americans.[3] But most historians date the origins of American environmentalism to the late eighteenth- and early nineteenth-century Romantics and Transcendentalists, an elite community of artists and writers who celebrated wild nature as a source of spiritual renewal and redemption. They believed that only by preserving untrammeled wilderness could the nation ensure that intact landscapes remained to replenish the weary soul. In the 1830s, George Catlin, a painter who traveled frequently in the West, was the first to plead for the establishment of a national park to preserve land in its "pristine beauty and wildness" for future generations.[4] Twenty years later, Henry David Thoreau deplored the wholesale clearing of land for farming and moved to a cabin at Walden Pond in search of a more "simple" and "natural" life. Thoreau also emphasized the importance of preserving wild nature for building character; in his famous essay "Walking," he wrote, "Hope and the future for me are not in lawns and cultivated fields, not in towns and cities, but in the impervious and quaking swamps."[5] In 1911 John Muir, founder of the Sierra Club and an ardent and prolific advocate of wilderness preservation, described nature as a "window opening into heaven, a mirror reflecting the Creator."[6] A half-century later, the

federal government embedded the preservationist philosophy in laws such as the Wilderness Preservation Act (1964), the Wild and Scenic Rivers Act (1968), and the National Trails Act (1968).

A second form of environmental concern, conservationism, accompanied the Progressive movement that emerged at the turn of the twentieth century. Unlike preservationists, who wanted to set aside swaths of undisturbed nature, conservationists advocated the prudent use of natural resources. As historian Samuel Hays points out, conservationists adhered to the "gospel of efficiency."[7] They were intent on managing the nation's coal, oil, timber, grassland, and water according to scientific principles to ensure their availability in the long run. (Most of the applied science disciplines that emerged during the Progressive Era were geared toward increasing natural resource yields, not preserving ecosystem health.[8]) Conservationists like Gifford Pinchot, for example, deplored the wasteful cut-and-run logging practices of private timber companies and feared that American industrialists would appropriate and squander the nation's natural resources unless government stepped in and planned for their orderly exploitation. It was this concern that drove the federal government to set aside forest reserves and, in 1905, create the U.S. Forest Service to manage those lands for the public benefit.

Although strains of preservationist and conservationist thought pervade contemporary environmental debates, a third strand of environmentalism emerged after World War II—one more concerned with fighting pollution and protecting biological diversity than with preserving pristine natural areas or managing natural resources efficiently. Ideas about the interdependence of human beings and nature derived from the scientific discipline of ecology, which focuses on the study of living organisms and their environment, are the primary wellsprings of modern environmentalism.[9] In the late 1940s naturalist and forester Aldo Leopold sowed the seeds of the contemporary environmental movement with his book *A Sand County Almanac*, which developed a "land ethic" based on principles of interrelatedness and stability. According to Leopold, "All ethics . . . rest upon a single premise: that the individual is a member of a community of interdependent parts." Therefore, "a thing is right when it tends to preserve the stability and beauty of the biotic community. It is wrong when it tends otherwise."[10]

Another foundation of postwar environmentalism is the limits-to-growth thesis espoused by Massachusetts Institute of Technology (MIT) biophysicist Donella Meadows and her coauthors in 1972. Based on a new mathematical method called system dynamics, this perspective recognized the importance of relationships and feedback loops in complex systems.[11] According to the limits-to-growth argument, the human population is outrunning the Earth's capacity to support it. For some, recognition of the Earth's limited carrying capacity led to skepticism about economic growth and interest in a steady-state economy.[12] Other adherents of this view are not opposed to economic growth altogether, but rather, they advocate growth that is "sustainable" and therefore does not come at the expense of future generations. They point out, however, that an unregulated market system invariably leads to unsustainable levels of production and consumption.

Although it has common origins, the contemporary environmental movement is far from monolithic. For example, deep ecologists distinguish themselves from mainstream environmentalists, whose environmental beliefs they regard as superficial. Deep ecology is ecocentric: whereas anthropocentric perspectives treat humans as morally superior to other forms of life on the basis of our capacity for language and complex thought, ecocentric perspectives treat the world as "an intrinsically dynamic, interconnected web of relations in which there are no absolutely discrete entities and no absolute dividing lines between the living and the nonliving, the animate and the inanimate, or the human and the nonhuman."[13] As this quote makes clear, deep ecology rests on a premise of "biospherical egalitarianism"—that is, the inherent and equal value of all living things. Moreover, deep ecologists believe that human quality of life depends on maintaining a deep connection to, rather than simply a respectful relationship with, other forms of life. It is worth noting that deep ecology is not logically derived from ecology, nor does it depend for substantiation on the results of scientific investigation. Instead, as philosopher Arne Naess explains, "To the ecological field worker, the equal right to live and blossom is an intuitively clear and obvious value axiom."[14]

Even among more mainstream environmentalists, there are major differences, as the cases that follow make abundantly clear. In particular, pragmatic environmentalists seek to promote the adoption of new technologies that will reduce the overall environmental impact of human society but do little to change the overall structure of the global economy. By contrast, more idealistic environmentalists believe that attaining sustainability requires a complete political and economic transformation. They emphasize changes in behavior, not just technology, to produce a more just and environmentally robust political-economic system.

Cornucopians. Unlike environmentalists, cornucopians (or Prometheans) place a preeminent value on economic growth.[15] In sharp contrast to environmentalism, the term *cornucopian* suggests abundance, even limitlessness. Adherents of this perspective believe that environmental restrictions threaten their economic well-being or the economic health of their community. They also fear that such restrictions entail unacceptable limits by government on individual freedom.

Cornucopians have boundless confidence in humans' ability to devise technological solutions to resource shortages.[16] Best known among the cornucopians are economists Julian Simon and Herman Kahn, who say, "We are confident that the nature of the physical world permits continued improvement in humankind's economic lot in the long run, indefinitely."[17] A theme of the cornucopian literature is that the kinds of doomsday forecasts made by environmentalists never come to pass. Resource shortages may arise in the short run, but the lesson of history, according to Simon and Kahn, is that "the nature of the world's physical conditions and the resilience in a well-functioning economic and social system enable us to overcome such problems, and the solutions usually leave us better off than if the problem had never arisen."[18]

In addition to being technological optimists, cornucopians place enormous value on individual liberty—defined as the freedom to do as one wishes without

interference. Some proponents of this philosophy contend that environmentalists are actually Socialists disguising their rejection of markets and preference for government control over the means of production as concern about the environment.[19] Cornucopians criticize environmental regulations not only for limiting individual freedom, but also for taking out of the economy resources that would otherwise be used productively. Reasoning that affluence leads to demands for better health and a cleaner environment, they propose that the best way to protect the environment is to ensure that individuals can pursue material prosperity.[20] According to some who hold this worldview, the role of government is to assign property rights in the Earth's resources and let the market dictate allocations of the goods and services that flow from these resources—a philosophy known as free-market environmentalism.

Cornucopians regard their perspective as logical, rational, and optimistic; by contrast, they see environmentalists as sentimental and irrationally pessimistic. They particularly eschew ecocentric philosophies that elevate plants, animals, and even nonliving entities to the level of humans. Instead, they adopt a view of the world in which "people may not sit above animals and plants in any metaphysical sense, but clearly are superior in their placement in the natural order." Therefore, "decent material conditions must be provided for all of the former before there can be long-term assurance of protection for the latter."[21]

In short, the schism between environmentalists and cornucopians arises out of different worldviews. That said, environmentalists are a diverse lot, ranging from those who believe that all life has value to those who yearn for simpler, less harried times to those with practical concerns about the impact of pollution on human health or quality of life. There is similar variation among cornucopians: some place a higher value on economic growth than they do on the aesthetic or moral importance of the natural world; others are avid outdoor enthusiasts who simply have more faith in individuals' than in government's ability to protect natural amenities. But the heterogeneity of environmentalism and cornucopianism should not obscure the fundamental value differences that underpin environmental controversies. Only by recognizing such profound disagreements can we understand why environmental policymaking is rarely a straightforward technical matter of acknowledging a problem and devising an appropriate solution. Moreover, the extent to which participants' fundamental values diverge is the best clue to how intractable a conflict will be: controversies that involve more consensual values like human health are typically less polarized than disputes over biodiversity conservation, where value differences are often vast and sometimes irreconcilable.

