

## **Design for Environment: Lessons from Environmental Protection**

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The history of regulation in the United States has been characterized by bursts of rapid and substantial change—often as a response to crisis—followed by extended periods of relative stability. Key institutional design decisions during these formative periods can have significant ramifications for agency performance and the nature of regulatory politics. Given the power of path dependency, they can have long-term effects on the trajectory of institutional development and public policy, creating potential impediments for subsequent efforts to adjust regulations to meet emerging challenges.<sup>1</sup> Arguably, in the wake of the greatest economic crisis since the Great Depression, we can anticipate another period of rapid and substantial change. It is prudent to reflect on what lessons, if any, can be gleaned from the experiences of the past. This paper explores the case of environmental protection.

There are a number of regulatory design decisions that were made in the early 1970s would have important implications for the evolution of environmental policy and regulatory politics more generally. Some of these consequences were quite positive insofar as they facilitated rapid policy implementation and insulated environmental protection from an uncertain future. At the same time, they imposed constraints that compromised the efficacy and adaptability of environmental protection in the long run.

This paper proceeds in three steps. First, it examines the political and intellectual context within which the new social regulations were introduced. Second, it explores the key design decisions made in the early years of the 1970s. Third and finally, it explores some of the long-term implications of these decisions.

## **I. The Context**

The early 1970s marked a critical turning point in environmental regulation. Between 1970 and 1972, Congress established the statutory foundations of environmental regulation with the Clean Air Act Amendments of 1970 and the Federal Water Pollution Control Act (Clean Water Act) Amendments of 1972. The Nixon administration created a new Environmental Protection Agency, which quickly would become the largest and most powerful social regulatory agency. The US was not alone. Most wealthy democracies established national environmental regulatory authorities between 1970 and 1972. Within the next decade the number of nations with environmental regulators increased from twenty-six to 144.<sup>2</sup> The modern environmental era was well underway.

The events of the early 1970s provide a wealth of insights for those interested in examining the impact of salient events (in this case, Earth Day), the issue-attention cycle, interest groups mobilization, political entrepreneurship, advocacy coalitions, and electoral competition on policy origination.<sup>3</sup> They are also fascinating for those wishing to explore issues of regulatory design. Pivotal decisions regarding the design of regulatory mandates and the implementation structure would have profound implications—both positive and negative—for environmental protection regulation. They were instrumental in assuring both rapid implementation of core policies and bureaucratic fidelity to the goals articulated by Congress. At the same time, they would impart to US

environmental regulations some distinctively negative features (e.g., a regulatory culture characterized by its adversarialism, expense, complexity, and rigidity).<sup>4</sup> To explore why particular expedients in regulatory design made sense at the time, it is important to place them in historical context.

During the immediate postwar decades, a rather diverse set of analysts drawn from academia, the New Left, and the Chicago school of economics had concluded that many of the economic regulatory agencies created during the Progressive Era and the New Deal had either become moribund and sclerotic or had been captured by the very interests they were designed to regulate. There were competing accounts of the underlying dynamics. Some scholars of regulation offered theories of organizational life cycles.<sup>5</sup> After a period of youthful exuberance, regulators lost their *esprit de corps*. As the problems they addressed lost their salience—often a product of success—regulators searched for new sources of support and often found it in the very industries they were created to regulate. The New Left critique of regulation, which appealed to many members of the environmental and public interest movements, situated this dynamic in corporate liberalism.<sup>6</sup> Corporate elites cooperated with government officials to create regulations that would allow them to circumvent market competition, disadvantage potential entrants, and forestall more radical state and national regulations. The public interest, for all practical purposes, became synonymous with corporate profitability, thereby vitiating the promise of democracy. The Chicago school critique, in stark contrast, attributed regulatory capture to mutually beneficial exchanges between profit-maximizing firms and vote-maximizing politicians. Regulations provided a host of concentrated benefits to businesses (barriers to entry, fixed prices) and imposed diffused

costs on to the public.<sup>7</sup> Regardless of the critique one embraced, the conclusion was the same: much regulation had failed to further the public interest, however conceived.

