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The Regulation Dilemma: Cooperation and Conflict in Environmental Governance

Across the United States and around the world, businesses have joined voluntary governmental and nongovernmental environmental regulations. Such codes often require firms to establish internal environmental management systems to improve their environmental performance and regulatory compliance. Meanwhile, governments have been offering incentives to businesses that self-police their regulatory compliance and promptly report and correct violations. This article examines how governmental regulatory enforcement can influence firms' compliance with mandatory and voluntary regulations. Cooperative regulatory enforcement—in which firms self-police their environmental operations and governments provide regulatory relief for voluntarily disclosed violations—yields optimal win-win outcomes, but only when both sides cooperate. If firms are likely to evade compliance, governments are better off adopting a deterrence approach. If governments insist on rigidly interpreting and enforcing laws, firms may have incentives to evade regulations and not voluntary codes. Cooperation is possible through credible signals between firms and government.

Two major overlapping trends are changing the landscape of environmental policy in the United States and around the world. First, thousands of businesses have joined voluntary environmental programs sponsored by governments and nonstate actors (Gibson 1999; Haufler 2001).¹ The U.S. Environmental Protection Agency (EPA) has launched more than 40 voluntary programs, including the 33/50, Green Lights, and Energy Star programs (Mazurek 1998), installing them as a signature item in their reinventing government movement (Osborne and Gaebler 1992). Many states have followed suit with voluntary programs of their own (Crow 2000). Some of these programs require participating firms to establish environmental management systems (EMS) and to self-police their environmental performance (Coglianese and Nash 2001; NAPA 2001; Kettl 2002). Following the programs' guidelines brings firms into compliance with government regulations and often takes firms above and beyond what the law requires (popularly known as "beyond compliance"). One such EMS-based self-policing program is ISO 14001, which by 2000 had more than 1,200 member facilities in the United States alone (CEEM 2001).

The second trend is governments' experiments with regulatory relief programs (sometimes called compliance incentives). The rationale for these programs is intuitively appealing: Environmental protection agencies offer businesses incentives for complying with regulations, including greater flexibility in how they meet regulations, technical assistance, and sometimes even forgiving violations and eschewing punishments and sanctions. In return, businesses voluntarily work to achieve superior regulatory compliance. The EPA has recently expanded its portfolio of

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voluntary programs to include Star Track and the National Environment Performance Track, and many states have followed suit with their own regulatory relief programs (Crow 2000).² Along these lines, both the EPA and about 25 states provide firms immunity (civil and criminal) and relief for self-reported and promptly corrected violations uncovered through self-audits. Against the EPA's wishes, some states have gone even further to grant attorney-client privileges to information uncovered during self-audits, with the hope that such protections will strengthen firms' incentives to self-police (Potoski 2001).

Underlying these trends is a profound urge among firms and regulators to move from tight-fisted, deterrence-based regulatory approaches to a more flexible and voluntary approach in which firms self-police and adopt environmentally progressive policies. Yet, voluntary environmental codes are controversial, especially regulatory relief programs (Ayres and Braithwaite 1992). Many environmentalists charge that regulatory relief constitutes a license to pollute, and voluntary codes are mere "greenwashes" that hide firms' true pollution records. Because profit-seeking businesses look to skirt costly regulations, these groups argue, only command-and-control regulation with strict monitoring and enforcement can compel compliance (Steinzor 1998).

Voluntary and regulatory relief programs, if effective, promise superior regulatory outcomes through win-win cooperation between firms and businesses. But if they fail, regulatory enforcement will result in lose-lose conflicts that are all too common in environmental governance. We begin with a theoretical analysis of approaches that governments may use to enforce environmental regulations and how businesses can respond to them. Our analysis of what we call the "regulation dilemma" shows how governments and firms can avoid lose-lose conflict and instead achieve win-win cooperation. However, if firms are likely to evade compliance or cannot credibly signal their cooperative intent, governments are better off adopting an adversarial approach. If regulators insist on punishing every violation and strictly enforcing the law, firms have strong incentives to evade government regulations and voluntary codes. Voluntary programs and compliance incentives can overcome short-term incentives for lose-lose conflict between firms and regulators, but only if each side believes the other is cooperating. To begin addressing how these programs are working in practice, we present data and case studies on ISO 14001, a key voluntary program, and the EPA's Project XL. Our analysis shows that in the United States, firms are more likely to join ISO 14001 in states that provide incentive programs for doing so. Our case studies shed light on how cooperation can lead to win-win outcomes and how interest groups and other suspicious stakeholders can slow a promising voluntary program (in this case, the EPA's Project XL).

Our goal is not to provide definitive answers to whether compliance incentives and voluntary programs deliver on promised objectives. Rather, by casting firms' and regulators' decisions in the context of the regulation dilemma, we highlight major issues and promising analytical approaches to addressing these programs. Such inquiry will necessarily be complex, given the variability in voluntary programs, compliance incentives, and political contexts. In the analyses that follow, we hope to show that what is necessary is a better understanding of how specific compliance incentives—such as offering technical assistance, regulatory flexibility, or regulatory relief to firms—elicit different responses from firms, such as joining an EMS-based voluntary program.

