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# CHANGING CORPORATE BEHAVIOR THROUGH ENVIRONMENTAL MANAGEMENT SYSTEMS

DAVID W. CASE\*

If we do not change our direction, we are likely to end up where we are headed.<sup>1</sup>

## INTRODUCTION

Calls are universal among scholars and policy analysts for innovation in creation and implementation of American environmental regulatory policy. Traditional regulatory approaches to controlling pollution are often pejoratively labeled as “command-and-control.”<sup>2</sup> Since the early 1970s, however, these approaches are credited with substantial, yet critically limited, successes in reducing the harmful environmental impacts of industrial activity.<sup>3</sup> Laudable improvements have occurred in

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<sup>1</sup> Chinese Proverb.

<sup>2</sup> “The phrase ‘command-and-control’ has taken on a life of its own in the environmental literature.” David W. Case, *Corporate Environmental Reporting as Informational Regulation: A Law and Economics Perspective*, 76 U. COLO. L. REV. 379, 380 (2005) [hereinafter Case, *Corporate Environmental Reporting*]. But disagreement over precise definitions of the phrase and its common overuse as a “pejorative catchall for any and all criticisms of environmental regulation” substantially limit its value. Kathryn Harrison, *Talking With the Donkey: Cooperative Approaches to Environmental Protection*, 2 J. INDUSTR. ECOLOGY 51, 53 (1999). For additional discussion of the contextual problems with the phrase “command-and-control,” see Case, *Corporate Environmental Reporting*, *supra* at 380 n.2.

<sup>3</sup> J.B. Ruhl, *Regulation by Adaptive Management—Is It Possible?*, 7 MINN. J. L. SCI. & TECH. 21, 21 (2005) (“Even the most conservative cost-benefit analyses confirm that many of these [environmental prescriptive regulation] initiatives were smashing successes.”); J. CLARENCE DAVIES & JAN MAZUREK, *POLLUTION CONTROL IN THE UNITED STATES: EVALUATING THE SYSTEM* 55-56, 270-275 (1998) (summarizing progress in reducing pollution in the United States through use of regulatory standards between 1970 and 1997); Paula C. Murray, *Inching Toward Environmental Regulatory Reform—ISO 14000: Much Ado About Nothing Or a Reinvention Tool?*, 37 AM. BUS. L.J. 35, 35 (1999) (describing the American environmental regulatory system as having been “somewhat successful”); Jesse Ratcliffe, Comment, *Reenvisioning the Risk Bubble*:

controlling readily identifiable and relatively discrete sources of harm, such as land-based waste disposal and industrial "end-of-the-pipe" air emissions and discharges into water systems.<sup>4</sup> There is, however, considerable debate over the efficiency of command-and-control approaches and whether similar gains could have been obtained through alternative regulatory strategies at far less cost.<sup>5</sup>

Moreover, many critical environmental protection problems continue to flourish, such as non-point source water pollution, emissions affecting climate change, wasteful consumption of natural resources, and risks posed by the manufacture and use of toxic chemicals.<sup>6</sup> Critics charge that these and other difficult challenges fall largely outside of or are not particularly amenable to traditional regulatory control.<sup>7</sup> J.B. Ruhl describes the future challenges of environmental protection as "problems of unwieldy dimensions and intractable causes" which are "excruciatingly hard for researchers to understand, and thus even harder for law to wrestle under control."<sup>8</sup> Notwithstanding the substantial difficulty inherent in the task, policymakers must strive to develop and

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*Utilizing a System of Intra-Firm Risk Trading for Environmental Protection*, 92 CAL. L. REV. 1779, 1781 (2004) (acknowledging the "remarkable success" of environmental regulation of industry over the past thirty years, especially in the areas of air, water and hazardous waste); Michael P. Vandenberg, *An Alternative to Ready, Fire, Aim: A New Framework to Link Environmental Targets in Environmental Law*, 85 KY. L.J. 803, 814-17 (1996-97) [hereinafter Vandenberg, *Targets in Environmental Law*] (describing "substantial progress" on "first generation" air and water quality problems controlled by American environmental regulatory system).