Obviously, the critique of regulation could have wildly different implications for reform. On the one hand, it could be used to justify efforts to revitalize established agencies that had fallen into irrelevance. The Federal Trade Commission, for example, was reorganized, professionalized, and given a new infusion of resources in response to critiques issued by Nader's raiders and the American Bar Association. Given expansive new powers, the "Little Old Lady of Pennsylvania Avenue" became a muscular agency—at least temporarily—with a broad and ambitious mandate.<sup>8</sup> On the other hand, the critique of regulation—when artfully linked to the problems of inflation in the 1970s—could be used to justify deregulation. The 1970s witnessed deregulation in multiple industries (finance, surface and air transportation, communications, energy), resulting ultimately in the elimination of well-established agencies like the Interstate Commerce Commission and the Civil Aeronautics Board that had become emblematic of regulatory capture.<sup>9</sup> The critiques also informed regulatory design in the new social regulatory initiatives introduced in the early 1970s. The key questions for regulatory advocates were: How can institutions be designed to avoid potential capture? How can they be designed to force ongoing action? How can they be insulated from an uncertain future when the problems they were created to address lose their political salience?

At first glance, some of these concerns seem misplaced. Old-style economic regulations—the subject of the above-mentioned critiques—are fundamentally different than the new social regulations. Economic regulations provide regulated interests with concentrated benefits on an industry-specific basis while imposing diffuse costs on

consumers and taxpayers. This mix of costs and benefits both facilitates capture and impedes the mobilization of opposition. The new social regulations in environmental protection and occupational safety and health, in contrast, impose concentrated costs on regulated interests on an economy-wide basis while delivering diffuse benefits. The concentrated costs should engender an adversarial relationship between the regulators and the regulated. Business subject to social regulations should have a strong incentive to mobilize in opposition. At the same time, the diffuse and probabilistic nature of benefits and the complexity of the policies in question impede the broad mobilization of support. Ultimately, this mix of costs and benefits renders social regulatory policies vulnerable to assault, particularly after the core policy problems are displaced on the policy agenda.

As a generalization, regulatory design decisions could provide an important means of insulating the new initiatives in environmental protection from the vicissitudes of the issue attention cycle while reducing the potential for capture or drift. They could assure—to the extent possible—that bureaucrats would not stray too far from the intentions of Congress and environmental advocates.

## **II. Key Elements of Regulatory Design**

When Congress passes regulatory legislation, it necessarily delegates authority to administrators. One would expect this delegation to be the greatest in complex regulatory policies where the quality of decisions will depend on technical expertise that is often beyond what Congress, as a body of generalists, possesses. The resulting informational asymmetries complicate political control of the bureaucracy. Since delegation necessarily opens the door to principal-agent problems (e.g., miscommunication, slippage, or outright

opportunism), Congress is faced with something of a dilemma.<sup>10</sup> How can it ensure that policy outcomes will reflect the preferences of the legislative majority and the coalition of interests it represents? One means of asserting control is to write exhaustively detailed legislation, thereby delegating minimal discretionary authority to bureaucrats. Legislation, for example, can specify decision criteria, establish performance or technological standards, and impose mandatory compliance timetables, in essence programming implementation. Of course, there will always be substantial delegation in complex policy areas. But legislators can nonetheless constrain bureaucratic discretion. A second means of asserting control is through institutional design. Congress can create complex procedures that give the coalition of interests underlying the legislation enhanced access to sites policymaking and institutional mechanisms that can force indolent or resistant agencies to execute their non-discretionary duties.<sup>11</sup>

In the case of environmental protection, Congress embraced both of these design expedients. Let us consider them in turn. The core environmental statutes of the 1970s—most notably the Clean Air Act Amendments of 1970 and the Clean Water Act Amendments of 1972—were exhaustively detailed pieces of legislation. The contrasts between the new legislation and older regulatory statutes could not be more pronounced. With the Federal Trade Commission Act (1914), for example, Congress directed the FTC to address “unfair methods of competition.” Reflecting the Progressive faith in neutral expertise, it left it to the commission to determine precisely what fell into this rather nebulous category. In sharp contrast, the new environmental statutes established decision criteria, imposed compliance timetables backed with significant penalties, and mandated standards that were action- and technology-forcing. For example, the 1970 Clean Air Act