This article builds on ideas developed by Fiorino (1999, 2001) regarding the need to foster social learning in the U.S. environmental governance system. He correctly points out that, although existing and future environmental challenges require regulatory institutions to adopt a social learning approach (flexible regulation being an important element), their policies and regulatory cultures remain rooted in technical learning (command-and-control regulation). Our conceptualization of the regulation dilemma captures this tension between what is desirable and what seems possible. We believe the regulation dilemma can be overcome, provided we carefully understand the incentives and perceptions of firms, regulators, and environmental groups in the status quo and how proposed institutional innovations could modify these incentives and perceptions.

In the next section, we present the regulation dilemma, highlighting why establishing a cooperative regulatory environment is challenging and how voluntary programs—a hallmark of the social learning approach—can improve firm-regulator interactions. Drawing on a simple prisoners' dilemma game to illustrate the regulation dilemma, we suggest how to transform a deterrence-based regulation into a cooperation-based one. In section three, we propose ways that firms and regulators can overcome the tragic logic of the regulation dilemma and produce win-win outcomes. In section four, we outline key questions that academics and practitioners must address to capture the benefits of these programs while avoiding their pitfalls. To illustrate the potential for such inquiry, we briefly examine how variations in regulatory approaches have affected firms' ISO 14001 decisions. In the final section, we present our conclusions and areas for further research.

The Regulation Dilemma: The Promises and Pitfalls of Cooperation and Deterrence

In the regulation dilemma, the nature of government-firm interactions, whether they are cooperative or conflict-

tual, depends on how governments enforce regulations and how firms respond to them (Scholz 1991). Although cooperative regulatory enforcement may be optimal for both sides, both firms and governments have powerful short-run incentives to choose conflict. While the distinction between deterrence and cooperation is not a strict dichotomy, from the government's perspective, the dilemma can be conceptualized as a choice between deterrence or a flexible approach to regulatory enforcement, whereas from firms' perspective, the dilemma centers on a choice between evasion and self-policing.

Governments adopting a deterrence enforcement style strive to inspect and audit every firm in order to discover and fully punish every violation, even minor ones. Historically, command-and-control regulation coupled with deterrence enforcement has been the dominant approach in U.S. environmental governance. In this approach, regulators specify pollution-control technologies (such as "best available technology" standards) and how much pollution firms may emit or discharge into the atmosphere. But even if governments pursue rigorous enforcement and impose severe penalties for all violations, deterrence enforcement may not deliver on its objectives. If regulations could be enforced at a low cost, policy objectives would perhaps be met. But enforcement costs are nontrivial, and declining agency budgets (especially in the United States) relative to regulatory mandates have undermined enforcement frequency and efficacy (GAO 1983). Because extant command-and-control laws are complex and there are thousands of regulated entities, regulators cannot monitor every action of every firm. To illustrate, between 1996 and 1998, of the 122,226 large regulated facilities nationwide (that is, those regulated under at least one of the major environmental statutes—Clean Air Act, Resource Conservation and Recovery Act, and Clean Water Act), less than 1 percent were inspected for all three media (Hale 1998). Moreover, rigid deterrence enforcement only feeds firms' complaints that high compliance costs hurt productivity and profits (Jaffe et al. 1995; Walley and Whitehead 1994), which in turn raise firms' incentives to evade regulations (Majumdar and Marcus 2001). Further, deterrence enforcement may contribute to the adversarial relationships among regulators, firms, and environmental groups, risking more lawsuits and larger societal costs (Reilly 1999; Vogel 1986; Kagan 1991; O'Leary 1993; for a critique, see Coglianese 1996).

The cooperative approach to regulatory enforcement seeks to address many of the deterrence-enforcement drawbacks by enlisting firms' cooperation in solving environmental problems based on a foundation of flexibility and mutual trust between firms and governments. In this approach, regulators neither rigidly interpret the law nor penalize firms for every violation. Instead, regulators forgo punishing self-disclosed violations, particularly minor ones,

reduce the level of sanctioning for severe violations, and provide positive incentives such as technical assistance to help firms achieve compliance (Scholz 1991).³

Just as regulators can choose a regulatory style between deterrence and cooperation, so too can firms choose their compliance style, that is how they will respond to government regulations. Although firms may adopt a mix of management strategies, firms can choose to respond to government regulations with either evasion or self-policing. In the evasion approach, firms look for opportunities to skirt environmental regulations to save on compliance costs, assuming competitive markets reward facilities that spend less on regulatory compliance. Of course, firms realize that if they are caught, they may be severely sanctioned. In the self-policing approach, firms monitor their environmental activities and report and promptly correct violations. They may hope that only severe violations will be fully sanctioned and that their prompt voluntary disclosures will encourage regulators to take a lenient view of minor ones.

A win-win interaction occurs if government regulators choose cooperative regulatory enforcement and firms choose the self-policing compliance strategy. Regulators win because self-policing lightens their enforcement burden while achieving superior environmental outcomes. Firms win because the regulatory incentives that governments provide under cooperation (forgiveness for minor violations, technical assistance, flexibility with meeting standards) makes compliance easier and improves bottom-line profits.

