

After Backyard Environmentalism

Toward a Performance-Based Regime of Environmental Regulation¹

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This article develops a model of environmental regulation that promises to be at once more flexible, democratic, and effective than the familiar methods of central command or market-based control. Local units—such as firms, factories, or regional ecosystem management authorities—enjoy the autonomy to determine their environmental protection goals and methods to reach them. In exchange for this latitude, they report their plans and progress to central authorities that monitor local planning efforts and pool the information generated by them to formulate minimum performance standards and identify effective practices. This arrangement produces contextually tailored regulation, rich information feedback, and continuous adjustment of ends and means in light of new learning. Elements of this model have been adopted in large-scale reforms in areas as diverse as toxics use reduction, endangered species protection, and ecosystem management. Writ large, this model entails a fundamental reorientation of government institutions that the authors call neo-Madisonian.

DEMOCRATIC EXPERIMENTALISM AND THE NEW PERFORMANCE-BASED ENVIRONMENTAL REGULATION

Environmental regulation in the United States is rapidly shifting toward a new architecture that promises to be at once more effective and flexible than current arrangements yet also more democratic. The emergent model, which we call *democratic experimentalism* (Dorf & Sabel, 1998), qqDJF7 combines the virtues of localism, decentralization, and direct citizen participation with the discipline of national coordination, transparency, and public accountability. Although embracing democratic values in novel, broadly collaborative forms, this new model challenges familiar Madisonian notions of federalism and separ-

ation of powers that divide public authority among coordinate branches and between rival state and central governments.

In contrast to conventional hierarchical regulation in which subordinate private actors answer to the authoritative command of a central regulator, the practical core of the new model is centrally monitored local experimentation. Local institutions—firms, local governments, local representatives of federal agencies, or collaborative ecosystem governance institutions—are granted discretion to set environmental performance targets within broad policy areas and to experiment with means to achieve them (John, 1994). These local institutions (we will call them *localities*) devise measures to monitor and assess their own performance and adjust their practice in light of actual performance. In return for this autonomy, they produce detailed reports on their plans, metrics, and performance. A central monitoring agency pools this information and makes it available to other localities and the public generally. In consultation with local actors, the central agency uses these data to periodically reformulate and progressively refine minimum performance standards, desirable targets, and preferred means to achieve them.

Interim standards, targets, and measures become benchmarks against which localities can reevaluate their own performance. Through comparative benchmarking and rigorous performance monitoring, localities are held accountable to each other, their own communities, and the nation as a whole, whereas the central agency is in turn disciplined by the informed scrutiny of localities and the public. The next round of experimentation is informed by this feedback and leads through further comparisons to revisions in standards, targets, measures, and so on. In this *rolling-rule* regime, information flows richly and continuously from localities to the center and back again, forcing continuous improvements in both regulatory standards and environmental performance and heightening the accountability of the actors to each other and to the larger public (Dorf & Sabel, 1998). Because the emphasis throughout is on measurement, evaluation, and improvement of performance, we call this new architecture *performance based*. Later, this article discusses exemplary programs that exhibit elements of this model in areas ranging from toxics reduction to habitat regulation.

This approach grows out of two decades of backyard environmentalism in which ordinary citizens organized to reclaim a measure of local control over their lived environment. In doing so, they often had to fight certified experts in corporations, government, and even big environmental organizations. Yet the new approach goes well beyond the pioneering generation of NIMBY (Not In My Backyard) activism whose primary goal was a reactive one, to keep harmful activity out of local communities (Boyte, 1980; Szasz, 1994). Citizen participants now face the daunting challenge of collaborating to collectively determine what kinds of activity are productive yet acceptably sustainable. To do so, they must remake the relationships between citizen and official into mutually respectful and symbiotic partnerships that fuse professional expertise to the contextual intelligence that only citizens possess.

This emergent model owes its success to a counterintuitive but durable form of practical deliberation between ordinarily antagonistic parties—community residents, environmentalists, developers, farmers, industrialists, and officials from distinct and sometimes competing divisions of government. As they jointly consider diverse alternatives, they discover unanticipated solutions provisionally acceptable to all. Further deliberation leads to successive redefinitions of self-interest that permit robust exploration, including revision of institutional boundaries, procedures, and even ideas of what is feasible. Avoiding the notorious inflexibility of centralized command rules and the problems of information that impede market-based reforms, democratic experimentalism can attain levels of cooperation and environmental performance beyond the reach of either.

The new regulatory model is not mere voluntarism; it does not abdicate public authority and responsibility to private actors. Whereas the new arrangements expand local autonomy and demand deep public participation, they also stipulate a compulsory discipline of accountability, and the regulatory center retains a vital role as coordinator, monitor, reflective guide, and whip hand ensuring that localities fulfill their commitments. Yet unlike conventional hierarchical regulation, the new architecture features a collaborative and mutual accountability of center to localities, localities to center and to each other, and all to the public generally. With regulator, regulated, and regulatory beneficiary now jointly responsible for authoring, implementing, enforcing, and continually revising performance standards, traditional distinctions between public and private spheres and among government's legislative, executive, and judicial functions begin to blur. The new institutions also challenge standard federalist arrangements that apportion public authority among distinct and rival state and federal governments. Characterized by a high degree of local initiative and autonomy, this new model is not a conventional assertion of federal regulatory authority. Yet, neither are states the principal locus or beneficiary of the devolution of power that does occur. We consider these themes and their implications later.