required that automobile manufacturers reduce tailpipe emissions by 90 percent for carbon monoxide and hydrocarbons by 1975, with comparable reductions in nitrogen oxides by 1976, knowing that such reductions were impossible under existing technologies.<sup>12</sup> Such goals could be effective, if backed with significant sanctions (in this case, a fine of \$10,000 per automobile that failed to meet the standards). The 1972 Clean Water Act established the most ambitious goals in regulatory history. All waters were to be “fishable and swimmable” by 1983, with zero discharges by 1985. Once again, the goals were technically unachievable at the time of passage. From the perspective of the early 1970s, however, cost and feasibility were irrelevant. As Senator Edmund Muskie (D-ME) proclaimed on the floor of the Senate, Congress’s duty was not “to be limited by what is or appears to be technologically or economically feasible.” Rather, it was “to establish what the public interest requires” even if it meant that “industries will be asked to do what seems to be impossible at the present time.”<sup>13</sup>

In addition to limiting the discretionary authority of regulators, institutions were designed to guarantee advocacy groups a greater role in overseeing and intervening in EPA actions. In 1975, Richard Stewart observed that there had been something of a reformation of administrative law. Increasingly, the courts were providing a “surrogate political process to ensure the fair representation of a wide range of affected interests.” In Stewart’s account, this shift was partially a response to the above-mentioned critiques of regulation and a “judicial reaction to the agencies’ perceived failure to represent such interests fairly.”<sup>14</sup> It would be incorrect, however, to assign responsibility for this reformation solely to the courts. In the case of environmental protection, Congress actively promoted an expansion of standing to grant advocacy groups preferential access

to the courts. The citizen suit provisions in the Clean Air Act Amendments (1970) allowed public interest litigants, absent agency action, to sue private polluters in federal court for violating the Act without having to show that they had been injured. This provision, it was hoped, would force the EPA to initiate its own enforcement proceedings. More importantly, it allowed them to sue the EPA for a failure to execute its non-discretionary duties and allowed the courts to award attorney fees, thereby partially subsidizing the costs borne by advocacy groups. Subsequent amendments (1977) also expanded the EPA's rulemaking process to provide greater opportunities for participation and allowing for the insertion of information into the rulemaking record that could be of use in subsequent litigation.<sup>15</sup>

These provisions gave rise to a very supportive relationship between environmental advocates, the EPA, and congressional committee staff. As the EPA's first administrator, William Ruckelshaus, recalled in his oral history: "we accepted much of the initial agenda of the environmental movement. In fact, the new agency worked with environmentalists, whose demands helped create the EPA in the first place. They were allies, at least in part." Deploying the language of capture, Ruckelshaus describes a "so-called 'iron triangle' relationship between the environmental movement, the EPA staff, and the Congressional committee staffs.... There has existed among them a symbiosis, in which the environmental movement used the agency as an antagonist to raise money and get more members; and the agency used the environmental group to sue for objectives they were trying to accomplish but could not otherwise gain. The same is true of the Congressional committees."<sup>16</sup> While one might argue that the regulatory design decisions were made to *prevent* capture, it might be more accurate to note that they *facilitated*



capture by interests that were aligned with the goals of environmental protection as a means of keeping the new agency on a path favored by Congress.

President Nixon, unwilling to let a potential presidential aspirant like Senator Muskie claim credit for environmental protection, embraced the issue. In his 1970 State of the Union Address, Nixon proclaimed that “restoring nature to its natural state is a cause beyond party and beyond factions...Clean air, clean water, open spaces—these should once again be the birthright of every American.”<sup>17</sup> By year’s end, the Nixon administration had created the Environmental Protection Agency via bureaucratic consolidation, based in part on the recommendations of the President's Advisory Council on Executive Organization (the Ash Council). The design of the EPA departed from prior practices. The EPA was not placed in an existing department, nor like myriad other agencies, was it created as an independent regulatory commission with a plural executive. Rather, the administration consolidated environmental responsibilities in an independent agency that could be subject to executive control through presidential appointment of a single administrator. The Ash Council explicitly rejected an organization that focused on medium (“This alternative fails to deal with the fact that forms of pollution tend to be interrelated and interchangeable”) and pollution sources (“This alternative produces extreme fragmentation and fails to come to grips with the environment as an entity.”) Instead, it called for a functional organization that could “recognize the interrelated nature of pollution problems” and “address the fact that pollutants cut across media lines.”<sup>18</sup>