How Activists Define Problems and Characterize Their Solutions to Gain Political Support

Because the values of activists on both sides are entrenched, environmental politics consists largely of trying to gain the support of the unaware or undecided rather than trying to convert the already committed. As political scientist E. E. Schattschneider observed, "The outcome of every conflict is determined by the extent to

which the audience becomes involved in it."[22] To attract sympathizers, advocates define problems strategically in ways they think will resonate with a majority of the public.[23] Defining a problem in politics is a way of simplifying a complex reality; it involves framing information to draw attention to some elements of a problem, while obscuring or minimizing others.[24] Problem definition also entails explaining cause and effect, identifying victims and villains, and assigning responsibility for remediation.[25]

By changing which aspect of a problem the public focuses on, advocates can raise (or lower) its visibility and thereby get it onto (or keep it off of) the political agenda.[26] Participants in an environmental policy controversy compete ferociously to provide the authoritative explanation for a problem because "causal stories are essential political instruments for shaping alliances and for settling the distribution of benefits and costs."[27] Participants also compete to predict a problem's consequences because they know that fear of loss or harm is likely to galvanize the public. Finally, by authoritatively defining a problem, advocates can limit the range and type of solutions the public and policymakers are likely to regard as plausible. And, as Schattschneider also pointed out, "The definition of the alternatives is the supreme instrument of power."[28]

When polled, a large majority of Americans profess their support for the goals of the environmental movement.[29] These poll numbers make baldly antienvironmental rhetoric generally unacceptable in political discourse.[30] During the early 1980s and again in the 1990s, conservative Republicans experimented with antienvironmental rhetoric, but doing so backfired, provoking a proenvironmental backlash. Therefore, cornucopians know they must define environmental problems in ways that make their points in a subtle and indirect manner, rather than overtly denying the importance of environmental problems. (A prominent exception to this general rule is climate change.) The competition between environmentalists and cornucopians to define an environmental problem thus revolves around three attributes: the scientific understanding of the problem, the economic costs and benefits of proposed solutions, and the risks associated with action or inaction. Because each of these is speculative, advocates can choose assessments and projections that are most consistent with their values. They then frame that information—using symbolic language and numbers, as well as strategically crafted causal stories—to emphasize either environmental or economic risk, depending on their policy objectives.

Translating Scientific Explanations Into Causal Stories. The primary battleground in any environmental controversy is the scientific depiction of the cause, consequences, and magnitude of a problem. Scientists are often the first to identify environmental problems or to certify their seriousness. Furthermore, scientific claims carry particular weight because science has enormous cultural authority in the United States. Rather than providing a clear and authoritative explanation, however, science leaves considerable latitude for framing because, as a general rule, the scientific understanding of an environmental problem is uncertain.

Most scientific research on natural systems involves practitioners in multiple disciplines, many of which are relatively new, working at the frontiers of scientific knowledge. Moreover, scientists' ability to measure the causes and consequences of environmental phenomena is limited, both technologically and financially, and in the case of human health effects, by ethical considerations. Most important, few environmental problems can be simulated in laboratory experiments: they involve complex interactions among factors for which it is difficult or impossible to control. In the early stages of research, therefore, a wide range of uncertainty surrounds explanations of a problem's causes, consequences, and magnitude. Over time, even as additional research opens up further lines of inquiry and exposes new uncertainties, the boundaries of the original uncertainty tend to narrow.

An example of the process of building scientific knowledge about an environmental problem is the way that understanding of atmospheric ozone depletion advanced, beginning in the 1970s. The stratospheric ozone layer absorbs UV-B radiation, thereby regulating the Earth's temperature and protecting plants, animals, and people from excessive radiation. During the 1970s, scientists developed several theories to explain the observed reduction in stratospheric ozone over the poles. Some scientists were concerned about aircraft emissions of nitrogen oxides; others suggested that nitrogen-based fertilizers or fallout from nuclear weapons tests might be the primary culprits. In 1974, chemists Sherwood Rowland and Mario Molina proposed that chlorine-containing compounds, such as chlorofluorocarbons, destroy the ozone layer through a series of complex, solar-induced chemical reactions. Over time this theory superseded its rivals and gained broad acceptance because it was consistent with evidence gathered using a variety of techniques. Subsequently, as researchers learned more about stratospheric chemistry, estimates of ozone loss became more accurate and the mechanisms by which it occurs more accurately specified.[31]

Unfortunately, the time period within which scientists converge on and refine an explanation is usually considerably longer than the time available to policymakers for choosing a solution. The reason is that the identification of a potential problem by scientists almost invariably prompts the mobilization of interests that are concerned about it and demand an immediate government response. The norms of scientific investigation—particularly those of deliberate and thorough study, rigorous peer review and criticism, and forthright expression of uncertainty—create opportunities for proponents of new policies, as well as for defenders of the status quo, to portray the problem in ways that are compatible with their own values and policy preferences. In most cases, advocates of more protective environmental policies publicize the worst-case scenarios hypothesized by scientists, overstate the certainty of scientific knowledge, and press for an early and stringent—or precautionary—policy response to avert catastrophe. By contrast, opponents of such policies typically emphasize the uncertain state of current knowledge or, if there is a strong scientific consensus that an environmental problem is genuine, highlight dissenting views within the scientific community as to its magnitude, causes, or consequences.[32]

Shifting Attention to the Economic Costs and Benefits. As the scientific consensus around the explanation for an environmental problem grows, opponents of protective policies turn to economic arguments. In particular, cornucopians emphasize (and environmentalists downplay) the economic costs of policies to address the problem. Like scientific explanations of cause and effect, the costs of regulation are highly uncertain, and projections vary widely depending on the assumptions used and the time horizon considered. For example, analysts disagree on the number of jobs likely to be lost as the direct result of an environmental regulation and diverge even more dramatically on the number of collateral jobs—in restaurants, banks, and other service industries—that will disappear. They make different assumptions about future levels of economic growth, the extent and pace of technological adaptation to a regulation, and the likelihood and extent of offsetting effects, such as the establishment or growth of new industries. As is true of scientists, given a choice among equally defensible assumptions, economists select premises that reflect their worldviews, so it is not surprising that industry projections of costs associated with a regulation tend to be much higher than projections made by environmentalists, with government estimates typically in the middle.[33]

In addition to debating projections of the cost of environmental policies, competing parties disagree over the desirability of cost-benefit analysis as a decision-making tool. Cost-benefit analysis entails determining the ratio of monetary benefits to costs of addressing a problem; by implication, government should undertake a program only if its benefits outweigh its costs—that is, if the ratio of benefits to costs is greater than one. Economists have developed a host of sophisticated techniques for assessing the costs and benefits of environmental policies, but critics nevertheless contend that cost-benefit analysis is merely a political device for slowing the growth of regulation, not a genuine analytic tool. They point out that estimates of the prospective costs and benefits of environmental policies are inherently biased against environmental protection because judgments about benefits, such as the value of saving wilderness or reducing the likelihood or severity of asthma attacks among sensitive populations, are difficult—if not impossible—to quantify, whereas immediate and tangible costs are easily figured. Moreover, they argue, using cost-benefit analysis as a decision rule eliminates ethical and moral considerations from the political calculus.[34] Regardless of how it is derived or how accurately it reflects a program's value, the number generated by a cost-benefit analysis constitutes a powerful frame because, as Deborah Stone observes, numbers have an aura of credibility and technical neutrality and therefore carry a great deal of political weight.[35]

Dramatizing the Risks of Action or Inaction. Finally, like scientific knowledge about a problem and the economic costs of addressing it, perceptions of the risk associated with action or inaction are subject to framing. Ordinary people do not assess risk based on objective analysis of statistical evidence; rather, they employ heuristics, or inferential rules—what political scientist Howard Margolis calls "habits of mind."[36] Psychologists have identified some inferential rules they

believe shape the average person's perception of risks. Using the "availability" heuristic, for example, people judge an event as likely or frequent if instances of it are easy to recall. Therefore, they overestimate the risk of dramatic and sensational events such as airplane crashes, which tend to get abundant media coverage, while underestimating the risk of unspectacular events like car accidents.[37] Psychologists also point out that the public incorporates factors besides expected damages—the measure used by experts—into their assessment of risk. Among those factors are whether the risk is taken voluntarily, its immediacy, its familiarity, the extent of control one has over the risky situation, the severity of the possible consequences, and the level of dread the risk evokes.[38] The public's sensitivity to these factors explains why environmentalists are more successful at drawing attention to problems whose effects appear immediate and catastrophic than to those whose impacts are more remote and mundane.

Psychologists have found that other aspects of the way risk is framed can have a dramatic impact on risk perceptions as well. First, people value the same gains differently, depending on the reference point. For instance, they value the increment from $10 to $20 more highly than the increase from $110 to $120. Second, people are more concerned about losses than about gains of the same magnitude; that is, they fear losing $10 more than they value gaining $10. Third, people tend to overweight low probabilities and underweight moderate and high probabilities, so they worry more about rare occurrences (major oil spills) than common events (routine leakage of oil from pipelines and tankers).[39] Recognizing the importance of these elements of framing to the way the public perceives risk, both sides in an environmental contest define a problem as a loss from an already low status quo and overstate the likelihood of low probability but potentially disastrous outcomes. The difference is that environmentalists tend to emphasize the environmental or human-health risks of inaction, whereas cornucopians minimize environmental risks and focus on a policy's potential economic costs.