COMMAND, MARKET, INFORMATION, AND PARTICIPATION

Centralized command regulation characteristically claims a modest omniscience. Although regulators renounce the possibility of complete knowledge of a complex world, they nonetheless self-confidently presume to craft enduring solutions to well-specified problems through focused scientific inquiry and applied expertise. The result is regulation that piece by piece attempts both too little and too much and aggregates into a disjointed, incoherent whole.

There is too little regulation because rule makers must isolate discrete problems, creating sharp boundaries between what is regulated and what is not (otherwise, rule making would require full-scale omniscience). But problems just outside the regulated zone frequently turn out to be as significant as those within

it. Thus, the Endangered Species Act (ESA) applies only to species nearing extinction, ignoring those deemed merely in decline. The result is stringent and inflexible protection for a few isolated species in the end stages of extinction within a broader secular trend toward habitat degradation and biodiversity decline.

But where it does aim for definitive solutions, centralized regulation often regulates too much. The best currently available solution may have long-term, unintended consequences that outweigh early gains or hinder the search for even better possibilities. For example, rules prescribing specified “best” technologies to trap pollutants before they are released into air or water typically ignore local variations in costs and conditions and foreclose further technological gains or process innovations that might prevent pollution in the first place.

The 1980s brought new, market-inspired reform proposals that promised to cure these defects by leaving crucial choices to decentralized actors. The most familiar version is pollution permit trading (Hahn, 1989). A central regulator establishes an overall cap on emissions of a specified pollutant, assigns initial permit allotments to current polluters, creates trading rules and a compliance monitoring system, and lets the magic of the market do the rest. Armed with self-interest and local knowledge, polluters will cut emissions if their own abatement costs are low and sell the excess permits to those who find purchases cheaper than abatement. Pollution control costs quickly stabilize at a market price, and society painlessly achieves efficient allocation of the resources spent on pollution reduction—a goal beyond the dreams of the central command regulator.

Yet despite their professed epistemological modesty, permit-trading schemes share with other forms of central planning an unquenchable thirst for information. Markets are complex social institutions that ordinarily grow organically, accreting the actions of self-interested local actors, with no single agent possessing panoptic knowledge. But to create artificial markets by central command, the regulator must acquire (or specify) vast quantities of precise, detailed information. Before capping emissions and allocating permits, for example, a regulator must know aggregate and individual emission levels, how much harm results from various levels of emissions, and what reductions are feasible. More confounding still, the market’s demand for secure ownership rights limits post hoc program corrections and thus demands inhuman foresight from all-too-human regulators. Its theoretical elegance trumped by the constraints of information, market-simulating regulation remains a rarity in practice (Hahn, 1989; Tietenberg & Wheeler, 1998).

The new regulatory model discounts the possibility of central panoramic knowledge more steeply than either centralized command or market-simulating regulation. It establishes collaborative processes that allow central and local actors to learn from one another and from their experience, using these discoveries to revise the rules that frame collaboration, then seeking further experimental innovation under guidance of the more capable frame, and so on. Similar to American pragmatism more generally, this approach rejects the possibility of grounding itself on immutable principles, while nonetheless professing faith that we can always

institutionalize better ways of learning from the inevitable surprises that experience offers us.

Acknowledging the continuing importance of local knowledge, the new model also requires broader and deeper local participation than earlier regimes contemplated. Indeed, its predecessors fail in part because they ignore the knowledge diffused among the broader public. Its own success will depend on organizing participation that systematically taps this information even as it places additional demands and confers new powers on the citizen-participant. Already, work teams within firms are beginning to engage in pollution reduction efforts linked to the reorganization of production. Similarly, with growing attention to non-point-source pollution, small farms and households whose run-off influences local tributaries are being asked to engage in (and authorized to implement) the kind of self-assessment and pollution-reduction planning once presumed to be within the reach only of large firms (Toxics Use Reduction Institute [TURI], 1995).

In the new collaborative institutions, citizens are called on not merely to express opinions—through voting, letter writing, comment in public hearings, or participation in environmental organizations—but to help formulate goals and to devise and implement solutions. Their proposals will always be colored by deep convictions about the world that give rise to and are reflected in political views. Yet the testing of proposals in practice will often yield surprising results that nudge participants into unfamiliar zones in which conventional dispositions have little to say, offering expanded horizons for collaboration. In this process, the new institutions may transform the identities of the users themselves.

SOME ILLUSTRATIVE EXAMPLES

A diverse set of recent innovations in environmental regulation shows how crucial components of this new model are feasible and robust. At the same time, this ensemble of cases suggests the incompleteness of the reform project as much as its general feasibility. Each exhibits certain components of the overall architecture but also lacks others. None, despite its particular strengths, approximates the new model in its entirety. Vulnerability lies on one side in this incompleteness: Each of these programs must eventually address its unanswered questions. On the other side, however, the fact that these experiments have been able to substitute novel components for the traditional ones in piecemeal fashion displays the adaptability of the overall architecture. They illustrate how this new model can be built, by bits as exigencies demand, from many starting points. We group the cases by policy area: The Toxics Release Inventory (TRI), Massachusetts Toxics Use Reduction Act (TURA), and Responsible Care control industrial pollutants, and the Chesapeake Bay Program and Habitat Conservation Plans (HCPs) aim to regulate watersheds and other ecosystems.