Although the Ash Council’s recommendations made sense at the time—and even greater sense four decades later—EPA Administrator Ruckelshaus was forced to

manage significant bureaucratic and political impediments. The EPA was staffed with 5,743 bureaucrats drawn from “15 components stripped away from five departments and independent agencies,” including the Interior Department’s Federal Water Quality Administration, the Department of Health, Education and Welfare’s Bureau of Water Hygiene and National Air Pollution Control Administration, and pesticide offices from the USDA, the FDA, and the Interior Department.<sup>19</sup> As Alfred Marcus notes, Ruckelshaus hoped to “maintain the confidence of the inherited bureaucracy” by “avoid[ing] the disruption of its routines that would result from program integration.” Moreover, there was the political reality: “A disruption of standard operating procedures would have jeopardized EPA’s success in meeting its statutory responsibilities by the prescribed deadlines” and would have fueled bureaucratic dissention, both of which could stimulate a negative response from environmental advocates, Senator Muskie, and Congress.<sup>20</sup>

Ultimately, Ruckelshaus adopted a hybrid design that combined some functional elements and programmatic elements that addressed pollution on a medium-specific basis. By so doing, he avoided bureaucratic recalcitrance. Moreover, as the EPA hired new staff, it attracted a cadre of committed environmentalists who, in the words of one agency veteran, acted as “shock troops committed to stringent environmental regulation.”<sup>21</sup> Indeed, as an early evaluation of the agency observed, the EPA quickly developed “a refreshing élan rarely found in regulatory agencies” and a remarkable capacity to “strike a high profile in the enforcement of the pollution laws.” However, if the early decisions allowed for an agency that could “hit the road running,” it was nonetheless fraught with difficulties. In Ruckelshaus’ words, managing the new agency

was more “like trying to run a 100-yard dash while undergoing an appendectomy.”<sup>22</sup>

To create an agency that could rapidly implement the new policies also required that environmental duties be delegated to the states. Both the Clean Air Act Amendments and the Clean Water Act Amendments assigned significant duties to the states, many of which had not yet created regulatory agencies or administered existing policies through general public health agencies.<sup>23</sup> Once the EPA established National Ambient Air Quality Standards, for example, the states were required to develop state implementation plans detailing how they would achieve the goals of policy and submit them to the EPA for approval. Under the water pollution legislation, the states were responsible for assessing and monitoring water quality, permitting, and constructing sewage and water systems. Policymaking was largely centralized in the EPA. Ten regional offices—which would come to house some two-thirds of EPA personnel—were created to supervise state activities. Because of the decentralized implementation structure, the success of environmental policy would depend on the quality of state-level regulation, a point to be developed in greater detail below, and the supervision of the regional offices.

### **III. The Rise and Pause of Environmental Protection**

The key institutional design decisions were, in many ways, quite successful in bringing about rapid and sustained improvements in environmental quality. By most indicators, levels of pollution have been reduced significantly relative to what existed in 1970. Air pollution provides the best single example given the quality of the data. During the first 35 years, the aggregate emissions of the six criteria pollutants regulated under the

Clean Air Act fell by 54 percent, a remarkable statistic given that GDP grew by 187 percent and energy consumption by 47 percent).<sup>24</sup> In other areas, e.g., water pollution, similarly precise indicators of performance are frustrated by incomplete data.

Four decades after its creation, the EPA remains the largest social regulatory agency with an annual budget (\$10.3 billion, 2010), more than three times the combined budgets of the Securities and Exchange Commission, the National Highway Traffic Safety Administration, Occupational Safety and Health Administration, the Federal Trade Commission, the Commodity Futures Trading Commission, and the Consumer Product Safety Commission. This is not to claim that the EPA's budget is sufficient. While the budget seems immense, in inflation-adjusted dollars, the EPA's budget peaked in 1978 and is approximately what it was a decade after its creation.<sup>25</sup> At the same time, the EPA has assumed responsibility for a host of new responsibilities (e.g., toxic wastes, nonpoint sources of pollution) and is required to regulate environmental quality in a much larger economy.