In sum, the hallmark of a successful environmental policy campaign is the ability of its organizers to define a problem and characterize its solution in a compelling way, in terms of the scientific explanation, the costs of regulation, and the risks associated with action or inaction. The side that succeeds in crafting the authoritative problem definition has an enormous advantage because the way people think and talk about a policy problem determines which solutions they are likely to embrace. In other words, those who furnish the prevailing problem definition are well-positioned to translate their values into policy.

MAJOR ACTORS IN ENVIRONMENTAL POLICYMAKING

The question, then, is why does the framing contest play out the way it does? Actors both inside and outside government influence the fate of competing problem

definitions and solutions. Government officials must choose whether to address an environmental problem and, if so, how they will do it. Advocates on both sides try to influence that decision, adjusting their tactics to be consistent with the incentives and constraints of the institution making the decision. Their success depends heavily on the support of experts and the media's coverage of the issue.

Government Decision Makers

The decision makers in the national environmental policymaking process are the president and members of Congress who formulate legislation, the executive branch officials who interpret and administer the laws, and the judges who review their implementation by agencies. In various combinations, these actors determine whether environmental policy becomes more protective, permissive, or remains the same.

Legislative Actors. Legislative actors, the president and Congress, decide which problems government will address and establish the basic goals of public policy. In reaching their decisions, members of Congress want to make good public policy and attain the respect of their peers.[40] But they are also deeply concerned with the views of their constituents because they must be reelected if they hope to pursue their policy goals. Reelection concerns prompt legislators to support policies that distribute benefits to their constituents and oppose policies that threaten to impose direct, visible costs.[41]

The president and congressional leaders have powerful incentives to take on public policy issues of national, rather than simply district- or state-level, concern. Presidents, because they are elected by a national constituency and want to establish legacies, are attentive to broad public policy goals. Presidents can initiate action to address a problem by sending bills to Congress, by using the bully pulpit to convince the public. (They can also prevent action by vetoing legislation or simply failing to signal its importance.) Similarly, legislative leaders (and aspirants) seek opportunities to demonstrate their stewardship; in addition, their visibility both among the public and the political elite tends to elicit a sense of responsibility for public affairs.[42]

Even if the president and congressional leaders think an issue is important, they are not likely to expend political resources on it unless they perceive it to be widely salient. Similarly, to calculate their wiggle room on an issue, rank-and-file legislators must ascertain its salience among their constituents. An issue's salience can be difficult to discern, but one straightforward indicator is polling data. (According to sociologist Riley Dunlap, "The mere expression of supportive opinion in a scientific survey or informal poll . . . can be a vital resource" for groups hoping to bring about or block policy change.[43]) Although survey evidence can convey broad public preferences, it can also be misleading because the wording of questions and the order in which they are asked can yield different responses. In addition, polling results often contain internal contradictions; for example, a single poll may show overwhelming

support for environmental preserves, such as wilderness areas and wild-and-scenic rivers, while simultaneously revealing a ferocious mistrust of government.[44] Moreover, district- and state-level polling on individual issues is rarely available. Most important, however, surveys have difficulty detecting how much people actually care about a problem (the intensity of their concern), their willingness to trade off one value for another, or the extent to which abstract values translate into support for concrete proposals.[45]

Nonetheless, politicians rely on a host of other indicators of an issue's salience. Because they garner media coverage, rallies and protests have been a mainstay of political activists; such public demonstrations are the simplest and most direct way for people with few political resources to transmit their concerns to elected officials. Other activities such as phoning, writing letters, sending e-mails, and posting Facebook messages and tweets also convey salience. Note, however, that creating the perception that an issue is salient is not a one-way street that runs from the public to politicians; legislators who want to promote a particular policy shape their constituents' views using language that is crafted to generate public support.[46]

Bureaucracy. Although less visible than legislators, agencies play a critical role in environmental policymaking because they implement the laws passed by Congress. Doing so involves choosing the scientific and economic models and projections that underpin administrative regulations, crafting the wording of those rules and the implementation guidelines that accompany them, and monitoring and enforcing compliance. Throughout this process, agency personnel have substantial discretion to modify policy goals.[47] In exercising their discretion, they bring ample political resources to bear, including their longevity, expertise, and established relationships with organized interests and members of Congress.

At the same time, whether it is environmentalist or cornucopian, an agency's ability to pursue its preferred goals is constrained in several ways. One institutional feature that limits administrators' flexibility is their mission and organizational culture.[48] An agency's mission is its original mandate, and its organizational culture consists of the norms and standard operating procedures that have evolved over time. For example, some agencies, such as the Forest Service and the Bureau of Land Management, were founded to conserve natural resources for human consumption. For a long time, the natural resource management agencies were staffed by professionals, such as foresters and range managers, whose expertise lay in maximizing natural resource yields. As a result, these agencies' standard operating procedures emphasized resource extraction—often at the expense of environmental protection. On the other hand, the Environmental Protection Agency (EPA) was created to prevent and clean up pollution, and the orientation of its professionals as well as its standard operating procedures reflect this disposition. The EPA's decisions tend to be relatively protective and often impose substantial costs on industry.

The preferences of a federal agency's organized clientele, the nature and extent of its congressional oversight, and the direction given by the president and the president's political appointees also circumscribe bureaucratic choices.[49] For example,

organized interests dissatisfied with an agency's behavior can lobby sympathetic members of Congress, who in turn can exert pressure on agency officials by holding hearings, threatening budget cuts or reductions in statutory authority, or simply contacting agency officials directly to express their disfavor. Presidents likewise can impose their will on agencies by appointing directors whose views are consistent with their own. Presidents may also use the White House Office of Management and Budget or other administrative devices to bring an agency into line. In short, when implementing their statutory mandates, agency officials must navigate cautiously to avoid antagonizing powerful interests and their allies in Congress or the White House. Failure to do so almost always moves the battle to the courts.

The Judiciary. The federal courts have the authority to review agency decisions to determine whether they are consistent with congressional intent and, in this way, can circumscribe an agency's ability to pursue environmentally protective (or permissive) policies. The Administrative Procedures Act allows courts to invalidate decisions that lack "substantial evidence" or are "arbitrary and capricious." Moreover, many environmental statutes allow the courts to strike down an agency decision if they cannot discern a reasonable connection between the chosen course of action and the supporting record. The courts increased the potential for environmental litigation substantially in the early 1970s when they expanded the concept of "standing" to permit almost any group to challenge agency regulations in federal court, regardless of whether its members are directly affected by the agency's activities.[50] Congress also encouraged environmentalists' use of the courts by inserting provisions in environmental laws explicitly granting citizens and citizen organizations the right to sue not only polluters that violate the law, but also agencies that fail to implement or enforce their statutory mandates with sufficient zeal.[51]

Like legislators and agencies, judges may be environmentalists or cornucopians, but they also face institutional constraints when evaluating an agency's decisions: they must base their reasoning on precedent, as well as on the actual wording and legislative history of a statute. Judges have debated how closely to scrutinize agency decisions—in particular, whether to examine the reasoning or simply the procedures followed—but regardless of the standard applied, the courts habitually require agencies to document a comprehensible justification for their decisions.[52] As a result, litigation has become "an especially potent resource for making transparent the values, biases, and social assumptions that are embedded in many expert claims about physical and natural phenomena."[53]

Federalism and State and Local Decision Makers. The discussion so far has focused on national policymaking, but the politics of an issue depends in part on whether it is addressed at the local, state, or national level. Although there are many similarities among them, each of these arenas has distinctive features, which in turn have implications for the balance of power among environmentalists and

cornucopians. For example, environmental advocates traditionally have felt disadvantaged at the state and local levels. One reason is that state and local officials tend to be deeply concerned with economic development and the need to attract and retain industry.[54] They are especially susceptible to threats by industry that it will take its capital (and jobs) elsewhere if the state or locality is insufficiently accommodating. Although economists have vigorously debated the extent to which industry actually moves in response to stringent environmental regulations, industry threats are effective nonetheless.[55] Another reason environmentalists tend to prefer to operate at the federal level is that, historically, some states and most local governments have lacked the technical capacity necessary to analyze complex environmental problems and therefore to distinguish among effective and ineffective solutions. The extent to which this is true varies widely among the states, however. Overall, as environmental policy scholar Mary Graham points out, states' technical capacities have improved dramatically since the 1970s, as has their propensity to address environmental problems.[56]

As environmental regulation has become more contentious at the national level, some environmentalists have become more interested in addressing environmental problems at the state and local levels on the grounds that place-based solutions are likely to be more effective and durable than approaches devised by Congress or federal agencies. Environmentalists have also turned to the states when the federal government resists acting; in doing so, they often prompt industry to demand federal standards to avoid a patchwork of state-level regulations. And finally, both environmentalists and cornucopians have tried to capitalize on a distinctive mode of decision making at the state level: placing an issue directly on the ballot. Critics charge that such "direct democracy" is simply another opportunity for wealthy interests to promote their agendas.[57] But supporters say ballot initiatives provide citizens the chance to check overreaching or unresponsive legislatures.[58] In practice, environmental policymaking almost always involves multiple levels of government: because the United States has a federal system of government, most national policies are implemented by the states, and political events at one level often affect decisions made at another.