The dilemma is that, although this cooperation promises superior outcomes, both firms and governments have powerful incentives to behave opportunistically—that is, pursue their self-interest with guile (Williamson 1975)—thus creating lose-lose interactions. Firms can exploit governments' regulatory relief by evading environmental regulations even more effectively under more lax monitoring, while governments can exploit firms' self-policing by fully punishing regulatory violations that are voluntarily disclosed in good faith. Governments may fear that firms will interpret regulatory relief as permission to circumvent regulations and a license to pollute. Moreover, many environmental groups suspect that firms will inevitably abuse such incentives. From the environmental groups' perspective, regulatory relief may mean little or no regulation, and consequently they pressure regulators to adopt deterrence enforcement. Likewise, firms may fear that opportunistic regulators may interpret voluntarily disclosed violations as admissions of guilt that are worthy of substantial punishment, leaving those firms at a competitive disadvantage (through more expensive clean-production processes as well as assessed fines) relative to their more evasive competitors. Firms also realize that environmental groups may make it politically and legally problematic for regulators

to credibly commit to cooperation (Kollman and Prakash 2001, 2002). Consequently, mutual suspicion about the other's opportunism undermines cooperation.

To better illustrate these issues, we recast them into what we call the "regulation dilemma" (Scholz 1991), an extension of the prisoners' dilemma game (Luce and Raiffa 1957; Rapoport and Chammah 1965). Table 1 shows the payoff schedule for a hypothetical government and firm in the regulation dilemma. Given interdependence, the outcomes for each player depend on her own and the other's choice (cooperation versus evasion or deterrence). The key point is that no matter which approach the government chooses, firms are better off evading ($b > f$, $d > h$), and no matter which approach the firm chooses, the government is better off choosing deterrence ($a > c$, $e > g$). This creates a vicious cycle of opportunism and a series of lose-lose outcomes. Unfortunately, this behavioral equilibrium (Nash equilibrium) is pareto suboptimal: Each side is better off if governments chose flexible enforcement and firms chose to self-police (cooperation: g , h).

Government	Firm evasion	Self-policing
	<i>Conflictual context</i>	
Deterrence	2, 2 (a, b)	5, 1 (e, f)
		<i>Cooperative context</i>
Flexible enforcement	1, 5 (c, d)	4, 4 (g, h)

Thus, both firms and regulators prefer cooperation (through self-policing and flexible enforcement, respectively) to conflict (through evasion and deterrence, respectively), but only if they are confident the other side will cooperate. If each fears the other will exploit cooperation, firms will attempt to evade regulations and governments will choose deterrence. In fact, both regulators and firms know the other has good reason, at least in the short run, to promise cooperation but deliver deterrence or evasion. Thus, as in the prisoners' dilemma game, both sides end up willingly choosing conflict over cooperation (that is, defection is the dominant strategy), even though both would prefer cooperation to deterrence.

In sum, even in command-and-control policies, the societal benefits from the regulatory enforcement reflect the choices of both governments (deterrence versus flexible enforcement) and firms (evasion versus self-policing). This interdependence holds for firms' adoption of voluntary initiatives, as well as governments' provision of regulatory relief in that final outcomes depends on how one actor anticipates the response of the other. For cooperation to succeed, both actors need to credibly assure the other they will not behave opportunistically.

Getting to Win-Win: Strategies for Solving the Regulation Dilemma

To achieve win-win cooperation, both firms and regulators must find ways to credibly signal to the other that their cooperative intentions are genuine. Simultaneous signaling may not always be practical; one side may need to signal its future cooperative intentions first to induce the other to move.⁴ Two generic solutions prescribe how actors in the prisoner's dilemma game can turn defection into cooperation. Fortunately, both of these solutions—building a reputation for cooperation and adopting binding institutional commitments—have real-world counterparts that are available to firms and regulators.

Incentives to cooperate increase when players engage in long-term, face-to-face, repeated interactions that become informally institutionalized in players' reputations (Axelrod 1984; Hardin 1982). Thus, regulators can build a cooperative reputation by forgiving minor offenses. Firms can build a reputation for quickly disclosing and correcting their own violations. Because reputation building takes time and is expensive, the desire to benefit from an existing trustworthy reputation may create incentives to shun opportunism. Yet on the positive side, as trust begets more trust over time and good reputations become solidified, a virtuous circle of cooperation may evolve in place of the vicious circle of opportunism predicted in the simple prisoner's dilemma.

Unfortunately, good reputations alone may not build sufficient trust to induce cooperation. A second cooperative strategy—and perhaps a more durable and effective one—is to have each side commit to cooperation *in advance*, before the game has begun. Because both actors may still have strong reasons to suspect the other will behave opportunistically, advance commitments can be made more credible by raising the cost of defection—for example, by joining formal or informal institutions that impose nontrivial costs on opportunistic behavior (Milgrom, North, and Weingast 1990; Ostrom 1990).