To be certain, the EPA at times subjected to significant assaults, in particular, during the first term of the Reagan presidency when the agency lost one-third of its operating budget and one-fifth of its staff. But because the core environmental statutes limited both bureaucratic discretion and the influence of political appointees, and the agency could draw on the support of environmental advocates and Congress, the damage was temporary. Reagan's first EPA administrator, Anne Gorsuch Burford, upon refusing to provide enforcement documents to the House under claims of executive privilege, was found in contempt of Congress and resigned. Reagan responded to negative public opinion and congressional pressure by appointing William Ruckelshaus, the first EPA

administrator, to return the agency to a course more compatible with congressional wishes.<sup>26</sup> Since that episode, the EPA has survived and in many ways flourished. Nonetheless, the design decisions reviewed above had some important negative ramifications that shaped the evolution of environmental protection in the United States. Let us review the most important ramifications.

*1. Decisions to limit bureaucratic discretion have simultaneously limited the flexibility needed to pursue more innovative strategies in environmental protection.*

With the foundational environmental statutes, Congress assumed the central role in determining the key features of environmental protection regulation. As a result, the extension of regulatory authority became subject to the dynamics of congressional policymaking (and the growing ideological bifurcation between the two parties). As of this writing, it has been more than two decades since Congress passed a significant environmental statute (the Clean Air Act Amendments of 1990). Absent new statutory authority, the EPA's ability to engage new regulatory problems or adjust its regulatory strategy to take advantage of "new learning" in regulation has been dependent on the capacity of the EPA to extend its duties within the constraints imposed by its statutory mandates.<sup>27</sup> The problem should be evident: the same institutional design expedients that were adopted to prevent capture and bureaucratic drift simultaneously limit the flexibility to innovate.

Most certainly, this proposition was tested in the 1990s. As part of the Clinton administration's reinvention of government initiatives, the EPA initiated a number of innovative strategies, many of which depended on a growing network of public-private partnerships. In addition, the EPA introduced some novel efforts to go beyond the

constraints imposed by its statutory mandates. For example, Project XL (for eXcellence in Leadership) was introduced in 1995 to provide firms “flexibility to develop common sense, cost-effective strategies that will replace or modify specific regulatory requirements on the condition that they produce greater environmental benefits.”<sup>28</sup> Project XL generated some interesting proposals, some of which were quite innovative. But it was bedeviled by lengthy delays (depending on the year, approval could take up to 40 months) and high regulatory transaction costs (on average, \$350,000 for private facilities). Because the EPA demanded certainty that innovations would yield superior environmental performance—and companies bore the full risk if innovations failed—XL ultimately floundered.<sup>29</sup>

Outside of Project XL, the EPA has introduced myriad programs to stimulate collaboration and corporate voluntarism to address emerging regulatory problems and work outside of its existing statutory authority. It co-chaired the committee responsible for developing ISO 14001, the International Organization for Standardization’s environmental managements system (EMS) standard. It introduced various means of providing greater flexibility for high performing firms (for example, the National Environmental Performance Track was created in 2000 as a national green track for organizations with quality environmental management systems). But ultimately, these efforts have had a rather limited effect. Many of the voluntary efforts depended on self-reporting and thus lacked the transparency and accountability demanded by regulatory advocates. Certification of US firms under ISO 14001—which required third-party auditing—lagged behind expectations. Given the EPA’s rejection of audit immunity, many firms refused to face the potential regulatory liabilities that would accompany

information disclosure.<sup>30</sup> The Performance Track was never effectively integrated into the EPA and was recently suspended. As Daniel J. Fiorino has argued, there is a general consensus that “the statutory framework posed major and probably insurmountable barriers to systemic change. The irony of reinvention was that the very system of laws and rules that was seem to require change was in fact a principal impediment to change. Fragmentation by environmental medium, a technology-based focus, and the specificity of laws and regulations created an atmosphere that was unsuited to innovation.”<sup>31</sup>

*2. Congressional efforts to control the regulatory state stimulated a counter-movement by the executive.*