THE TOXICS RELEASE INVENTORY AND TURA: INFORMATION MATTERS

The Toxics Release Inventory is a “right-to-know” measure that requires some 30,000 U.S. facilities to publicly report their releases of toxic chemicals. The law was the proximate response to a disastrous 1984 Union Carbide chemical plant explosion that killed thousands in Bhopal, India. Its deeper roots, however, lie in a broad domestic movement against environmental hazards that dates to the 1978 discovery at Love Canal that large amounts of toxic industrial chemicals had been buried where a local elementary school was later built. The resulting anger and activism connected the battle for information—what chemicals were present, in what quantities, and at what risk—to defense of home, family, and neighborhood. In a new style of local, lunch-pail environmentalism, hundreds of communities organized to demand clean-ups of toxic hazards and access to information under the banner of their right to know (Shabecoff, 1993). Together with workplace activists who had been seeking the right to know about job-related toxic exposures, these locally based movements won right-to-know laws in at least 30 states and 65 cities and counties by 1985 (Gottlieb, Smith, Roque, & Yates, 1995).

TRI requires facilities meeting statutory size requirements to report estimates of the amounts of some 650 chemicals transferred off-site or routinely or accidentally released. Since passage of the Pollution Prevention Act of 1990, facilities must also report transfers of listed chemicals within the plant and efforts at pollution reduction and recycling. The data are publicly available via print and Internet in both raw form and as tables comparing amounts released by substance, facility, industry, and location. Although failure to file a required report may result in penalties, reporting inaccuracies does not.

TRI is thus environmental regulation in the minimal sense of formally requiring disclosure of a body of comparative performance data from which environmental rules and standards, fixed or rolling, might eventually be fashioned or enforced. Its operation therefore constitutes a rough test of whether performance monitoring and benchmarking in general—and benchmarking of “alarming” information in particular—can play the central role that we have attributed to it in synchronizing performance-improving efforts.

The effects of TRI strongly suggest that it can. The collection and publication of TRI data immediately disciplines polluting private actors (Fung & O’Rourke, 2000). Public comparisons of polluters compiled by journalists or community activists from TRI data often lead to efforts at informal regulation by community groups that may employ a variety of disruptive and potentially costly pressure tactics aimed at securing commitments to improve pollution performance (Wheeler, 1997). Publication of adverse TRI data also leads to significant declines in the share value of publicly traded firms that show poorly (Hamilton, 1995). These reputational and financial market penalties give managers strong incentives to reduce their toxics emissions or shade their reporting estimates to appear cleaner

than they are. Overall, reported emissions and transfers of TRI pollutants have fallen by 43% in the first 10 years of reporting (Environmental Protection Agency [EPA], 1999). Although some of this improvement may be attributable to other regulatory requirements or “paper reductions” stemming from changes in estimation methods (Natan & Miller, 1998), most commentators agree that “public release of information about discharge of toxic chemicals has by itself spurred competition to reduce releases, quite independently of government regulation” (Pildes & Sunstein, 1995, p. 106).

States such as Massachusetts, Oregon, New Jersey, Washington, and Minnesota have moved beyond TRI to establish programs that pool information not just about emissions but about firm techniques to control and reduce toxics use. The most comprehensive and influential of these was created by the Massachusetts Toxics Use Reduction Act of 1989. TURA broadens TRI by requiring facilities to report not only toxic releases but also the use and generation of toxic substances in any stage of production. TURA (1989) further requires that facilities produce biannual Toxics Use Reduction Plans centered on “a comprehensive economic and technical evaluation of appropriate technologies, procedures and training programs for potentially achieving toxics use reduction for each covered toxic or hazardous substance.” On the basis of this benchmarking survey of possibilities, firms specify particular measures to be adopted, an implementation schedule, and 2- and 5-year reduction targets. Although TURA establishes the general goal of reducing toxics use in Massachusetts by 50% by 1997 and penalizes “willful” violations of the reporting and planning requirements, the act sets no more specific performance standards, and it does not penalize failure to act on reduction plans. Thus, rather than fix objectives and compel their attainment, TURA furthers the TRI strategy of using mandatory self-monitoring to induce firms and citizens to acquire information that reveals problems and possibilities for their solution.

At the same time, TURA extends and helps formalize industry efforts at improved environmental performance by creating a peer inspectorate to review the use reduction plans and by providing technical consulting services. The act has created a cadre of toxics use planners located at individual firms but connected to one another by establishing the Toxics Use Reduction Institute at the University of Massachusetts at Lowell. TURI develops planner certification courses, informs industry and the public of developments in this area, and conducts research necessary to these activities. The act also establishes an Office of Technical Assistance (OTA) to assist firms in meeting their TURA obligations and help coordinate public and private sector provision of relevant services. Taken together, plans, planners, TURI, and OTA create an inspection regime in which current conditions in individual firms or industrial segments can be compared with each other and with expert understanding of best practices, even as that understanding improves through exposure to innovative firms. Finally, applying the pragmatist principles of adjustment of means and ends to these novel institutions themselves, TURA provides a high-level governance structure that

periodically suggests modifications in services and reporting requirements in light of its evaluation of progress towards the act's overall reduction target.