<sup>4</sup> Ruhl, *supra* note 3, at 21 (discussing how "command-and-control" regulation has picked the low-hanging fruit . . . [by targeting] discrete, easily identified sources of environmental harm"); Cary Coglianese & Jennifer Nash, *Environmental Management Systems and the New Policy Agenda*, in *REGULATING FROM THE INSIDE: CAN ENVIRONMENTAL MANAGEMENT SYSTEMS ACHIEVE POLICY GOALS?* 1, 1 (Cary Coglianese & Jennifer Nash eds., 2001) [hereinafter Coglianese & Nash, *New Policy Agenda*]; Michael P. Vandenberg, *From Smokestack to SUV: The Individual as Regulated Entity in the New Era of Environmental Law*, 57 VAND. L. REV. 515, 526 (2004) [hereinafter Vandenberg, *New Era of Environmental Law*] ("Advocates of command and control have pointed out that, despite substantial increases in economic activity, command and control regulations have achieved remarkable reductions in emissions over the last thirty years, particularly from BAT [best available technology] controls on large industrial point sources and controls on automobile tailpipe emissions.").

<sup>5</sup> See Ruhl, *supra* note 3, at 21 n.1.

<sup>6</sup> See DAVIES & MAZUREK, *supra* note 3, at 270-76; see also Ruhl, *supra* note 3, at 22.

<sup>7</sup> See Ruhl, *supra* note 3, at 22-28; see also Vandenberg, *Targets In Environmental Law*, *supra* note 3, at 811-12.

<sup>8</sup> See Ruhl, *supra* note 3, at 22-24.

implement policy tools capable of effectively and efficiently dealing with such problems.<sup>9</sup>

This Article examines one potential policy tool that has received considerable recent positive attention among scholars and researchers: the environmental management system (“EMS”). An EMS is a formal set of internal procedures and policies that create a framework for an organization to identify, minimize, and manage environmental impacts, ensure compliance with applicable environmental laws and regulations, and reduce wasteful uses of natural resources.<sup>10</sup> This Article considers EMSs within the context of the search for new strategies to supplement and improve the ability of the existing regulatory regime to control the harmful environmental impacts of industrial activity. Commentators routinely evaluate EMSs using two differing frameworks: (1) market-based approaches to environmental policy reform (through creation of incentives to encourage voluntary adoption of EMSs by firms), and (2) a more direct regulatory approach that would mandate regulated parties to adopt an EMS.<sup>11</sup> Under either framework, the ultimate objective is more

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<sup>9</sup> *Id.* at 25 n.7.

<sup>10</sup> Richard N.L. Andrews et al., *Environmental Management Systems: History, Theory, and Implementation Research*, in *REGULATING FROM THE INSIDE: CAN ENVIRONMENTAL MANAGEMENT SYSTEMS ACHIEVE POLICY GOALS?*, *supra* note 4, at 31, 32; Nicole Darnall et al., *ISO 14001: Greening Management Systems*, in *GREENER MANUFACTURING AND OPERATIONS: FROM DESIGN TO DELIVERY AND BACK* 178, 178 (J. Sarkis ed., 2001) [hereinafter Darnall et al., *Greening Management Systems*]. See also Timothy F. Malloy, *Regulation, Compliance and the Firm*, 76 *TEMP. L. REV.* 451, 492-93 (2003) (“[A]n EMS is a formal, integrated set of organizational routines (consisting of rules, procedures, authority structures and resource allocations) designed to establish goals, collect information, make decisions and improve performance, with particular emphasis on securing sustained compliance with environmental law.”); Jennifer Nash & John R. Ehrenfeld, *Factors That Shape EMS Outcomes in Firms*, in *REGULATING FROM THE INSIDE: CAN ENVIRONMENTAL MANAGEMENT SYSTEMS ACHIEVE POLICY GOALS?*, *supra* note 4, at 61, 62 (“EMSs are formal structures of rules and resources that managers adopt to establish organizational routines that help achieve corporate environmental goals.”).

<sup>11</sup> Compare Murray, *supra* note 3, at 39 (noting that as EMSs “are private, voluntary standards, the hope is that market forces will lead to widespread adoption”), with Paulette L. Stenzel, *Can the ISO 14000 Series Environmental Management Standards Provide a Viable Alternative to Government Regulation?*, 37 *AM. BUS. L.J.* 237, 238-39 (2000) (contrasting the “market-driven approach” to the interface between EMSs and environmental regulation with EMS standards as a “viable alternative or supplement to government regulation”). See also Cary Coglianese & Jennifer Nash, *Management-Based Strategies for Improving Private-Sector Environmental Performance*, 36 *Envtl. L. Rep.* (Envtl. Law Inst.) 10,003, at 10,006 (2006) [hereinafter Coglianese & Nash, *Management-Based Strategies*] (distinguishing between management-based regulatory strategies that mandate adoption of EMSs and those that create incentives to encourage voluntary adoption).