Regulatory design is often strongly influenced by inter-branch conflicts. The decision to pass exhaustive legislative mandates limiting bureaucratic discretion in the 1970s was simultaneously an effort on the part of Congress to exert control over the regulatory state, stripping managerial control from the President. As stagflation became the dominant problem of the 1970s and business mobilization in opposition to the new social regulation intensified,<sup>32</sup> successive administrations sought to impose various systems of regulatory oversight centralized in the executive branch, justifying the efforts on the theory that regulatory compliance costs contributed to inflation and created impediments to new investment. While the efforts of the Ford and Carter presidencies were relatively benign, in 1981, the Reagan administration brought about something of a sea change with executive order 12291. Under the new regulatory review process, agencies were required to submit cost-benefit analysis-based justifications to the Office of Management and Budget’s Office of Information and Regulatory Affairs for all significant new rules (i.e., rules with an economic effect of \$100 million or more). Agencies that failed to meet these requirements—or those that had their analyses rejected

by the OMB—were prohibited from publicizing rulemaking in the *Federal Register*, thereby stopping the regulatory process.<sup>33</sup> Given the timing of costs and benefits in environmental protection regulations (i.e., costs are front-loaded, whereas benefits often occur in the distant future and thus have limited impact when discounted to present value), difficulties of quantification and monetization, and the expenses of complying with the oversight procedures, these requirements had distinctly negative implications for the EPA and resulted in a significant reductions in levels of rulemaking.<sup>34</sup>

Environmental advocates looked forward to the end of the Reagan-Bush era, hoping that the onerous requirements of EO 12291 would be revoked. And indeed they were. But subsequent administrations imposed new systems of regulatory review that were, once again, centralized in the OMB and retained the use of cost-benefit analysis, albeit with somewhat greater flexibility (e.g., allowing greater latitude to consider cost-effectiveness and benefits that were difficult to monetize or quantify). Given the economic impact of significant regulations and legislation that limits the discretionary authority of the president, regulatory review retains its utility as a means of exerting executive control. Even if there is strong evidence that regulatory review has created pressure for cost-beneficial regulations,<sup>35</sup> it has increased the delays and the costs of issuing new regulations and may create perverse incentives for agencies to pursue regulatory actions that fall below the economic thresholds that define what constitute significant new regulations but, in aggregate, may still have significant effects.<sup>36</sup>



*3. Unrealistic goals backed by action-forcing and technology-forcing provisions often stressed agency capacity.*

Ambitious mandates that were action- and technology-forcing were intended to compel rapid implementation of the environmental laws. Arguably, this strategy was partially successful. In many cases, however, deadlines went unmet, forcing successive revisions of timetables. Even if the new environmental regulatory statutes were more detailed than past regulatory legislation, they rarely provided clear guidance as to the detailed substance of regulations. Congress imposed deadlines. EPA bureaucrats, in turn, were given the difficult task of determining precisely which technologies—assuming they existed—could be deployed to meet the statutory timetables. Often this task proved to be impossible given the resource and analytical constraints.<sup>37</sup>

Consider the case of the Clean Water Act of 1972. Under the provisions of the law, firms were required to install the best practicable control technology (BPT) by 1977 and the best available control technology economically achievable (BAT) by 1981. As Evan Rinquist explains: “The technology-based approach to permitting...produced a mind-boggling number of complex requirements for industrial and municipal dischargers.” Reflecting “the snail’s pace at which EPA...promulgated BAT regulations” and the fact that “nearly every standard proposed by the agency has been delayed in court by industry litigation”—the deadlines established by the Clean Water Act in 1972 proved unachievable.<sup>38</sup> Congress repeatedly extended the deadlines (1977, 1981, and 1987). “Fishable and swimmable waters” and “zero discharges” remain elusive goals four decades after they were first articulated by Congress.

One might argue that it is better to set ambitious goals and fail than to settle for mere incremental change. As the above quotes from Senator Muskie and President Nixon suggest, bold proclamations and disregard for questions of costs and feasibility were attractive given the high levels of interest mobilization. One might conclude, however, that the repeated failure to achieve goals undermines the credibility of the regulatory mandates and engenders cynicism on the part of advocates and regulated parties alike. One may note, moreover, that overly ambitious goals that discount feasibility may increase the incentives to litigate on the part of businesses who find the mandates unreasonable and environmental advocates who find the failure to achieve statutory deadlines an abrogation of agency responsibilities.