Substantial evidence suggests that this apparatus works. Massachusetts has reduced TRI-measured toxic releases by more than 80%, well in excess of the national average (EPA, 1999). And from 1990 to 1995, the production-adjusted use of toxic chemicals fell by 20% in Massachusetts, and the generation of toxic byproducts fell by 30% (TURI, 1997). Furthermore, the toxics use planning requirement has enabled firms to discover significant net benefits of pollution prevention and increase their support for the public institutions that facilitate this process. Of all the services provided, firms were most enthusiastic about toxics use planner training, followed by site visits from the OTA. The vast majority of firms subject to TURA report that they would continue to plan even without legal requirements that they do so.

RESPONSIBLE CARE AND THE INSTITUTE OF NUCLEAR POWER OPERATIONS: THE NEED FOR A PUBLIC ROLE

Responsible Care is the Chemical Manufacturers' Association's (CMA) program to control and reduce pollution through disciplined error detection and elimination by its member firms. The program effectively accepts the key assumptions of what we have called rolling-rule regulatory architectures. Departing from the other examples, however, the CMA attempts to implement these mechanisms solely through private initiative, with no government coordination and no public access to data (Rees, 1998). This is a vast undertaking: The CMA's roughly 200 members account for about 95% of domestic production of basic chemicals, and the chemical sector as a whole accounts for half of the 6 billion pounds of toxics generated each year in the United States. The results of Responsible Care are so far inconclusive. But the new architecture we have outlined suggests that Responsible Care would benefit from public involvement. The experience of a strikingly similar attempt at private regulation in the nuclear power generating industry indicates that success indeed depends on the aegis of public institutions and authority.

Similar to Responsible Care, the Institute of Nuclear Power Operations (INPO) grew out of a public relations crisis; it was formed in 1979, 9 months after the Three Mile Island disaster (Rees, 1994). Similar to Responsible Care too, INPO began as a private effort financed by the utilities and beholden, at first, only to them. INPO's chief activities consisted of pooling the industry's operating experience, establishing benchmarks to distill the lessons there, and then evaluating individual power plants according to their ability to meet those benchmarks.

Data on operational anomalies are gathered initially through the Significant Event Evaluation-Information Network, or SEE-IN, "an industry-wide effort to systematically collect, analyze, and share the industry's experience with safety-related problems" (Rees, 1994, pp. 126-127). INPO officials then circulate analyses of the causes of dangerous disruptions and ways to prevent them in Signifi-

cant Operating Experience Reports, or SOERs. Industry Operating Experience Reviews are conducted periodically to assess the ability of particular plants to make effective use of the information provided by SOERs. This collection and dissemination of information to the immediate actors—the operating officers and their teams in generating plants—failed to discipline them and so did not produce large performance improvements. By the mid-1980s, it became clear that INPO's effectiveness would depend crucially on its ability to divulge what it learned about the industry and individual firms to broader circles of participants.

The broader diffusion began in late 1984 when INPO began ranking plants and making the results available to chief executive officers (CEOs) of nuclear utilities, their boards of directors, and ultimately state public service commissions and the Nuclear Regulatory Commission (NRC). The NRC, in effect, retains formal authority to promulgate regulations but in practice either adopts the INPO's standards in training, maintenance, and other matters or simply acknowledges best practices defined by the institute without further formalizing them. Beyond peer discipline and close NRC coordination, INPO can suspend uncooperative member utilities. INPO thus resolved the problems that now plague Responsible Care by making its operations more transparent and forging relationships with regulatory authorities.²

CHESAPEAKE BAY PROGRAM: DIFFUSE PROBLEMS

The Chesapeake Bay Program, broadly responsible for protecting and restoring the largest estuarine system in the United States, is at once the most extensive, mature, institutionally complex, and successful of the ecosystem governance arrangements emerging in the new regulatory framework. The program grew up alongside the nascent EPA: Although the Clean Water Act (CWA) regulated point-source polluters such as factories and power plants, it did not effectively regulate pollution from nonpoint sources such as farms, construction sites, lawns, landfills, septic tanks, and city streets. Addressing this diffuse problem amid radically changing understandings of the nature of the threat and appropriate ecological responses has been the program's exemplary accomplishment. Noticing this success, the EPA is currently modeling new programs on the Chesapeake's experience with the apparent intent of applying these lessons to reconfigure the CWA regime itself.³

Similar to the TRI, the Chesapeake Bay Program grew out of a broad citizen movement, concerned here with the degradation of a beautiful but fragile ecosystem that to this day evokes widespread pride and vigilance from residents, farmers, and businesspeople alike. In 1966—4 years before Earth Day and 6 years before the passage of the Clean Water Act—these citizens formed the Chesapeake Bay Foundation as an advocacy organization to “Save the Bay.” At the behest of this group among others, congressional leaders funded a major 6-year EPA study to determine the ecosystem's status and causes of its decline. The report revealed a complex web of interrelated causes and alarming symptoms—

such as declining fish and shellfish stocks—that spanned several states in the Bay region.

In response to this report and continuing investigations, the first multistate, interagency *Chesapeake Bay Agreement* was signed in 1983 “to improve and protect water quality and living resources of the Chesapeake Bay estuarine systems.” The agreement—whose signatories included the EPA; the governors of Maryland, Virginia, and Pennsylvania; and the mayor of the District of Columbia—established a durable core institutional framework: an Executive Council and an implementation committee that would develop ecosystem restoration plans in conjunction with state and federal environmental agencies.