Governments can credibly commit to cooperation in advance by establishing regulatory relief programs and environmental audit policies that grant significant immunity to firms' violations discovered through self-audits and voluntarily disclosed to regulators. Among U.S. state governments, regulators have created a wide range of environmental leadership programs that offer participating firms benefits for superior environmental performance. There are many types of voluntary programs in environmental policy today, and in different ways they may signal regulators' commitment to regulatory flexibility or relief. Another way that regulators can commit to more cooperation is through policies and laws that offer privilege or immunity protections for firms' environmental self-audits. The EPA (1986,

1995a, 1995b, 1997) and about 25 states provide regulatory relief to firms that promptly disclose and correct violations uncovered through audits (details in table 2). Of course, these policies vary across states (Morandi 1998): Some have passed legislation while others have merely formulated nonbinding, agency-level policies. Also, some states grant both audit privilege (information gathered in audits is not disclosed to regulatory agencies or to the public) and immunity (from fines and penalties) to self-disclosed information, while others grant only immunity.

For their part, firms can establish credible commitments to cooperation by subscribing to a voluntary code that requires self-policing and being audited by third or fourth parties (as opposed to no audits, internal first-party audits, or second-party audits) (Gereffi, Johnson, and Sasser 2001; NAPA 2001). Many voluntary codes, including ISO 14001, do not impose rigid operational constraints on firms, but rather encourage them to adopt environmentally progressive policies that are not required by law. Such policies include having an environmental management system with procedures for regular self-policing and monitoring environmental policies and performance, disclosing violations, and promptly correcting them. Firms can also signal their cooperative intentions by establishing internal organizational structures, such as having a senior manager with the rank of vice president head their environment department to implement EMS-based programs. Such institutional and structural commitments signal a firm's long-term intentions to internally prepare the organization to meet its self-policing commitments. In fact, many voluntary codes such as ISO 14001, the European Union's Eco-Management and Audit Scheme, and the American Chemistry Council's Responsible Care program specifically require firms to establish internal governance systems to ensure they meet regulatory commitments, both voluntary and mandatory.

Making Cooperative Enforcement Work: Issues and Analysis

So far, our analysis supports both the critics and the proponents of voluntary codes and regulatory relief programs. For proponents, these programs are a win-win for firms and governments, especially given the enforcement shortcomings of command-and-control policies. But proponents are right only when both firms and regulators cooperate. For critics, especially environmental groups, these programs are worse than deterrence-based policies because firms are unlikely to zealously self-police. The extent to which either is correct depends on whether a significant proportion of firms adopt these programs and, if so, whether these programs improve firms' environmental performance. Voluntary programs and compliance incentive programs are still relatively new and have not yet received the scru-

tiny befitting their importance. Drawing on the previous analysis of the regulation dilemma, we identify three crucial questions that must be addressed before either side can claim victory. First, can governments offer compliance incentives that induce firms to join voluntary programs? Second, does joining a voluntary program provide credible assurance to regulators that firms will credibly self-police themselves, and therefore are worthy of trust? In other words, do voluntary programs and compliance really improve firms' environmental performance? Third, how does the presence of environmental groups that oppose voluntary programs influence firm-regulator dynamics of voluntary programs? We discuss these questions and present a case that highlights key issues in fostering a cooperative environment. Our objective is to point out the relevant questions that scholars and practitioners must confront given the variability in voluntary programs, compliance incentives, and political contexts.

Issue 1: Can Governments Induce Firms to Join Voluntary Programs?

Despite the promise of voluntary programs, their participation rates have fallen short of expectations, particularly in the United States, leading some critiques to doubt their efficacy. In some cases, businesses may have good, bottom-line reasons to join these regulations, even without government incentives. First, pollution reduction may uncover waste and reduce costs (Hart 1995). Second, suppliers (such as banks and insurance companies) may reward firms that join such programs (Schmidheny and Zoraquinn 1996). Third, consumers may reward firms that subscribe to such policies (Charter and Polonsky 1999). Fourth, from a strategic perspective, firms may seek to preempt more stringent standards and influence future rulemaking to their advantage (Salop and Scheffman 1983), thereby reaping first-mover advantages (Nehrt 1998). Fifth, voluntary regulations may help industry win legitimacy and trust from various stakeholders (Hoffman 1997). But these benefits may not be enough to induce all firms to join voluntary codes.

This is where governments may be able promote win-win cooperation by offering firms valuable compliance incentives to join voluntary programs. To illustrate, ISO 14001 requires firms to establish environmental management systems and have them audited by external auditors, an expensive investment with no quantifiable short-run benefits (Kolk 2000). Because audits may uncover self-incriminating evidence of regulatory violations, firms may want governments to promise significant regulatory relief for voluntarily disclosed violations (Kollman and Prakash 2001, 2002). The reason is that such audits may create self-incriminatory evidence that opportunistic regulators and environmental groups may employ against them. Our pre-

vious empirical research on ISO 14001 indicates that firms are deeply concerned that third-party audits (Prakash 2000b; Kollman and Prakash 2001), a requirement for ISO 14001 certification, are not protected by attorney–client privileges in most states. Is this concern valid and, if so, has it influenced firms’ response rates to ISO 14001? If governments assure firms that information uncovered during third-party audits will not be used against them, will firms be more likely to join voluntary programs?