But there is a more profound problem. Many of the most ambitious goals (e.g., zero discharges into navigable waters) while politically appealing, were simply unattainable. Even if the EPA has had the largest budget of any regulatory agency, tradeoffs are unavoidable—a fact that is simply unacknowledged by the uncompromising nature of key statutes. As Gary C. Bryner explains: “Agencies find such goals impossible to achieve, since all risks cannot be eliminated and tradeoffs are inevitable, but statutes give little guidance about how these inevitable tradeoffs must be made. Statutes deny that such tradeoffs are necessary...they deny that the marginal benefits, as controls become increasingly strict, may be extremely small and may not justify the often exponential increase in costs.”<sup>39</sup> One of the unfortunate results is a wild variation in the marginal costs of lives saved or diseases averted under competing regulations, an incoherence that undoubtedly results in unnecessary deaths and illnesses by diverting resources from areas where gains can be achieved most cost effectively.<sup>40</sup>

#### 4. Decisions to invoke the courts created unanticipated consequences

From the Clean Air Act Amendments of 1970 forward, environmental regulatory statutes provided expanded access to the courts in the hope of creating institutional means of forcing agencies to execute their non-discretionary duties. Lawsuits provided a clear means of promoting stricter enforcement and legislative provisions were tailored to limit the probability that opponents could leverage the courts. As Joseph Smith notes: “By expanding the opportunity for suits seeking stricter enforcement, but not for suits seeking less enforcement, Congress increased the opportunities to move policy toward Congress’s preferences, but did not increase opportunities to move policy away from its wishes.”<sup>41</sup> While the benefits of these provisions were obvious, they also carried negative ramifications. First, and most obviously, litigation became a *de facto* stage in the policy process. As noted earlier, the courts were used not only by advocates, but to a lesser extent businesses hoping to force delays in the issuance of new standards.

Second, and more important, there are ongoing concerns that the statutes assigned to the courts a key role in making the very decisions about trade-offs that Congress astutely avoided. As Bryner explains: “statutory responsibilities dwarf the resources given, and give little guidance of how they should be allocated...if everything is a priority then nothing is, and directions are set by the vagaries of judicial review and the deadlines imposed by judges.”<sup>42</sup> R. Shep Melnick arrives at a sobering conclusion in his study *Regulation and the Courts*:

Taken as a whole, the consequences of court action under the Clean Air Act are neither random nor beneficial. The courts have pushed the EPA in two directions at once, extending the scope of its programs while diminishing its already inadequate resources for achieving publicly proclaimed objectives. Court action has encouraged legislators and administrators to establish goals without considering how they can be achieved, exacerbating the tendency of these

institutions to promise far more than they can deliver. The policymaking system of which the federal courts are now an integral part has produced serious inefficiency and inequities, has made rational debate and conscious political choice difficult, and has added to frustration and cynicism among participants of all stripes.<sup>43</sup>

Providing expanded access to the courts created a means of compelling the EPA to comply with statutes. But as Congress sought to increase its control over the bureaucracy, it simultaneously ceded control to the courts. One form of uncertainty was exchanged for another. In many ways, the courts have become the primary principal. As Rosemary O’Leary concludes from her study of over two thousand court decisions involving the EPA: “from an agency-wide perspective, compliance with court orders has become one of the EPA’s top priorities, at times overtaking congressional mandates.”<sup>44</sup>

*5. Decisions to delegate authority to the states rendered policy outcomes dependent on state action.*

The delegation of implementation responsibilities to the states in the 1970s was, in many ways, necessary given the limited administrative capacities and resources of the newly created EPA. The dependency on the states has only increased overtime. In 1994, for example, the EPA determined that states had assumed responsibility for some 40 percent of the programs that could be delegated to them. By 2007, the Environmental Council of the States found that this figure had increased to 96 percent. “In other words, nearly every state is now operating nearly every program on behalf of the federal government, and under its oversight.”<sup>45</sup> Indeed, the states have come to occupy such a central role that the states are responsible for collecting the vast majority of data used by EPA databanks and for a lion’s share of combined enforcement efforts.