A second *Chesapeake Bay Agreement*, signed in 1987, marked the next evolutionary phase of the program by establishing biological monitoring as the bedrock of future management efforts. It identified the “productivity, diversity, and abundance” of the Bay’s living resources as “the best ultimate measures of the Chesapeake Bay’s condition” and set ambitious performance targets, including reduction of nutrient loadings by 40% by the year 2000. When further studies revealed that loadings in various tributaries had differential impacts on water quality in the Bay, parties revised their systemwide goals and codified them in a 1992 commitment to develop tributary-specific nutrient reduction targets, strategies, and implementation tools. The 1992 amendments also established a specific, quantifiable biological monitoring regime, naming the prevalence of submerged aquatic vegetation (SAV) as “an initial measure of progress in the restoration of living resources and water quality” (*Chesapeake Bay Agreement Amendments*, 1992, p. 2). Executive Council directives have added progressively more detailed commitments in such areas as basinwide toxic reduction, habitat restoration, riparian forest buffers, wetlands protection, agricultural non-point-source reduction, and removal of stream blockages to improve fish passage.

All these arrangements and rearrangements are, however, the public face of deeper, less visible changes in protagonists’ understanding of environmental regulation and program strategies. First, they have come to see that the more they learn about the Bay’s ecology—and they have learned much—the more surprising new findings will be. Part of grasping the complex interconnection between the Bay as a whole and its pieces has been the realization that any single belief and the policies associated with it may be overturned by new contextual intelligence. The program has come to expect surprises and learned to grapple with the political and distributive fallout often entailed in unforeseen developments.

The second change concerns governance. The various agreements and the entities that they establish constitute an institutional chassis for forming and reforming governance mechanisms as changing conditions warrant. In practice, the Chesapeake Bay Program has employed a grab bag of regulatory techniques, legal instruments, and voluntary measures to build concerted policy packages from disparate measures in segregated arenas such as land use, air pollution, water pollution, public lands management, fisheries management, or wildlife conservation. Frequently, Chesapeake Executive Council advances such packets

through joint executive decrees called *Directives*. Although they have dubious legal pedigree and status, they are regarded, at minimum, as morally binding commitments on the part of each executive to use all available powers and authorities to carry out the stated aims. Although this ad hoc practice works well enough for adjustments within broadly agreed boundaries, more traditional forces come to the fore in larger redefinitions of purpose. In such moments, the very fluidity of the internal governance of the program becomes a liability as external interlocutors seek, in vain, to determine "the" authoritative voice of an institutional ensemble that adjusts precisely by not having one.

Finally, the understanding of citizen involvement has also evolved cumulatively. As program activity established the importance of contextual intelligence and with it the need for both local and central institutional experimentation, citizen participation naturally broadened and deepened. Through the 1960s and early 1970s, participation in the program meant conventional public education: the use of publications, public meetings, hearings, and mass media to increase public awareness of environmental problems, build support for clean-up and restoration efforts, and inspire voluntary efforts to curb destructive behaviors.

When it became clear in the 1980s that management of the Bay system would require levels of monitoring that exceeded the capacities of government alone, the program looked to citizens. Large numbers of volunteers were taught to mimic the scientific monitoring and reporting protocols and thus become quasi-experts who would produce a larger volume of reasonably reliable environmental data; participation was equated with the emulation of expert knowledge.

The recent emergence of a tributary strategy that emphasizes the need for stream-specific goals and measures marks the third reconceptualization of citizens' roles. The increasing intricacy of restoration measures has the program to devolve ecosystem management responsibilities to semiautonomous tributary teams composed of government officials, scientific experts, agricultural and industry representatives, and citizen volunteers that become experts on the problems and solutions to their own tributaries. Maryland's portion of the watershed is divided, for example, into 10 tributary basins, each employing its own mix of implementation measures to achieve tributary-specific performance targets. Because measures can be tailored to the local circumstances of each watershed part, the tributary teams are more effective and equitable than uniform statewide measures. In these changes can be discerned the beginnings of a TURA-style planning regime at the level of household and farm. Together, they lend plausibility to the idea of broad, continuing, and deeply informed citizen participation in environmental affairs that, unlike the first wave of backyard environmentalism, constructs as much as it obstructs.

HABITAT CONSERVATION PLANS

Among the most dynamic and supple prototypes of the new regulatory model is the Habitat Conservation Plan, which ironically emerged out of one of the

most rigid of all environmental laws: the Endangered Species Act. Section 9 of the ESA prohibits the “taking” of listed wildlife species. *Take* includes both direct injury and habitat modification that “kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding or sheltering.” In application, this becomes an inflexible prohibitory rule, potentially barring a broad range of development and resource extraction activities wherever endangered species have been identified. Not surprisingly, landowners, industries, and communities complain that they are unfairly singled out.

In 1982, Congress responded by authorizing the issuance of permits to take listed species when taking is “incidental to, and not the purpose of” an otherwise lawful activity. To secure a permit, the applicant must produce an HCP and demonstrate that the associated take will not appreciably reduce the likelihood of the species’ survival and recovery. By April 1999, 254 plans—regulating more than 11 million acres—had been approved, and 200 more were in various stages of development.