Table 2 and figure 1 bring data to bear on these questions by identifying states that have launched compliance incentive programs, firms’ ISO adoption rates in each state (table 2), and how institutional innovations foster trust and ISO adoption (figure 1). Table 2 reports states that have adopted at least one such institutional initiative (columns 5, 6, and 7). Of these, 27 states have environmental audit policies with privilege or immunity protection (columns 6 and 7), 23 states have environmental leadership-track programs (column 5), and 11 states have both audit policies and leadership programs. Using facilities regulated under the Toxics Release Inventory as a proxy for the total number of facilities that would seriously consider joining ISO 14001, table 2 reports the ISO 14001 adoption rates across states (columns 2–4). Figure 1 summarizes table 3; the ratio of ISO 14001 certified to total facilities is significantly higher ($p < 0.05$) in states with one or more compliance incentive programs than in states with no programs.

One policy implication emerges from these results, particularly figure 1: Firms are more likely to self-police and join voluntary programs in jurisdictions that provide institutional mechanisms for regulatory flexibility or provide regulatory relief for voluntarily disclosed violations. In other words, by undertaking appropriate institutional innovations, regulators can foster a social learning approach to environmental governance.

Issue 2: Do Voluntary Codes and Compliance Incentives Improve Firms’ Environmental Performance?

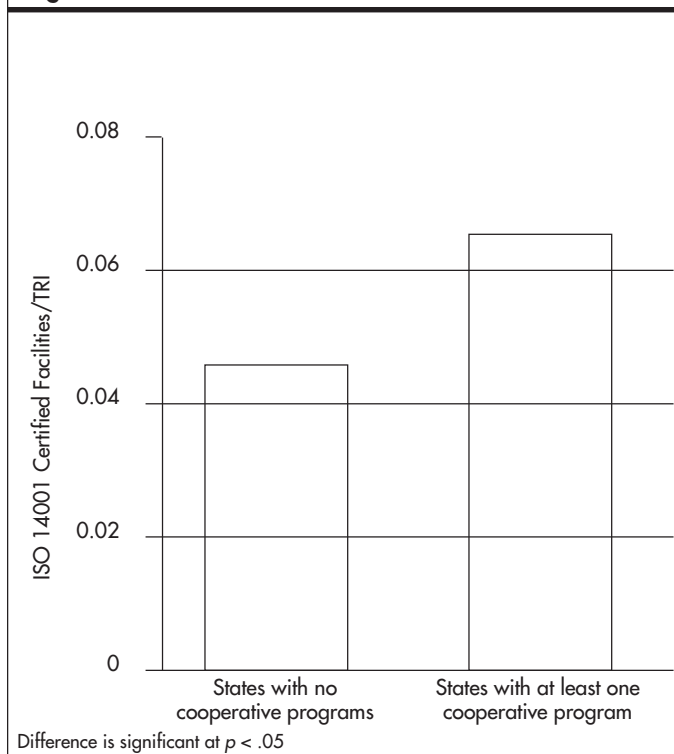
Proponents of voluntary programs assume that participating firms self-police their environmental performance, even in the face of short-run incentives to hide regulatory violations. The first question, then, is whether firms that join ISO 14001 (for instance) actually self-police and disclose pollution regulations to regulators. Environmental groups remain suspicious, and without persuasive evidence confirming that firms become environmentally progressive after joining such programs, they may have good reason.

Table 2 State-Level Adoption of ISO 14001

State	Firms Joining Voluntary Programs			State Compliance Incentives		
	Number of ISO 14001 certified facilities	Number of TRI facilities	ISO 14001/TRI facilities	Environmental leadership programs	Laws and policies on audit immunity	Laws and policies on audit privilege
AK	4	16	.250	no	yes	yes
AL	24	539	.045	yes	no	no
AR	10	403	.025	no	no	yes
AZ	13	237	.055	yes	yes	yes
CA	109	1,406	.078	yes	no	no
CO	17	195	.087	yes	yes	yes
CT	18	319	.056	yes	no	no
DE	2	72	.028	no	no	no
FL	27	611	.044	yes	no	no
GA	38	746	.051	yes	no	no
HI	0	28	.00	no	no	no
IA	11	416	.026	no	yes	yes
ID	2	72	.028	no	yes	yes
IL	57	1,321	.043	yes	no	yes
IN	89	1,041	.085	yes	no	yes
KS	3	271	.011	no	yes	yes
KY	33	456	.072	no	yes	yes
LA	15	343	.044	no	no	no
MA	29	472	.061	yes	no	no
MD	9	195	.046	no	no	no
ME	10	82	.122	yes	no	no
MI	129	919	.140	yes	yes	yes
MN	15	467	.032	yes	yes	yes
MO	21	583	.036	no	no	no
MS	9	325	.028	no	no	yes
MT	0	42	.000	no	yes	yes
NC	49	833	.059	yes	no	no
ND	1	44	.023	no	no	no
NE	10	174	.057	no	yes	yes
NH	15	109	.138	no	yes	yes
NJ	42	569	.074	yes	no	no
NM	5	60	.083	no	no	no
NV	2	88	.023	no	yes	yes
NY	53	700	.076	no	no	no
OH	93	1,642	.057	no	yes	yes
OK	10	297	.034	no	no	no
OR	19	258	.074	yes	no	yes
PA	64	1,334	.048	yes	no	no
RI	10	133	.075	no	yes	no
SC	35	500	.070	yes	yes	yes
SD	2	75	.027	no	yes	yes
TN	40	666	.060	no	no	no
TX	73	1,369	.053	yes	yes	yes
UT	9	37	.243	no	yes	yes
VA	12	464	.026	yes	yes	yes
VT	2	37	.054	no	no	no
WA	20	293	.068	yes	no	no
WI	24	865	.028	yes	no	no
WV	4	174	.023	no	no	no
WY	1	39	.026	no	yes	yes
Total	1,289	22,309	.061	23	22	26