Actors Outside of Government

Although politicians, administrators, and judges make decisions, actors outside of government create the context in which those decisions are made. In particular, organized interests that advocate for particular solutions play a major role because they make strategic choices about which venue to compete in, selecting the one they expect will be most hospitable to their goals.[59] Having chosen the arena, they select from a variety of tactics to influence government decision making. Critical to the success or failure of their efforts are experts, who provide the arguments and empirical support for advocates' positions, and the media, which may promote, reject, or modify the frames imposed by advocates.

Advocacy Organizations. Like government decision makers, advocates in environmental policy debates generally fall into one of two camps: environmentalists, who support more environmentally protective policies, and cornucopians, who endorse less restrictive environmental policies. Advocacy groups on both sides are diverse in terms of funding sources and membership.[60] Some rely heavily on foundations or even the federal government for funding, while others raise most of their money from individual members. Some of the national environmental organizations, such as the Sierra Club and the Wilderness Society, are well established; some, like the Audubon Society, have adopted a federated structure in which state-level branches have significant autonomy. By contrast, community-based environmental groups may be ephemeral, springing up to address a single problem and then disbanding. Similarly, a host of long-standing trade associations, such as the U.S. Chamber of Commerce and the National Association of Manufacturers, oppose efforts to make environmental policies more protective, and myriad local groups have formed to challenge laws and regulations that they believe infringe on private property rights.

Although individual groups tend to specialize, advocates are most effective when they form broad coalitions. The cohesiveness of a coalition over time is a major determinant of its political effectiveness. Coalitions that cannot maintain a united front tend to fare poorly, particularly in the legislative arena.[61] Even highly cohesive coalitions may be fleeting; however, if they are temporarily united by common policy goals, connections among them may not last beyond a single policy battle.

As important as building coalitions is selecting the appropriate tactics for defining a problem in the venue of choice. Advocates know elected officials' perception that a problem is salient is an important determinant of whether they will attend to it. Conventional tactics, such as direct—or inside—lobbying and contributing money to a political campaign, remain important ways to exercise influence in the legislative arena, but "outside lobbying"—that is, raising public awareness of issues and stimulating grassroots mobilization—has become increasingly prominent as an advocacy tool, particularly among business groups.[62] Public mobilization is challenging because much of the public has only a vague understanding of individual environmental issues and relies on cognitive shortcuts and cues to know what to think.[63] Advocates, therefore, rely heavily on stories and symbols to define problems in ways that raise their salience. By contrast, in the administrative and judicial arenas, public opinion and mobilization play a lesser role, and reasoned argument plays a larger one. To persuade bureaucrats and judges to adopt their preferred solution, advocates need to muster more sophisticated theoretical and empirical evidence in support of their definition of a problem.

Experts. Whatever tactics they adopt, advocates rely on experts and the research they generate to buttress their claims about the causes and consequences of an environmental problem. In environmental politics, experts include scientists,

economists, lawyers, and policy analysts with specialized knowledge of environmental problems and policies. These individuals can work in academic departments, think tanks, foundations, interest groups, and government agencies. All of them are at the center of what political scientist John Kingdon calls "policy communities," where solutions to public policy problems are devised and the technical justifications for those solutions developed.[64] Both the public and policymakers tend to give greater weight to the views of experts than to those of outright advocates; as political scientist Benjamin Page and his coauthors observe, experts are considered credible because of their perceived objectivity, particularly when "complex technical questions affect the merits of policy alternatives."[65]

Experts, however, are not neutral purveyors of "facts." Most policy-relevant questions require experts to make value judgments based on uncertain data.[66] For example, policymakers might ask experts to ascertain a "safe" level of benzene in the environment. In conducting such a calculation, a chemical industry scientist is likely to make benign assumptions about benzene's hazards, consistent with her cornucopian values, while an academic scientist is likely to adopt more precautionary premises consistent with her environmental values.[67] Similarly, when asked about the economic impacts of benzene regulations, an industry economist is likely to base her projections on more pessimistic assumptions than is a government or academic economist.

The Media. Finally, the media—television, radio, newspapers, news magazines, and the Internet—are critical to determining the success or failure of competing advocates' efforts to define a problem. Writing more than eighty years ago, Walter Lippmann likened news coverage to "the beam of a searchlight that moves restlessly about, bringing one episode and then another out of darkness into vision."[68] There is substantial evidence that "the media may not only tell [the public] what to think about, they may also tell us how and what to think about it, and even what to do about it."[69] For most people the media are the only source of information about the environment, so what the media choose to focus on and the nature of their coverage are crucial to shaping public opinion.[70] Scholars have also found that the way the media frame issues significantly affects how the public attributes responsibility for problems.[71] (Naturally, people are not mere sponges for views expressed in the press; they make sense of the news in the context of their own knowledge and experience.[72])

Media coverage of environmental issues affects policymakers—not just through its impact on the public, but directly as well. There is little evidence that media-driven public opinion is a strong force for policy change, but news stories can prompt an elite response, even without a strong public reaction.[73] This response can occur when policymakers, particularly legislators, become concerned that media coverage *will* affect public opinion over time and so act preemptively. The relationship between the media and policymakers is not unidirectional: policymakers influence the media as well as react to it; in fact, policymakers are often more aware

of their own efforts to manipulate media coverage than of the media's influence on their policy choices.[74]

Because the media have such a profound impact, the way they select and portray environmental news can have serious consequences for problem definition. Above all, the media focus on stories that are "newsworthy"—that is, dramatic and timely. Sudden, violent events with immediate and visceral consequences—such as oil spills, floods, and toxic releases—are far more likely to make the headlines than are ongoing problems such as species loss.[75] Furthermore, because journalists face short deadlines, they rely on readily available information from stable, reliable sources—such as government officials, industry, and organized interest groups—and the complexity of environmental science only reinforces this tendency.[76] Finally, in presenting the information gleaned from their sources, most reporters attempt to balance competing points of view, regardless of the relative support for either side; few journalists provide critical analysis to help readers sort out conflicting claims.[77] In their quest for balance, however, journalists tend to overstate extreme positions.[78]

In the 1990s a new wrinkle on the media and politics developed with the advent of Fox News and political talk radio, as well as blogs and news-aggregating websites. Once dominated by a handful of network TV channels and newspapers, the media are now fragmented and, increasingly, polarized.[79] This polarization has been exacerbated with the use of social media, and the contentiousness of environmental policy disputes have made it more difficult for politicians to discern politically palatable positions.

THE ENVIRONMENTAL POLICYMAKING PROCESS

Many scholars have found it helpful to model the process by which advocates, experts, the media, and decision makers interact to create policy as a series of stages:

- agenda setting—getting a problem on the list of subjects to which policymakers are paying serious attention
- alternative formulation—devising the possible solutions to the problem
- decision making—choosing from among the possible alternatives the approach that government will take to address the problem
- implementation—translating a policy decision into concrete actions
- evaluation—assessing those actions for their consistency with a policy's goals[80]

Distinguishing among these steps in the policymaking process can be fruitful analytically. At the same time, scholars generally acknowledge that in reality, the process is rarely as orderly as this linear model suggests.

That the policymaking process is not linear does not mean it is inexplicable; in fact, John Kingdon has developed a useful framework that captures its main attributes. He portrays policymaking as a process in which three "streams" flow independently. In the first stream, people in and around government concentrate on a set of problems; in the second, policy communities made up of experts, journalists, and bureaucrats initiate and refine proposals; and in the third, political events, such as a change of administration or an interest group campaign, occur.[81] In general, legislative and administrative policymakers engage in routine decision making; wary of major change, with its unpredictable political fallout, they tend to prefer making incremental modifications to existing policies.[82] A substantial departure from the status quo is likely only when the three streams merge, as a compelling problem definition and an available solution come together under hospitable political conditions. Such a convergence rarely just happens, however; usually policy entrepreneurs must actively link their preferred solution to a problem when a window of opportunity opens.

Policy Windows and Major Policy Change

Major policy changes are likely to occur only when a window of opportunity opens for advocates to promote their pet solutions.[83] In environmental policymaking, such a policy window may open as the result of a legal decision that forces legislators or administrators to reexamine a policy. A crisis or focusing event, such as a chemical accident, a smog event, or the release of a major scientific report, can also create a chance for action by providing powerful new evidence of the need for a policy and briefly mobilizing public opinion. A recurring event that can alter the dynamics of an issue is turnover of pivotal personnel: the replacement of a congressional committee chair, Speaker of the House, Senate majority leader, president, or agency director. Even more routine events, such as a legislative reauthorization or an administrative rulemaking deadline, occasionally present an opportunity for policy change.