Bruce Babbitt, appointed Secretary of the Interior in 1993, and his staff favored the HCP process as an opportunity to bring landowners and environmentalists together to hammer out ambitious, landscape-scale, and multispecies conservation plans in which development and ecosystem protection could become complementary forces rather than rivals in zero-sum competition. Opportunities to demonstrate the workability of this approach arose first in Southern California where urban sprawl had reduced and fragmented the habitat of species such as the California gnatcatcher, a songbird native to the imperiled coastal sage scrub ecosystem. Yet when the gnatcatcher was proposed for listing under the ESA, Section 9’s prohibition against taking threatened to halt development in fast-growing San Diego and Orange counties. Almost any alternative to the ESA listing seemed reasonable to those interested in development. Under the auspices of the California Natural Communities Conservation Planning Act and federal HCP provisions, landowners, state and local officials, conservationists, and other parties negotiated the first of a new generation of participatory and performance-based integrated, multispecies, regional HCPs in San Diego, Orange, and Riverside counties (Thomas, 1997).

The plans obligate landowners to dedicate large blocs of land for exclusive use as habitat reserves for unlisted as well as listed species and restrict development in adjacent buffer zones. They also specify biological and environmental monitoring regimes, governance institutions, and funding mechanisms as well as a range of “adaptive management” measures that allow adjustments based on the results of biological monitoring, new scientific information, and changing conditions. In return, landowners receive permits to develop remaining lands in accordance with the overall plan. The agreements are controversial among environmentalists, some of whom prefer strict application of Section 9, and among landowners and developers, some of whom see the HCP process as legalized extortion. But other leading environmentalists, landowners, public officials, and scientists contend that properly executed, these agreements can produce better,

more sophisticated, and more proactive ecosystem management than would emerge from even the strictest application of Section 9 (Kostyack, 1997).

The Southern California HCPs illuminate the promise of the new regulatory model and offer a scalable example for the almost 500 plans that are in development or have already been approved. Whereas many of these are quite limited in scope, others are far more ambitious in their goals and measures and innovative in their internal architecture. Increasingly, HCPs are formulated collaboratively by diverse affected parties and move beyond basic land use planning techniques to embrace water quality and stream flow measures, habitat restoration projects, forestry and agricultural best management practices, and a variety of other implementation measures.⁴

But these Southern California successes have been slow to diffuse to all HCPs because the emergent nationwide HCP system has by and large failed to pool the information generated by local projects or to systematically learn from innovative developments, trends, successes, and errors. Such pooling as does occur is done mainly by the Fish and Wildlife Service (FWS),⁵ whose highly decentralized internal structure has so far proved better at dispersing authority to localities than at monitoring the ensuing decisions. The result is nearly unsupervised local autonomy with correspondingly wide variations in performance from one place to another. Local circumstance, seldom corrected by the discipline of comparative evaluation, determines whether an HCP monitors its own progress well or poorly (Kareiva et al., 1998) or whether its decision making is accessible not only to local dealmakers but also to independent scientists, conservationists, and generally informed citizens (Aengst et al., 1998). Often, HCPs amount to an agreement between a permit seeker and an FWS field agent. Where the Chesapeake Bay experience shows that transparency, open participation, and good science may be mutually reinforcing, this kind of involution can lead to self-deluding celebrations of agency expertise and so to underestimation of the political, scientific, and practical complexity of large-scale ecosystem management. At the worst, it can undermine the democratic legitimacy of HCPs by transforming them into unprincipled backroom deals between regulators and the regulated (Kostyack, 1997).

In response to such concerns, two measures—a new Fish and Wildlife Service guidance and the Endangered Species Recovery Act of 1999 (or the Miller Bill)—have been proposed to create a minimal informational infrastructure for the coordination of HCPs and thereby to improve performance with respect to monitoring and public participation. The FWS guidance directs the service to monitor HCPs by creating a database that tracks basic plan features such as permit duration, acreage covered, species and habitat details, authorized take, and permitted activity. It may also record individual plans' biological monitoring programs, actual take, operational adjustments, and field visit reports. Similarly, the Miller Bill directs bilateral monitoring of the implementation of HCPs and their biological outcomes. Permit holders would be required to report publicly on actions taken in accordance with the plan, the status of jeopardized species,

and progress toward objective, measurable biological goals, whereas the secretary would be required to report on the implementation and quantitative biological progress of each plan every 3 years.

As concerns participation, the FWS guidance responds tepidly by extending the Administrative Procedure Act's after-the-fact "notice and comment" period from 30 to 60 days and offering the only slightly more ambitious proposal to add advisory and informational committees in cases of large-scale HCPs. The Miller Bill goes further, instructing the department to take steps to ensure balanced public participation in the development of large-scale, multiple-landowner, and multispecies plans. Without better institutionalizing the distinctive contributions that the public can make to ecosystem governance—information, monitoring capacity, oversight, and democratic legitimacy—reformers risk losing elements critical to a successful process. On an optimistic reading, measures along these lines would lay the groundwork for a TRI-style information pooling system whose own initial shortcomings would be incrementally corrected even as the emergent infrastructure allowed individual locales to overcome the defects inherited from disjointed and decentralized ecosystem management.