Sources: ISO facilities: CEEM (2001); TRI facilities: EPA (1999b); Environmental Leadership programs: Crow (2000); Audit privilege and Laws: Housman (2001).

Figure 1 Compliance Initiatives and Firms ISO 14001 Registration



They also know that voluntary programs are expensive—ISO 14001 certification can cost upwards of \$25,000–\$100,000 per facility. Environmental managers often find it difficult to justify their firms’ adoption of voluntary programs on a strict cost–benefit analysis framework (Prakash 2000b). As a result, top-management support for such programs is critical. Regulators may realize the obstacles facing pro-ISO 14001 managers, and therefore they may require additional credible evidence to trust firms’ intentions, such as organizational structures that institutionalize top-management support for environmental programs. For example, including a vice president for environmental affairs in corporate governance can signal a firms’ commitment to environmental protection; politically powerful environmental managers can persuade firms to adopt progressive environmental policies, including self-policing.

However, if firms do not demonstrate improvement in their environmental performance, changes in organizational structures would become yet another example of “green-wash,” inviting more skepticism from environmental groups about firms’ true intentions. One policy implication then is that, in the long run, if joining voluntary programs does not sufficiently demonstrate firms’ commitment to complying with environmental regulations, other policy and institutional options at the firm level may help to close the credibility gap.

The ultimate test of any voluntary code or compliance incentive is whether it produces a cleaner environment by

improving facilities’ environmental performance. Improved environmental performance means any combination of improved compliance with mandatory regulations, reduced emissions, and fewer pollution accidents. Such questions span two levels: First, have a sufficient number of firms joined the programs so that participating firms self-police, and second, has the program improved firms’ environmental performance? We have already tentatively demonstrated that a large number of facilities (more than 1,200) have joined ISO 14001, with higher rates in jurisdictions that provide regulatory relief. The latter question needs further examination, particularly whether voluntary codes improve firms’ performance only when accompanied by credible compliance incentives. For cooperation to work, firms need to credibly signal they will cooperate, and therefore are good candidates for regulatory relief; meanwhile, governments need to make self-policing worthwhile by ensuring firms that their compliance incentive programs are genuine.

Consider the case of the ISO 14001 requirement that firms conduct an external, third-party audit of their environmental systems. An important payoff of any audit (financial, quality control, or environmental) is that trained auditors can identify problems in management and opportunities for improving performance. Often, audits conclude with concrete suggestions for how problems can be resolved and how opportunities for improvement can be exploited. However, environmental audits may also uncover regulatory violations, creating incriminatory evidence against the firm. This fear may force firms either to eschew ISO 14001 or to become wary of sharing information with auditors. The latter will clearly limit the contributions that auditors can make in helping the firm improve its performance. It follows, then, that firms are more likely to improve their environmental performance through voluntary programs when regulators establish policies on audit immunity, or at least provide credible institutional signals (such as establishing an environmental leadership program) that they are serious about fostering a trust-based regulatory environment.⁵

Proponents of voluntary programs and compliance incentives can point to some emerging examples of firms and regulators successfully using credible institutional commitments to achieve win–win cooperation. For example, although Project XL has achieved mixed results, it still has had some success. In the Weyerhaeuser Flint River Agreement, signed in 1997, the EPA and the state of Georgia agreed, inter alia, to issue a facilitywide permit for Weyerhaeuser rather than individual permits for air emissions, effluent discharge, and solid waste. In return, Weyerhaeuser agreed, inter alia, to adopt ISO 14001 to adopt more stringent effluent limits on biological oxygen demand, total suspended solids, and adsorbable organic halides than the law requires, and to improve forest management prac-

tice in its forest timberland. In another Project XL agreement with Salem, New Hampshire-based HADCO, the EPA and the states of New York and New Hampshire agreed to regulatory flexibility in solid waste disposal (in terms of testing sludge for solid waste variance, which affects HADCO's disposal cost). In exchange, HADCO agreed to reduce its mobile-source air pollution associated with copper recycling by 75 percent and to install expensive pollution prevention (sludge dryer) equipment that would reduce the quantity of sludge transported 40 percent.

Issue 3: Do Environmental Groups Play the Role of Spoilers?