Although the federal government assumes some 23 percent of the funding for state environmental regulation, this figure has been in decline overtime, forcing greater

fiscal strains on the states and imposing budgetary obligations that many states refuse to accept.<sup>46</sup> Performance in executing environmental regulatory responsibilities is uneven across states and regions, reflecting variations in budgetary resources, agency professionalization, and political cultures, and arguably strategic competition with neighboring states.<sup>47</sup> Some states lack the capacity, resources or political will to execute their duties. As Barry Rabe notes, summarizing a series of reports issued since the early 1990s: “in many states, major environmental violations of federal environmental laws often go unreported, permit deadlines are routinely ignored, and mandatory emissions tests frequently are not conducted.”<sup>48</sup> The practical implications can be significant, particularly in areas like water pollution policy that depend heavily on state efforts to assess water quality, permit, and conduct inspections. Estimates of surface-water quality remain, in the words of Walter Rosenbaum, “sophisticated guesswork” given that assessments cover about one-third of the water. The blame can be placed directly on “the states’ haphazard water-quality monitoring” that “creates massive information deficiencies that frustrate accurate national assessment.”<sup>49</sup>

Of course, the story of the states is not primarily negative. Many states exceed federal standards and there is evidence that they may be engaged in a regulatory “race-to-the-top.”<sup>50</sup> Many have engaged in a variety of interesting regulatory experiments that could contribute to gains in environmental quality. Some of this was actually promoted during the 1990s as part of the Clinton administration’s regulatory reinvention efforts mentioned earlier. In 1995, the EPA initiated its National Environmental Performance Partnership System (NEPPS) to provide states with greater flexibility in the implementation of federal programs if they could document improvements in

environmental quality, with the hope that the results could generate useful lessons for the EPA. However, because NEPPS was constrained by the demands of existing statutes, it largely floundered. As Rabe explains: “federal authorities at the EPA often resisted altering established practices and thereby did not demonstrate the creativity or flexibility anticipated by NEPPS proponents.”<sup>51</sup>

Earlier, mention was made of the National Environmental Performance Track (NEPT). It found its origins in state-level innovations in the 1990s. Many states began experimenting with regulatory green tracks, creating performance-based systems that granted greater flexibility to firms with high quality environmental management systems. Through the Multi-State Working Group on Environmental Management Systems, they developed a database on facility-level performance from ten (ultimately twenty-two) states. Much of this research found an expression in experiments in EPA’s Region 1 (Star Track) and ultimately in NEPT, initiated in 2000.<sup>52</sup> During its nine-year existence, the Performance Track always had something of a tenuous status at the EPA and was abruptly suspended by the Obama administration in 2009. It remains unclear whether the suspension was a product of genuine performance concerns, the close association of collaborative programs with the Bush administration, or the same features of institutional design that have created impediments to federal and state innovation in the past.

### **Conclusions**

In the early 1970s, the United States embarked on the boldest regulatory experiment in its history. The new environmental legislation imposed grand goals that worked at the frontier of regulatory sciences and imposed unprecedented costs on corporations. Given the tumultuous events of the next few decades (i.e., stagflation, the

growing concerns over US competitiveness, and the election of a two-term president committed to regulatory retrenchment), one might have predicted that this experiment would have been truncated. Yet, more than four decades after the creation of the Environmental Protection Agency and the passage of the Clean Air Act Amendments, the accomplishments remain impressive. Much of this is a product of original regulatory design decisions. Exhaustive regulatory statutes that granted bureaucrats limited discretionary authority, imposed ambitious implementation timetables and action- and technology-forcing provisions, and granted supportive interest groups with expanded access to the courts were effective in limiting the extent to which the EPA could depart from the path dictated by Congress.

At the same time, the efforts to control an uncertain future had distinctly negative ramifications. Efforts to limit the ability of bureaucrats to shirk their duties also constrained their capacity to innovate in ways that could extend regulatory authority in ways that are consistent with the intentions of Congress and take advantage of the new learning in regulation. Efforts to exert control over the regulatory state embroiled the EPA in inter-branch conflicts, adding new procedural impediments and costs. Decisions to leverage the courts can opened the door to greater incoherence and compromise political control. A reliance on the states as implementation agents made regulatory performance contingent on resources, professionalism, and commitment of state-level bureaucrats that operated beyond the reach of federal authorities. Given the overarching importance of federal regulations, it may also create impediments to innovation within the states.

Based on the case of environmental protection, the key challenge of regulatory design may involve discovering means of controlling for principal-agent problems without simultaneously unduly limiting the ability of regulators to respond to emerging regulatory problems in innovative ways. There is little to suggest that those responsible for original regulatory design decisions in environmental protection recognized or met this challenge. Indeed, there is much to suggest that they did not. The goal remains as elusive as it is important to those hoping to design new regulatory institutions.

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