Once a window has opened, policy may or may not change. Although some objective features define a policy window, advocates must recognize it to take advantage of it. And even if they accurately perceive an opportunity, advocates have a limited time to capitalize. A policy window may close because decision makers enact a policy. Alternatively, action may stall, in which case advocates may be unwilling to invest additional time, energy, or political capital in the endeavor. Finally, newsworthy events in other policy realms may divert public attention, causing a window to shut prematurely. Opponents of policy change recognize that policy windows open infrequently and close quickly and that both participants and the public have limited attention spans, so they try to delay action by studying an issue or by another expedient until the pressure for change subsides. As Kingdon observes, supporters of the status quo take advantage of the fact that "the longer people live with a problem, the less pressing it seems."[84]

The Role of Policy Entrepreneurs in "Softening Up" and "Tipping"

Given the advantage held by supporters of the status quo, it is clear that advocates of policy change must do more than simply recognize an opportunity; they must also recruit one or more policy entrepreneurs to promote their cause. Policy entrepreneurs are individuals willing to invest their political resources—time, energy, reputation, money—in linking a problem to a solution and forging alliances among disparate actors to build a majority coalition.[85] Policy entrepreneurs must be adept at discovering "unfilled needs" and linking them to solutions, willing to bear the risks of investing in activities with uncertain consequences, and skilled at coordinating the activities of individuals and groups.[86] In addition, policy entrepreneurs must be ready to "ride the wave" when a policy window opens.[87] They must have lined up political allies, prepared arguments, and generated favorable public sentiment in preparation for the moment a decision-making opportunity presents itself.

Among the most important functions policy entrepreneurs perform while waiting for a policy window to open is "softening up" policy solutions, both in the expert communities whose endorsement is so important to the credibility of a policy and among the larger public. Softening up involves getting people used to a new idea and building acceptance for it.[88] Policy entrepreneurs have a variety of means to soften up policy solutions: they can give speeches, write scholarly and popular articles, give briefings to policymakers, compose editorials and press releases, and teach the new approach in classrooms. Over time, a consensus builds, particularly within a policy community, around a short list of ideas for solving a problem. Eventually, there is a broader convergence on a single approach, a phenomenon known as "tipping." At the tipping point, support for an idea is sufficiently widespread that it seems to take on a life of its own.[89]

The Importance of Process and History

To affect policymaking, solutions that have diffused through the policy community and the public must catch on among decision makers as well. In a traditional decision-making process, participants in a policy debate typically begin by staking out an extreme position and holding fast to it. At this point, bargaining and persuasion commence, and participants try to build a winning coalition by accommodating as many interests as possible. Once it becomes apparent that one side is going to prevail, even the holdouts recognize that, if they do not join in, they will have no say in the final decision. This creates a bandwagon effect: as Kingdon explains, "Once an issue seems to be moving, everybody with an interest in the subject leaps in, out of fear that they will be left out."[90]

In an adversarial process, however, a problem is never really solved; each decision is simply one more step in a never-ending contest. To avoid protracted appeals, policymakers are turning with increasing frequency to nonadversarial

processes—such as regulatory negotiation, mediation, and consensus building—to reach agreement on policy solutions. According to their proponents, such processes enhance the quality of participation by including a broader array of stakeholders and promoting deliberation, a search for common ground, and a spirit of cooperation. Proponents also believe that solutions arrived at collaboratively are likely to be more effective and enduring than those attained under adversarial processes.[91] On the other hand, critics fear that such approaches disadvantage environmentalists and result in watered-down solutions.[92]

Regardless of whether they are resolved through adversary or collaborative processes, policy battles are rarely fought on a clean slate; their dynamics are influenced by existing policies and the configuration of advocates around the status quo. Institutions—defined as both formal organizations and the rules and procedures they embody—are resistant to change, even in the face of compelling new ideas.[93] In addition, advocates adjust their tactics over time in response to judgments about their effectiveness and that of their opponents—a phenomenon known as political learning. Sometimes advocates even adjust their beliefs, as a result of policy learning. As political scientist Paul Sabatier observes, such learning tends to concern the efficacy of particular policy mechanisms, rather than the nature or importance of a problem.[94]

Changing Policy Gradually

Most of the mechanisms described above relate to major policy change. But policy can also change incrementally. As political scientist Jacob Hacker observes, sometimes those who seek to challenge popular institutions "may find it prudent not to attack such institutions directly. Instead, they may seek to shift those institutions' ground-level operations, prevent their adaptation to shifting circumstances, or build new institutions on top of them."[95] Members of Congress have a variety of low-profile means to challenge the status quo. They can communicate directly with high-level agency officials or adjust an agency's budget to reflect their own preferences. One of the most effective low-profile tactics legislators can employ is to attach a rider—a nongermane amendment—to must-pass legislation. Such riders can prohibit agency spending on particular activities, forbid citizen suits or judicial review of any agency decision, or make other, more substantive policy adjustments. The president also has a variety of tools with which to change policy quietly and unilaterally: executive orders, proclamations, presidential memoranda, and presidential signing statements.[96]

Agency personnel have numerous low-profile options for modifying policy as well. They can change the way a law is implemented by instituting new rules or repealing or substantially revising existing ones; they can also expedite or delay a rulemaking process. In formulating a rule, they can choose to consult with (or ignore) particular interests or to infuse the rulemaking process with a new analytic perspective. They can alter the implementation of a rule by adjusting the agency's budget; increasing, cutting, or reorganizing personnel; taking on new functions or

privatizing functions previously performed by the bureaucracy; hiring and promoting, or demoting and transferring, critical personnel; creating new advisory bodies or altering the membership of existing panels, or adjusting the rules by which such groups reach closure; adjusting agency operating procedures through internal memos and unpublished directives; and reducing or increasing the aggressiveness with which criminal and civil violations are pursued.[97]

The common feature of low-profile policy challenges is that it is difficult to garner publicity for them and therefore to make them salient. The more arcane they are, the more difficult it is to mobilize resistance. And if successful, low-profile challenges can result in "gradual institutional transformations that add up to major historical discontinuities."[98]

CASE SELECTION

How the policymaking process translates values into policy over time, abruptly or gradually or both, is the subject of the next fifteen chapters. The cases in these chapters not only introduce a variety of environmental issues, but also capture most aspects of the environmental policymaking process. They cover disputes from all regions of the country; offer examples of local, national, and international politics; and focus on problems that are of great concern to those who attend to this policy area. The cases are organized into three parts: regulating polluters, natural resource management, and new issues. Although these divisions reflect topical differences, they are somewhat arbitrary; at least some of the cases fit in multiple categories. In addition, there are many similarities across the cases. All of them illuminate the impact of participants' values on how problems are defined and solutions characterized, while each case also highlights a small number of more particular attributes of environmental policymaking, expanding on various aspects of the framework sketched above. As a collection, the cases provide a comprehensive foundation for understanding the way the American political system handles environmental issues.

Regulating Polluters

When the issue of pollution burst onto the national political scene in the 1960s and early 1970s, the public responded with overwhelming interest and concern about dirty air and water as well as toxic waste. Chapter 2 describes how the impact of public mobilization on the legislative process led to the formation of the EPA and the passage of the Clean Air and Clean Water acts. The case makes clear that when political leaders perceive an issue as widely salient, they often compete to craft a strong legislative response. Agencies trying to implement laws forged under such circumstances, however, are likely to encounter a host of practical obstacles. Chapter 3, which relates the story of toxic waste dumping at Love Canal, reveals the extent to which local and state governments historically have resisted confronting

pollution issues because of technical incapacity and concerns about economic development. It also demonstrates the impact of media coverage on politics: alarming news stories can prompt citizen mobilization, and coverage of local groups' claims can nationalize an issue and produce a strong policy response. In addition, this chapter makes clear that scientific experts rarely can resolve environmental policy controversies and may, in fact, exacerbate them. The case of the Chesapeake Bay restoration (Chapter 4) illustrates demands by scientists and environmentalists for ecosystem-scale solutions, as well as the need to coordinate the activities of multiple agencies and political jurisdictions. The final case in this section (Chapter 5) reveals that sometimes legislative leaders can break a political logjam by proposing a policy tool that facilitates new coalitions, as was done with tradable sulfur-dioxide permits in the effort to address acid rain under the Clean Air Act.

History, Changing Values, and Natural Resource Management

Natural resource issues have a much longer history in American politics than do pollution issues. The distinctive feature of natural resource policymaking in the United States is the extent to which it is shaped by the legacy of past policies. Strong traditions drive decision making regarding public lands. The first chapter in this section, Chapter 6, details the ongoing dynamics of the controversy over drilling for oil in Alaska's Arctic National Wildlife Refuge from 1977 to 2018. This particular case illuminates the intractable nature of conflicts between wilderness and natural resource development. It also illustrates the way competing advocates use information selectively and adopt evocative language—particularly symbols and metaphors—to define problems. After a long fought battle by environmentalists, the Trump administration opened for drilling, the impacts left unknown. Chapter 7 explores federal grazing policy, one of the nation's least publicized natural resource issues: how to manage the arid rangeland of the West. This case provides an opportunity to observe the impact of past policies on current decision making. More specifically, it shows how those who benefit from those policies form symbiotic relationships with policymakers. In particular, this chapter explores how past policies surrounding grazing fees led to a heated standoff with local law enforcement in 2014 in Oregon and an eventual presidential pardon. Nonetheless, Chapter 7 illuminates how the failure by advocates to arouse public concern about an issue helps to perpetuate the status quo.