THE CHALLENGE TO MADISONIAN ARRANGEMENTS

These concerns about the public accountability of HCPs shade into a broader concern about the legitimacy of problem solving by direct deliberation, an approach that stands in uneasy and ambiguous relation to the familiar institutions of Madisonian representative democracy. Put bluntly, these designs may foster parallel government that is in tension, if not outright conflict, with the established constitutional order. HCPs, the Chesapeake Bay Commission, and TURA may be sufficiently lodged inside current institutions to be protected, for the present, by the nimbus of their legitimacy. Yet because each is continuously reinterpreting ends in the light of new experience with means, and vice versa, they combine legislative, administrative, and judicial functions so as to soften those familiar rivalries between coordinate branches of government that, in our constitutional tradition, are thought to prevent abuses of public power. Neither are any of the experimentalist institutions—most of them growing out of pragmatic improvisation rather than explicit statutory authorization—currently subject to regular, sharply focused legislative review. Finally, because these institutions are suffused with deep public-private collaboration along the full spectrum of regulatory activity from definition of goals to selection of means and enforcement of standards, they tend to erode the familiar sharp lines that demarcate public authority from the sphere of private action. Regulation, rather than being unilaterally imposed on private actors by distinct administrative state, instead emerges from best practice and ongoing collaboration among regulator, regulated, and regulatory beneficiary. From this standpoint, the rapid diffusion of the new collaborative regulatory model under the mantle but at the expense of the

forms of environmental regulation integral to the traditional administrative state may appear to force a bitter choice between efficacy and democratic legitimacy. This concern is pressing, and it is finding an immediate and practical response. But it raises deep questions regarding democratic accountability.

Compounding this difficulty, the emerging pattern of nationally coordinated localism does not neatly coincide with the familiar design of federalism, apportioning public authority into distinct and rival federal and state spheres. Federal, state, and municipal agencies and officials are characteristically joint collaborators with a variety of private parties in the new regulatory institutions. Each brings to the table a unique kit of regulatory, financial, and intellectual resources derived from their familiar institutional roles. But as they collaborate jointly in the construction of novel and continuously evolving institutions that are neither precisely federal, nor state, nor local in character, their roles and identities may blend and fuse, and traditional lines of governmental authority become submerged under new postfederalist arrangements. Although state and local governments are often prominent participants in these new governance institutions, their claims to authority may be diluted and the customary prerogatives of sovereignty undermined.

Thus, for example, the Chesapeake Bay Program and the more complex of the Southern California HCPs weld together federal, state, and local governmental authorities with commitments by private (nongovernmental) actors to situate effective regulatory authority in wholly new institutions, partially derivative of but transcending the traditional governmental order. None of the governmental authorities acting independently could single-handedly achieve or impose the processes or outcomes reached through broad intergovernmental and public-private collaboration; neither, indeed, would their jurisdiction extend to the full geographic and conceptual boundaries of the problems the new institutions undertake to address. Yet each may find its autonomy constrained within the web of commitments entailed by the new hybrid institutions. From the perspective of those who would most jealously police the traditional lines of public authority, such arrangements may seem to pose a triple threat, deviating from familiar norms of federalism, separation of powers, and separation of the public sphere from the private.

The conflict between directly deliberative, problem-solving regimes and the institutions of pluralist democracy may be most visible from just outside the circle of immediate participants in experimentalist regulation. To a municipal or county official accustomed to a free hand in matters of zoning and land use planning, to the officer of a national environmental organization habituated to the idea that the best way to protect endangered species is from a seat at a hearing in the nation's capital, to a legislator with independent ideas of what counts as too much or too little regulation or too much or too little federal intrusion—to all of these, directly deliberative decision making may sooner or later seem a circumvention of rights and prerogatives owed them by the administrative state. From

their perspective, the advocates of these new arrangements will look suspiciously like a league of mutually protective colluders, willing to gloss over one another's overreaching on the charitable grounds that all experiments entail mistakes or out of the cynical expectation that in case of difficulties one hand will wash the other.

We have already encountered two innovations—one modest, the other potentially far reaching—that go part way toward establishing official accountability. The first is the assimilation of INPO to the NRC, by which the former becomes in some sense a regulatory instrument of and responsible to the latter. But this is, of course, a two-edged solution. On the one side, it gives the public and their representatives an address for complaints or fears about nuclear safety. But it leaves open the question of whether the resident watchdog, the NRC, is in fact capable of the vigilance required of it. The NRC came to depend on INPO for fine-grained performance information because the commission could not gather this information itself. Evaluating that information once it is provided plainly demands different capacities from providing it in the first place. But the requisite capabilities are not wholly distinct; and without much more knowledge of the facts than we have, we cannot know whether this arrangement stimulates INPO to reflect on its own routines by the same experimentalist principles that INPO uses to stimulate self-reflection among nuclear power generators or instead tends to dampen self-examination by effectively shielding the institute from public scrutiny behind the screen of its legitimacy.

The second, more radical solution faces this ambiguity squarely by making reform of administrative agencies on experimentalist lines one of the conditions for the legitimate decentralization of authority to local actors. The Miller Bill suggests the elegant simplicity with which this can be done. By requiring the Secretary of the Interior to report annually on the status of all HCPs, review each HCP triennially, and recommend such adjustments in the program as may be necessary, Congress can see how well the department is monitoring HCPs even as it observes how well HCPs are monitoring themselves and whether they are benefiting from adequate central coordination and supervision.

Notice that Congress, if it passed the Miller Bill, would subtly modify both its own legislative role and that of the administrative agency. Congress's role would shift from the familiar one of setting some relatively circumscribed public goal—protecting endangered species—and delegating responsibility for achieving it to a federal rule maker to the novel one of authorizing and conferring pluralist political legitimacy on the constitutive framework under which citizens in local settings can experimentally determine how to pursue a presumptively broad and changing project—protecting and restoring habitats. The role of the Department of the Interior would shift from relying on its own expertise and judgment to craft acceptable agreements to rigorously policing a framework within which a broad and open circle of participants, local and national, can determine for themselves whether particular HCPs and the institution taken whole are meeting

the goals they set for themselves. Familiar fights will of course continue, but the rules for adjudicating them will change. By way of conclusion, we argue that such changes generalize basic features of our frame of democratic government.