Because they are suspicious that environmental regulators have been captured by business interests, many environmental groups oppose compliance incentives and regulatory relief programs, favoring the continuation of adversarial command-and-control policies. Business-government regulatory interaction is embedded within broader state-societal relations. In the public policy literature, pluralists (Dahl 1961) and elitists (Lindblom 1977) have debated whether businesses have a privileged position in the U.S. system in relation to other interest groups. In the U.S. environmental policy arena, the pluralist perspective seems more plausible considering the relatively adversarial system of environmental governance, especially in relation to other developed countries (Vogel 1986; Kagan 1991; Kollman and Prakash 2001, 2002). A key reason for this adversarialism is that U.S. environmental groups can significantly influence the media and public opinion and have ample access to policy institutions and processes (Rosenbaum 1998). While environmental groups may prevent regulators from becoming too soft on rogue polluting firms, they may also prevent regulators from cooperating with well-intentioned, self-policing firms.

In jurisdictions with active environmental movements or environmentally sensitive public opinion, an important question is whether regulators are less likely to offer regulatory relief to firms joining voluntary codes. Even when regulators do offer such relief, firms may be unlikely to find them credible. Importantly, firms often view governments' promises of regulatory relief through the lens of their experiences with regulators enforcing command-and-control policies. Given that many environmental groups strongly oppose granting regulatory relief—even to firms that have adopted voluntary programs—firms often want credible assurances that regulators' current promises will endure once pollution violations have been voluntarily disclosed. In such a conflictual climate, stakeholder participation in implementing such programs is a double-edged sword: While participation can enhance program credibility, it can also provide an easy venue for hostile interests to derail (or at least substantially delay) programs they

oppose. An implication for policy, then, is that, in addition to convincing firms to join voluntary programs and regulators to reward firms for joining them, voluntary program advocates should also persuade environmental groups about the programs' efficacy. Cooperative regulatory enforcement is beneficial only if both firms and regulators cooperate—if one does not, then the cooperating side stands to lose. It follows, then, that if environmental groups can hinder regulators' efforts to experiment with new policy approaches, firms may be less willing to self-police.

To illustrate how political pressures and environmental groups' skepticism can limit regulators' ability to provide compliance incentives to induce superior environmental and regulatory performance, consider the case of Project XL. This is a voluntary pilot program launched in 1995 by the EPA and its state partners as a part of its Reinventing Environmental Regulation program. In trying to preempt criticism that regulatory flexibility is a giveaway to polluters, the EPA limited participation in Project XL to facilities with good compliance histories. Unfortunately, such requirements exclude high-polluting firms, whose participation could produce the greatest environmental gains. Moreover, to further mollify environmental groups and to ensure transparency, the EPA required Project XL applicants to consult with local and national stakeholders during the project-negotiation phase, and further promised that it would continue to consider stakeholder input seriously.

Many environmental groups have strongly opposed Project XL (High Tech Production 2001). Some have questioned whether the EPA has the legal authority to dilute the regulatory and statutory requirements that it is using to induce firms to join Project XL. Project negotiations between the regulators and applicant firms have been much longer than anticipated, often taking about 24 months to complete (EPA 1999c). Not surprisingly, firms have become impatient with the long, transactions-cost-intensive process of negotiating final project agreements.⁶ At the program's launch, the EPA proposed a goal of having 50 such pilot projects. However, by August 1999, only 14 projects had achieved implementation, with another 31 under negotiations (EPA 1999c). Though the EPA has tried to address some of the project's shortcomings, the modest success of Project XL highlights the challenges in adopting programs that foster a cooperative environment and provide some sort of regulatory flexibility to firms.

Conclusions

The efficacy of voluntary codes and regulatory relief initiatives is a central issue in the current debate about the command-and-control foundations of environmental governance and the quest to adopt a social learning perspective on environmental challenges. Given the conflictual

climate of environmental governance in most U.S. jurisdictions, the prospects and efficacy of voluntary programs and compliance incentives remain open questions. This article has examined how governments and firms can escape the lose–lose trap that the regulation dilemma threatens and reap the benefits of large-scale cooperation and adoption of voluntary programs.

More fundamentally, this article contributes to the New Public Management literature and its application to environmental regulation (Fiorino 2001; Kettl 2002). To transform lose–lose dilemmas into win–win outcomes, firms and governments need to adopt and nurture practices that credibly signal their cooperative intentions. Credible signals may emanate from past behavior or from institutionalized pledges about future behavior, particularly if such pledges receive third- or fourth-party verification. Institutional pledges—including establishing formal rule systems and organizational structures to enforce them—may be particularly important forms of cooperation because they create hurdles for actors to renege on their cooperation promises. The context of regulator–firm interactions, such as whether the regulatory context is adversarial, also bears on how actors perceive each other’s promises of cooperation (Granovetter 1985). Further, exogenous events in ostensibly unrelated areas, such as the recent Enron scandal, may influence debates about the efficacy of voluntary codes and the role of third-party auditors in verifying firms’ compliance.