By contrast, Chapter 8, "Jobs Versus the Environment: Saving the Northern Spotted Owl," makes clear that attracting public attention to a natural resource concern using legal leverage and outside lobbying campaigns can overwhelm historically entrenched interests and change the course of policymaking on an issue. Interestingly, in this case, science and scientists also played pivotal roles in transforming an agency's approach to decision making. "Playground or Paradise? Snowmobiles in Yellowstone National Park" (Chapter 9) looks at the bitter conflict over allowing motorized vehicles to explore how issues of recreational access can divide

those who claim to value the nation's parklands. As in the preceding cases, an initial decision to allow an activity in the park spawned economic interests and a perceived "right" to access. But this case shows how agency decision makers can bring about major policy adjustments, prompting dissenters to shop for friendly venues in which to appeal.

The final two cases in this section concern the impacts of extracting resources from the ocean. Chapter 10 ("Crisis and Recovery in the New England Fisheries") illustrates how government's efforts to manage the commons (in this case, New England's cod, haddock, and flounder) can exacerbate the free-rider problem, especially when commercial interests dominate the regulatory process. The case also demonstrates the critical role that litigation can play in disrupting established policymaking patterns. The chapter concludes by outlining some of the novel approaches that governments are exploring to manage common-property resources more effectively, as well as the sources of resistance to adopting such solutions. The question becomes what happens to these approaches if an overhaul of federal legislation occurs. "The Deepwater Horizon Disaster: The High Cost of Offshore Oil" (Chapter 11) provides a look at how the federal government responds to disasters caused by our reliance on fossil fuels—in this instance, a massive oil spill a mile offshore in the Gulf of Mexico. The case makes vividly apparent the extent to which federal agencies can become dependent on and entwined with the companies they are supposed to regulate. This phenomenon is exacerbated by the growing unwillingness of federal policymakers to support strict regulation of industry and to provide the funding necessary for truly effective, independent oversight.

New Issues, New Politics

Chapter 12 examines one of the most complex and divisive commons problems facing the world today: climate change. The case reveals how the Paris Accord set the tone for global policy on climate change. The efforts are highlighted by the fifth Intergovernmental Panel on Climate Change (IPCC) special report on global warming and the United States' fourth national climate assessment. These reports both call for immediate action. Despite these calls for action, U.S. domestic climate policy efforts are obstructed by science–policy debates at the federal level. State-level policymaking may serve as tactical adjustments for the lack of federal policy. Furthermore, the 2019 Democratic-controlled House of Representatives shows promise for the "Green New Deal"—an economic stimulus approach to combat climate change.

A related challenge is that of producing clean energy, which will be central to mitigating the harm inflicted by climate change. Chapter 13 investigates the story of Cape Wind, slated to be one of the nation's first offshore wind farms and how it suffered a very slow death. This case lays bare the difficulties of comparing the costs associated with conventional fuels with the expenses of building new

alternative energy plants. It also illustrates the siting difficulties facing alternative energy facilities, which occupy more space than their fossil fuel counterparts and are often proposed for places that have well-defended aesthetic or ecological value. And it highlights how advocates on both sides of a siting dispute capitalize on process requirements to delay action when they perceive that doing so works to their advantage.

"Fracking Wars: Local and State Responses to Unconventional Shale Gas Development" (Chapter 14) explores the way states and localities are managing the exploitation of shale gas using a combination of hydraulic fracturing and horizontal drilling. This relatively new technique—known as high-volume hydraulic fracturing or, more colloquially, as fracking—enables gas drillers to work in areas unaccustomed to the disruption and potential pollution caused by natural resource development. It has prompted a variety of state and local responses—from outright bans to a variety of regulations aimed at reducing the impacts of fracking. The case focuses on the tensions that arise between localities trying to preserve their quality of life and state governments aiming to ensure the orderly development of natural resources and promote economic development.

Chapters 15 and 16 address some of the challenges associated with the pursuit of urban sustainability. "Making Trade-Offs: Urban Sprawl and the Evolving System of Growth Management in Portland, Oregon" (Chapter 15) concerns efforts by states and localities to manage the diffuse and complex issue of urban sprawl. It elucidates the origins of Oregon's land-use planning framework and the role of civic engagement in implementing that framework in the City of Portland. Importantly, it also takes up how Portland responded to a powerful ideological challenge by taking the concerns of critics seriously and adding flexibility to the regulatory framework. Chapter 16 documents how hurricanes post-Katrina can be viewed through the lens of environmental justice. Simply put, this chapter considers how government policy has exacerbated the vulnerability of many U.S. communities to disaster, the extent to which disaster disproportionately affects poor and minority communities, and the many obstacles to recovery, restoration, and resilience.

As all of the cases make clear, many of the same political forces are at play regardless of the decision-making approach adopted or the type of policy mechanism proposed. Even as new ideas emerge and gain traction, institutionalized ideas and practices continue to limit the pace of policy change. Moreover, underlying value differences among participants remain, so the ability to define problems and characterize their solutions persuasively continues to be a critical source of influence.

GETTING THE MOST OUT OF THE CASES

This chapter has provided a cursory introduction to the burgeoning field of environmental politics and policymaking. The cases that follow deepen and make

concrete the concepts introduced here, highlighting in particular how participants use language to define problems in ways consistent with their values. As you read, you will notice similarities and differences among cases. I encourage you to look for patterns, generate hypotheses about environmental politics, and test those hypotheses against the other instances of environmental policymaking that you study, read about in the newspaper, or become involved in. Questions posed at the end of each case may help you think more deeply about the issues raised in it and generate ideas for further research.

NOTES

1. John S. Dryzek and David Schlosberg, eds., *Debating the Earth: The Environmental Politics Reader* (New York: Oxford University Press, 1998), 1.
2. Paul Sabatier makes this point about policy controversies more generally in Paul A. Sabatier, "An Advocacy Coalition Framework of Policy Change and the Role of Policy-Oriented Learning Therein," *Policy Sciences* 21 (1988): 129–168.
3. See, for example, Black Elk, "Native Americans Define the Natural Community," in *American Environmentalism*, 3d ed., ed. Roderick Frazier Nash (New York: McGraw-Hill, 1990), 13–16. Critics argue that environmentalists have romanticized Native Americans and other early peoples, pointing out that they too were capable of hunting species to extinction; that the tribes of eastern North America deliberately influenced the range and abundance of countless wild plant species through their food-gathering and land-use practices; and that Native Americans made great use of fire and, in doing so, altered the landscape on a sweeping scale. They contend that much of what we now see as "natural" is in fact the result of human alteration during earlier time periods. See, for example, Stephen Budiansky, *Nature's Keepers: The New Science of Nature Management* (New York: Free Press, 1995).
4. George Catlin, "An Artist Proposes a National Park," in *American Environmentalism*, 31–35.
5. Henry David Thoreau, "Walking," in *Excursions*, *The Writings of Henry David Thoreau*, Vol. IX, Riverside ed., 11 vols. (Boston: Houghton Mifflin, 1893).
6. Quoted in Roderick Nash, *Wilderness and the American Mind*, 3d ed. (New Haven: Yale University Press, 1982), 125.
7. Samuel Hays, *Conservation and the Gospel of Efficiency* (Cambridge, Mass.: Harvard University Press, 1959).
8. Reed F. Noss and Allen Y. Cooperrider, *Saving Nature's Legacy: Protecting and Restoring Biodiversity* (Washington, D.C.: Island Press, 1994).
9. The relationship between ecology and environmentalism was reciprocal. According to historian Peter Bowler, although a distinct science of ecology emerged in the

1890s, ecology did not flower as a discipline until the 1960s with the proliferation of environmental concern. See Peter Bowler, *Norton History of Environmental Sciences* (New York: Norton, 1992).

10. Aldo Leopold, *A Sand County Almanac* (New York: Oxford University Press, 1948), 239, 262.

11. Donella Meadows et al., *The Limits to Growth* (New York: Universe, 1972).

12. Herman Daly, *Steady-State Economics* (Washington, D.C.: Island Press, 1991). Daly's work draws heavily on the insights developed by economists Nicholas Georgescu-Roegen and Kenneth Boulding. See Nicholas Georgescu-Roegen, *The Entropy Law and the Economic Process* (Cambridge, Mass.: Harvard University Press, 1971); and Kenneth Boulding, "The Economics of the Coming Spaceship Earth," in *Environmental Quality in a Growing Economy*, ed. Henry Ed Jarrett (Baltimore: Johns Hopkins University Press/Resources for the Future, 1966), 3–14.