EXPERIMENTALISM AS NEO-MADISONIANISM

That frame of government is famously Madisonian. Power is carefully parceled among separate branches and rival levels of government. Deliberation—preference-changing reflection in the service of the public interest—is the province of a senatorial elite buffered from the immediacies of everyday concerns. Meanwhile, the interbranch and intergovernmental competition thus created safeguards liberty by providing checks and counterweights to the excessive ambitions of any portion of the governmental enterprise. By blurring the division of labor among the branches and levels of government and tying the ultimate resolution of large policy questions to daily collaborative problem solving, experimentalism seems to repudiate this Madisonian legacy, perhaps putting our liberties at risk.

And yet, the experimentalist accountability established by the broad grant of problem-solving authority to local entities within the coordinating frame of central monitoring could nonetheless be considered a *neo-Madisonian* generalization of the original design for three reasons. First, it too harnesses a form of competition among institutions to ensure that they all act in the public interest. Where the design of the 1787 Constitution relies on rivalries among specified branches and levels of government, the emerging “constitution” of experimentalist institutions such as HCPs combines the mechanisms of strict performance monitoring, comparative benchmarking, and the pooled experience of diverse, often rival jurisdictions into an engine of accountability that disciplines state action regardless of the precise subdivisions of government. Second, instead of seeing deliberation as possible only in the exceptionable circumstances of insulated chambers, neo-Madisonianism emphasizes the capacity of practical problem-solving activity to reveal new possibilities in everyday circumstances. It thus opens the way for solutions that are as different from the vector sum of current interests as those achieved by senatorial deliberation but sees these solutions as the result of the activity of the many, not the repose of the few. Finally, in an era in which states themselves have grown larger than was the nation at the founding, the emerging architecture of monitored local experimentation disassociates *central* and *local* from familiar jurisdictions of government and allows their meaning to vary as problem solving within the emergent design of coordination suggests. Similar to the older federalism, neo-Madisonianism lays the foundation for a resilient mutual accountability between center and locality, dispassionate expert and engaged citizen. But it makes the division of labor among

territorial units the provisional and corrigible result of the work they do, not the expression of historically entrenched responsibilities. Put another way, neo-Madisonianism simultaneously denaturalizes our frame of government—because the boundaries of mutually accountable, problem-solving units are no longer taken as given—while connecting it more directly to the surprising contingencies of citizens' lives because the problem-solving units themselves are shaped and reshaped by practical deliberation directed to uncovering and making sense of these surprises.

The great, quiet hope of this neo-Madisonian frame, nowhere realized but nearly palpable in the successes of the new backyard environmentalism, is that this largely unwitting, often unwilling extension of founding principles may yield a new form of participatory democracy, more effective and more authentically our own than the one we know.

NOTES

1. This article recasts and builds on ideas we presented in "Beyond Backyard Environmentalism: How Communities Are Quietly Refashioning Environmental Regulation," which appeared in the *Boston Review*, October/November 1999. This version incorporates our responses to a series of thoughtful commentaries that also appeared in that forum. Our work was crucially influenced by the writings of DeWitt John on civic environmentalism, Alfred Marcus on the XL Program, Joe Rees on Responsible Care, and Craig Thomas on the emergence of Habitat Conservation Planning (HCPs) in California. We would also like to thank several extraordinary practitioners whose views influenced our own: Brian Arroyo of the Fish and Wildlife Service, Gina McCarthy of the Massachusetts Toxics Use Reduction program, and Ann Swanson of the Chesapeake Bay Commission. True to its animating subject, this article draws freely and without attribution on the provisional results of closely related and continuing research projects, including Dorf and Sabel (1998), Fung (1999), Fung and O'Rourke (2000), and Karkkainen (in press).

2. As measured by two broad indicators, the Institute of Nuclear Power Operations (INPO) is an unqualified success. Between 1980 and 1990, the number of scrams, or rapid reactor shutdowns, per unit decreased by 80%. The number of safety system actuations fell by 60% between 1985 (the first year they were measured) and 1990. Both gauge the frequency of emergencies and are thus inversely correlated with reactor safety.

3. The Clinton Administration's Clean Water Action Plan includes initiatives to encourage Chesapeake Bay-style watershed management, as does a newly proposed Environmental Protection Agency rule reinterpreting the Clean Water Act requirement that states set total maximum daily loads of pollutants from both point and nonpoint sources in contaminated watersheds.

4. An effective system must be an adaptive one because even the best science gets better: "There is never enough information" to allow timeless determinations of fixed rules, and "no key ecosystem management decision ever gets made in a setting of adequate information" (Frampton, 1996, p. 44). Frampton, now chair of the Council on Environmental Quality, was a key figure in the Department of the Interior during the critical formative period of the current HCP program.

5. In interviewing Fish and Wildlife Service and Department of Interior officials in July 1998, the authors learned that no one in Washington had even collected the HCPs that had already been negotiated up until that point—much less read them or attempted to absorb any generally applicable lessons.

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