This article also has important implications for designing performance assessment, such as those prescribed in the Government Performance and Results Act and in state initiatives. Effective cooperation promises to reduce bureaucratic outputs—such as inspections, notices of violation, regulatory sanctions, and the like—while improving policy outcomes—such as less pollution released into the atmosphere. A performance assessment that emphasizes outputs may undermine cooperation by pushing agencies to adopt a more deterrence-based enforcement style, even if they prefer cooperation. Our analysis implies that performance-measurement systems must focus on outcomes rather than outputs because the regulation dilemma suggests the correlation between outputs and outcomes is not always straightforward. While outcome-based measures may be preferable, they are notoriously difficult to develop and implement, particularly in environmental areas. Political overseers and environmental interests must be confident that cooperative enforcement is not simply the lax enforcement by a bureaucracy that has been captured by regulated industry.⁷

We have employed the prisoner’s dilemma game to illustrate the regulation dilemma. Granovetter (1985) correctly notes that the perceived payoffs of the prisoner’s dilemma depend critically on the social context in which

the actors are embedded. Not surprisingly, self-policing and voluntary codes seem to be more popular in some sectors and industries than in others, and trade associations seem to have played a critical role in this respect (Haufler 2001; Prakash 2000a; Kollman and Prakash 2002). In this article, we have focused on the role of reputations and institutional devices in creating trust, and thereby fostering cooperation. However, this issue can be examined in much greater detail by specifying institutional conditions, policy processes, and actor attributes that facilitate trust and how this may translate into cooperation between firms and regulators.

All in all, the regulation dilemma shows that regulatory relief is not always superior to deterrence, and membership in voluntary programs is not a sufficient guarantee of improved environmental performance. Rather, the optimal blend of regulatory relief, deterrence, self-policing, and voluntary programs depends on the degree to which governments and firms overcome incentives for conflict and establish cooperation.

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Notes

1. Voluntary programs can vary on five key characteristics (Potoski and Prakash 2002). First, different organizations have sponsored voluntary programs, including governments, nonprofits, and industry groups. Second, some programs restrict eligibility on more narrow criteria, such as superior environmental performance, while others are open to any group that meets the programs' requirements. Third, programs vary their requirements for participating firms, with some requiring environmental management practices, and others requiring pollution-reduction targets. Fourth, the incentives for firms to join these programs vary considerably. Government-sponsored programs can offer tangible benefits in the form of regulatory relief and flexibility for meeting regulations, streamlined or one-stop permitting procedures, and technical assistance. Non-government-sponsored programs' incentive options are more limited but include important reputational and goodwill benefits for participating firms. Finally, programs vary in the nature of sanctions imposed on firms that do not conform to the program's standards.
2. These state programs vary considerably in the types of incentives they offer firms for participating. Examples of state programs include Florida's Ecosystem Management Agreement, Indiana's 100% Club, Oregon's Green Permits, Wisconsin's Green Tier Permit Program, Georgia's Pollution Prevention Program, Alaska's Environmental Leadership Program, Connecticut's Exemplary EMSs, Illinois's Regulatory Innovation Pilot Program, Maine's Environmental Leaders, Massachusetts's Pollution Prevention Blue Ribbon Panel, Michigan's Clean Corporate Citizens, Minnesota's Project XL, South Carolina's Environmental Excellence Program, Texas's Regulatory Flexibility Program, and Virginia's Environmental Excellence Program (Crow 2000).
3. By "flexible regulation," we mean rule systems that give regulators discretion in monitoring, enforcement, and sanctioning. There is debate over whether regulations that set stringent standards on outcomes, but provide firms with discretion in processes and technology, encourage firms to innovate and create win-win situations (Porter and van der Linde 1995; Walley and Whitehead 1994). This article does not participate in this debate. Rather, we examine whether a cooperative enforcement style affects firms' responses to mandatory and voluntary regulations.
4. Many different game forms (for example, tit-for-tat) could lead to cooperative outcomes. Further, the payoff matrix may change as actors continually update their perceptions based on previous iterations. For a review of this multidisciplinary literature, see Hardin (1982) and Ostrom (1990).
5. The same issue can be examined within a firm that has facilities operating across states with different regulatory relief programs. The issue is whether the beneficial impact on environmental performance would be similar across facilities. Arguably, for a firm that subscribes to a voluntary code, facilities operating in jurisdictions with cooperative regulatory enforcement will improve their environmental performance more than facilities operating in noncooperative environments.
6. For an excellent account of the problems in negotiating Project XL at a 3M tape manufacturing plant, see Marcus, Geffen, and Sexton (2002). The authors argue the quid pro quo basis of Project XL—regulatory flexibility in lieu of superior performance—was flawed. In particular, there is a lack of agreement among various actors on the meaning of superior environmental performance that is expected of the participating companies.
7. This question is important because Government Performance and Results Act of 1993 requires federal agencies to first identify and then meet measurable performance goals. Some EMS-based voluntary programs such as ISO 14001 cannot guarantee that firms will indeed improve their environmental or regulatory performance. The key attribute—flexibility for firms to decide appropriate technologies and outcomes—which makes them attractive for both firms and regulators also raises questions about their fit with other objectives of public policy. This raises important questions for the proponents of New Public Management as some of the policy objectives—fostering a more cooperative climate along with meeting specific policy outcomes—may be in conflict.

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