13. Robyn Eckersley, *Environmentalism and Political Theory* (Albany: State University of New York Press, 1992).

14. Arne Naess, "The Shallow and the Deep, A Long-Range Ecology Movement: A Summary," *Inquiry* 16 (1983): 95.

15. Dryzek and Schlosberg coined the term *cornucopians* in *Debating the Earth.* In Greek mythology, Prometheus stole fire from Olympus and gave it to humans. To punish him for this crime, Zeus chained him to a rock and sent an eagle to eat his liver, which in turn regenerated itself each day. The term Prometheans, therefore, suggests a belief in the endless regenerative capacity of the earth.

16. Aaron Wildavsky and Karl Dake provide another label: hierarchists. They say, "Hierarchists . . . approve of technological processes and products, provided their experts have given the appropriate safety certifications and the applicable rules and regulations are followed." See Aaron Wildavsky and Karl Dake, "Theories of Risk Perception: Who Fears What and Why?" *Daedalus* 119 (Fall 1990): 41–60.

17. Julian L. Simon and Herman Kahn, *The Resourceful Earth* (New York: Blackwell, 1984), 3.

18. Ibid.

19. Mary Douglas and Aaron Wildavsky, *Risk and Culture* (Berkeley: University of California Press, 1982).

20. See, for example, Aaron Wildavsky, *But Is It True?* (Cambridge, Mass.: Harvard University Press, 1995); Michael Fumento, *Science Under Siege* (New York: Quill, 1993); and Bjorn Lomborg, *The Skeptical Environmentalist: Measuring the Real State of the World* (New York: Cambridge University Press, 2001).

21. Gregg Easterbrook, *A Moment on the Earth* (New York: Viking, 1995), 649.

22. E. E. Schattschneider, *The Semisovereign People* (New York: Holt, Rinehart, and Winston, 1960), 189.

23. Political scientists use a variety of terms—*problem definition*, *issue definition*, and *issue framing*—to describe essentially the same phenomenon. Although we use the terms interchangeably, we refer readers to Deborah Stone's *Policy Paradox*, whose discussion of problem definition and its political impact is the most precise we have found. See Deborah Stone, *Policy Paradox: The Art of Political Decision Making*, rev. ed. (New York: Norton, 2002). See also David Rochefort and Roger Cobb, eds., *The Politics of Problem Definition* (Lawrence: University Press of Kansas, 1994).

24. Donald A. Schon and Martin Rein, *Frame Reflection: Toward the Resolution of Intractable Policy Controversies* (New York: Basic Books, 1994).

25. Stone, *Policy Paradox*.

26. Frank R. Baumgartner and Bryan D. Jones, *Agendas and Instability in American Politics* (Chicago: University of Chicago Press, 1993).

27. Stone, *Policy Paradox*, 189.

28. Schattschneider, *The Semisovereign People*, 66.

29. Deborah Guber, *The Grassroots of a Green Revolution: Polling America on the Environment* (Cambridge, Mass.: The MIT Press, 2003); Willett Kempton, James S. Boster, and Jennifer A. Hartley, *Environmental Values in American Culture* (Cambridge, Mass.: The MIT Press, 1995); Everett Carll Ladd and Karlyn H. Bowman, *Attitudes Toward the Environment* (Washington, D.C.: AEI Press, 1995).

30. Riley E. Dunlap, "Public Opinion in the 1980s: Clear Consensus, Ambiguous Commitment," *Environment*, October 1991, 10–22.

31. Although a few skeptics continue to challenge theories of ozone depletion, by the early 1990s, most climatologists accepted the conclusions of the World Meteorological Association that "anthropogenic chlorine and bromine compounds, coupled with surface chemistry on natural polar stratospheric particles, are the cause of polar ozone depletion." See Larry Parker and David E. Gushee, "Stratospheric Ozone Depletion: Implementation Issues," CRS Issue Brief for Congress, No. 97003 (Washington, D.C.: Congressional Research Service, January 16, 1998).

32. On occasion, roles are reversed, particularly when the issue at stake is the impact of technology on human health or the environment. For example, scientists have been unable to detect a relationship between electromagnetic fields (EMFs) and cancer, and proponents of EMF regulation are the ones citing minority scientific opinions. This pattern—in which the experts try to reassure a skeptical public that a technology is safe—recurs in the debates over nuclear power, genetically modified food, and vaccines.

33. Eban Goodstein and Hart Hodges, "Behind the Numbers: Polluted Data," *American Prospect*, November 1, 1997, 64–69.

34. Stephen Kelman, "Cost-Benefit Analysis: An Ethical Critique," in *The Moral Dimensions of Public Policy Choice*, ed. John Martin Gillroy and Maurice Wade (Pittsburgh: University of Pittsburgh Press, 1992), 153–164.

35. Stone, *Policy Paradox*.

36. Howard Margolis, *Dealing with Risk: Why the Public and the Experts Disagree on Environmental Risk* (Chicago: University of Chicago Press, 1996).

37. Paul Slovic, Baruch Fischhoff, and Sarah Lichtenstein, "Rating the Risks," in *Readings in Risk*, ed. Theodore Glickman and Michael Gough (Washington, D.C.: Resources for the Future, 1990), 61–75.

38. Ibid. Howard Margolis rejects this explanation for differences between expert and public assessments of risk. He argues instead that the difference turns on "habits of mind"; in particular, in some cases, the public stubbornly perceives only the costs of a technology or activity and is unable to see the benefits and therefore cannot make the appropriate trade-off between the two. See Margolis, *Dealing with Risk.*

39. Amos Tversky and Daniel Kahneman, "The Framing of Decisions and the Psychology of Choice," *Science*, January 30, 1981, 453–458.

40. Richard Fenno, *Congressmen in Committees* (Boston: Little, Brown, 1973).

41. David R. Mayhew, *Congress: The Electoral Connection* (New Haven: Yale University Press, 1974).

42. Timothy J. Conlan, Margaret Wrightson, and David Beam, *Taxing Choices: The Politics of Tax Reform* (Washington, D.C.: CQ Press, 1990); Martha Derthick and Paul J. Quirk, *The Politics of Deregulation* (Washington, D.C.: Brookings Institution, 1985).

43. Riley Dunlap, "Public Opinion in Environmental Policy," in *Environmental Politics and Policy*, ed. James P. Lester (Durham: Duke University Press, 1989), 87.

44. Timothy Egan, "The 1994 Campaign: Western States," *The New York Times*, November 4, 1994.

45. With occasional exceptions, the environment ranks low as Gallup's "most important problem"; in fact, it was mentioned by only 1 percent of those surveyed in January 1995 and 2 percent in 2000. See Everett Carll Ladd and Karlyn H. Bowman, *Attitudes Toward the Environment: Twenty-Five Years After Earth Day* (Washington, D.C.: AEI Press, 1995); Deborah Guber, *The Grassroots of a Green Revolution* (Cambridge, Mass.: The MIT Press, 2003). But because salience measures like the most-important-problem question are headline sensitive, they are untrustworthy guides to how the public will respond to particular policy proposals. See Robert Cameron Mitchell, "Public Opinion and the Green Lobby: Poised for the 1990s?" in *Environmental Policy in the* 1990*s*, ed. Norman J. Vig and Michael E. Kraft (Washington, D.C.: CQ Press, 1990), 81–99.

46. Lawrence R. Jacobs and Robert Y. Shapiro, *Politicians Don't Pander: Political Manipulation and the Loss of Democratic Responsiveness* (Chicago: University of Chicago Press, 2000).

47. Jeffrey L. Pressman and Aaron Wildavsky, *Implementation* (Berkeley: University of California Press, 1984).

48. James Q. Wilson, *Bureaucracy* (New York: Basic Books, 1989).

49. Herbert Kaufman, *The Administrative Behavior of Federal Bureau Chiefs* (Washington, D.C.: Brookings Institution, 1981).

50. "Standing" is the right to bring a lawsuit. Historically, the courts have granted standing to anyone who can demonstrate that he or she is personally affected by the outcome of a case. *Sierra Club v. Morton* (1972) laid the groundwork for the subsequent broadening of the courts' interpretation of the standing requirement. In the 1980s, however, conservatives began challenging environmentalists' standing to sue in hopes of reducing their ability to use litigation to pursue their policy goals. In the early 1990s, those efforts began to pay off, as the Supreme Court issued rulings that curtailed judges' propensity to grant standing to environmental plaintiffs. See William Glaberson, "Novel Antipollution Tool is Being Upset by Courts," *The New York Times*, June 5, 1999.

51. A second way the courts can influence environmental policymaking is through civil litigation. In tort litigation, judges must decide whether a company is liable for damages caused by a substance or event. To prevail, a plaintiff must prove negligence on the part of a defendant, a burden that can be extraordinarily heavy in the case of chronic exposure to hazardous substances. See, for example, Jonathan Harr, *A Civil Action* (New York: Vintage Books, 1996).

52. Sheila Jasanoff, *Science at the Bar: Law, Science, and Technology in America* (Cambridge, Mass.: Harvard University Press, 1995); David M. O'Brien, *What Process Is Due? Courts and Science-Policy Disputes* (New York: Russell Sage, 1987).

53. Jasanoff, *Science at the Bar*, 20.

54. Paul Peterson, *City Limits* (Chicago: University of Chicago Press, 1981).

55. For a review of the scholarly debate over the "pollution haven hypothesis," see Smita B. Brunnermeier and Arik Levenson, "Examining the Evidence of Environmental Regulations and Industry Location," *Journal of Environment & Development* 13,1 (March 2004): 6–41.

56. Mary Graham, *The Morning After Earth Day: Practical Environmental Politics* (Washington, D.C.: Brookings Institution Press, 1999).

57. See, for example, Peter Shrag, *Paradise Lost: California's Experience, America's Future* (New York: New Press, 1998); David Broder, *Democracy Derailed: Initiative Campaigns and the Power of Money* (New York: Harcourt Brace, 2000); Richard Ellis, *Democratic Delusions* (Lawrence: University Press of Kansas, 2002).

58. David Schmidt, *Citizen Lawmakers: The Ballot Initiative Revolution* (Philadelphia: Temple University Press, 1989); Arthur Lupia and John G. Matsusaka, "Direct Democracy: New Approaches to Old Questions," *Annual Review of Political Science* 7 (2004): 463–482.

59. Baumgartner and Jones, *Agendas and Instability.*

60. For an extensive discussion of the funding, membership, tactics, and goals of major environmental interest groups, see Ronald G. Shaiko, *Voices and Echoes for the Environment* (New York: Columbia University Press, 1999); Christopher J. Bosso, *Environment Inc.: From Grassroots to Beltway* (Lawrence: University Press of Kansas, 2005).

61. Gary Mucciaroni, *Reversals of Fortune: Public Policy and Private Interests* (Washington, D.C.: Brookings Institution, 1995).

62. Ken Kollman, *Outside Lobbying: Public Opinion and Interest Group Strategies* (Princeton, N.J.: Princeton University Press, 1998). In 2015 the Center for Public Integrity released a report that found the amount that the nation's biggest trade associations spent for public relations and advertising firms to persuade the U.S. public dwarfed the amount spent on lobbying federal officials in 2012. See Erin Quinn and Chris Young, "Who Needs Lobbyists? See What Big Business Spends to Win American Minds," Center for Public Integrity (Website), January 15, 2015. Available at http://www.publicintegrity.org/2015/01/15/16596/who-needs-lobbyists-see-what-big-business-spends-win-american-minds.

63. Shanto Iyengar argues that "people are exquisitely sensitive to context when they make decisions, formulate judgments, or express opinions. The manner in which a problem of choice is 'framed' is a contextual cue that may profoundly influence decision outcomes." See Shanto Iyengar, *Is Anyone Responsible? How Television Frames Political Issues* (Chicago: University of Chicago Press, 1991), 11.

64. John Kingdon, *Agendas, Alternatives, and Public Policies*, 2d ed. (New York: HarperCollins, 1995).

65. Benjamin I. Page, Robert Y. Shapiro, and Glenn R. Dempsey, "What Moves Public Opinion," *Media Power in Politics*, 3d ed., ed. Doris A. Graber (Washington, D.C.: CQ Press, 1994), 132.

66. Alvin Weinberg, "Science and Trans-Science," *Minerva* 10 (1970): 209–222.

67. Frances M. Lynn, "The Interplay of Science and Values in Assessing and Regulating Environmental Risks," *Science, Technology, and Human Values* 11 (Spring 1986): 40–50.

68. Walter Lippman, *Public Opinion* (New York: Macmillan, 1922), 229.

69. Maxwell McCombs and George Estrada, "The News Media and the Pictures in Our Heads," in *Do the Media Govern?* ed. Shanto Iyengar and Richard Reeves (Thousand Oaks, Calif.: SAGE, 1997), 247.

70. Maxwell E. McCombs and Donald L. Shaw, "The Agenda-Setting Function of the Press," in *The Emergence of American Political Issues: The Agenda-Setting Function of the Press* (St. Paul, Minn.: West Publishing, 1977), 89–105; Fay Lomax Cook et al., "Media and Agenda Setting Effects on the Public, Interest Group Leaders, Policy Makers, and Policy," *Public Opinion Quarterly* 47 (1983): 16–35.

71. Shanto Iyengar, "Framing Responsibility for Political Issues," in *Do the Media Govern?* 276–282.

72. Doris A. Graber, *Mass Media and American Politics*, 5th ed. (Washington, D.C.: CQ Press, 1997).

73. Ibid. Graber points out that the relative dearth of evidence supporting the claim that media-generated public opinion causes policy change is probably the result of using insufficiently sophisticated methods to detect such effects, not the absence of effects.

74. Kingdon, *Agendas.*

75. Michael R. Greenberg et al., "Risk, Drama, and Geography in Coverage of Environmental Risk by Network T.V.," *Journalism Quarterly* 66 (Summer 1989): 267–276.

76. Herbert Gans, *Deciding What's News* (New York: Pantheon, 1979); Dorothy Nelkin, *Selling Science*, rev. ed. (New York: Freeman, 1995).

77. Nelkin, *Selling Science*.

78. Eleanor Singer, "A Question of Accuracy: How Journalists and Scientists Report Research on Hazards," *Journal of Communication* 40 (Autumn 1990): 102–116.

79. Kathleen Hall Jamieson and Joseph N. Capella, *Echo Chamber: Rush Limbaugh and the Conservative Media Establishment* (New York: Oxford University Press, 2008); Ken Autletta, "Non-Stop News," *New Yorker*, January 25, 2010, 38–47.

80. See, for example, Charles O. Jones, *An Introduction to Public Policy*, 2d ed. (North Scituate, Mass.: Wadsworth, 1984).

81. In *Agendas*, Kingdon suggests that these three activities, or streams, proceed independently of one another. Gary Mucciaroni argues that changes in problem definition, solutions, and political conditions are actually quite closely linked. See Mucciaroni, *Reversals of Fortune*.

82. Incrementalism involves tinkering with policies at the margin rather than engaging in a comprehensive reexamination of each issue. See Charles E. Lindblom, "The Science of Muddling Through," *Public Administration Review* 14 (Spring 1959): 79–88; Aaron Wildavsky, *The Politics of the Budgetary Process*, 3d ed. (Boston: Little, Brown, 1979).

83. Kingdon, *Agendas*.

84. Ibid., 170.

85. Ibid.

86. Michael Mintrom and Sandra Vergari, "Advocacy Coalitions, Policy Entrepreneurs, and Policy Change," *Policy Studies Journal* 24 (1996): 420–434.

87. Kingdon, *Agendas*.

88. Ibid.

89. Malcolm Gladwell, *The Tipping Point: How Little Things Can Make a Big Difference* (Boston: Little, Brown, 2000).

90. Kingdon, *Agendas*, 162.

91. Lawrence Susskind and Jeffrey Cruikshank, *Breaking the Impasse: Consensual Approaches to Resolving Public Disputes* (New York: Basic Books, 1987); Julia Wondolleck and Steven L. Yaffee, *Making Collaboration Work: Lessons from Innovation in Natural Resource Management* (Washington, D.C.: Island Press, 2000).

92. George Cameron Coggins, "Of Californicators, Quislings, and Crazies: Some Perils of Devolved Collaboration," in *Across the Great Divide: Explorations in Collaborative Conservation and the American West*, ed. Philip Brick, Donald Snow, and Sarah Van de Wetering (Washington, D.C.: Island Press, 2001), 163–171; Cary Coglianese, "Is

Consensus an Appropriate Basis for Regulatory Policy?" in *Environmental Contracts*, ed. Eric W. Orts and Kurt Deketelaere (Boston: Kluwer Law International, 2001), 93–113.

93. Paul Pierson, *Politics in Time: History, Institutions, and Social Analysis* (Princeton, N.J.: Princeton University Press, 2004).

94. Sabatier, "An Advocacy Coalition Framework."

95. Jacob S. Hacker, "Privatizing Risk Without Privatizing the Welfare State: The Hidden Politics of Social Policy Retrenchment in the United States," *American Political Science Review* 98,2 (2004): 243–260.

96. Judith A. Layzer, *Open For Business: Conservatives' Opposition to Environmental Regulation* (Cambridge, Mass.: The MIT Press, 2012).

97. Layzer, *Open For Business*.

98. Wolfgang Streeck and Kathleen Thelen, "Introduction: Institutional Change in Advanced Political Economies," in *Beyond Continuity: Institutional Change in Advanced Political Economies*, ed. Wolfgang Streeck and Kathleen Thelen (New York: Oxford University Press, 2005), 8.