flexible and effective methods of obtaining greater environmental protection at a lower cost to the government and the regulated community.<sup>12</sup>

A "management-based" regulatory strategy that would encourage or mandate adoption of formal EMSs by firms is a significant departure from the "performance-based and technology-based regulatory strategies" which have been the hallmarks of the traditional American approach to environmental protection policy.<sup>13</sup> The fundamental premise of a "management-based" regulatory strategy is that implementation of a formalized management system will produce changes in corporate organization, culture, and procedures that will result in environmental performance improvements not achievable solely through traditional regulatory approaches.<sup>14</sup> After "a facility implements its EMS, in theory, it will not only be in conformance with all [applicable] environmental regulations, but it may also surpass the regulatory standards for many environmentally regulated activities, and may identify opportunities for reducing non-regulated environmental impacts of its activities as well."<sup>15</sup> A regulatory strategy to encourage or mandate adoption of EMSs seeks to change the behavior of organizations through the use of basic management practices in order to "align their actions and outcomes with broader [environmental protection] objectives."<sup>16</sup>

Part I of this Article discusses the importance of corporate behavioral change as an objective of environmental regulatory policy. Part II examines factors which have encouraged the evolution and substantial growth of the existing voluntary regime of EMS adoption by many organizations, especially large industry standard setters. Part II also discusses the leading EMS standards and guidelines as well as the basic components and principles underlying formal EMSs. Part III

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<sup>12</sup> See, e.g., U.S. ENVTL. PROT. AGENCY, EPA 100-R-00-020, INNOVATION AT THE ENVIRONMENTAL PROTECTION AGENCY: A DECADE OF PROGRESS 1 (2000) (describing innovative environmental policy tools and strategies developed during the 1990s intended to supplement regulatory programs and lead "to real environmental improvements and real reductions in costs").

<sup>13</sup> Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,003-04. For additional discussion of "management-based" environmental regulatory strategies, see LEVERAGING THE PRIVATE SECTOR: MANAGEMENT-BASED STRATEGIES FOR IMPROVING ENVIRONMENTAL PERFORMANCE (Cary Coglianese & Jennifer Nash eds., 2006).

<sup>14</sup> Andrews et al., *supra* note 10, at 35-43.

<sup>15</sup> Nicole Darnall et al., *Environmental Management Systems: Opportunities for Improved Environmental and Business Strategy?*, ENVTL. QUALITY MGMT., Spring 2000, at 1, 2 [hereinafter Darnall et al., *Environmental Management Systems*].

<sup>16</sup> Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,005.

focuses on linkages between formal EMSs and public environmental information disclosure mechanisms as a potential means of driving desirable corporate environmental behavioral change. This Article concludes with a brief discussion of the potential role for environmental protection policies that encourage or mandate formal EMS adoption within the existing environmental regulatory regime.

## I. CORPORATE BEHAVIORAL CHANGE AS AN ENVIRONMENTAL POLICY OBJECTIVE

The search for innovative alternatives to traditional environmental regulatory approaches is, in large part, an effort to discover more effective ways of modifying corporate behavior.<sup>17</sup> Indeed, at its core, environmental law is an “activist” form of governmental regulation.<sup>18</sup> As Donald Elliot has observed, “[t]he purpose of law in the activist mode is to change the norms and behavior of a community or subcommunity.”<sup>19</sup>

Corporate governance of organizational environmental behavior has been largely inadequate to attain desired levels of environmental protection.<sup>20</sup> American corporate law generally fails to promote environmental protection goals and is, at best, “environmental-neutral.”<sup>21</sup> As a result, both external (federal and state governments and their regulatory agencies or institutional shareholders and investors) and internal (corporate community efforts at self-improvement) influences on corporate governance

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<sup>17</sup> See Mitchell F. Crusto, *Green Business: Should We Revoke Corporate Charters for Environmental Violations?*, 63 LA. L. REV. 175 (2003) [hereinafter Crusto, *Green Business*] (examining a strategic corporate environmental management approach as a means to effectuate positive change in corporate environmental behavior); see also David W. Case, *The Law and Economics of Environmental Information as Regulation*, 31 ENVTL. L. REP. (Envtl. Law Inst.) 10,773 (2001) [hereinafter Case, *Environmental Information as Regulation*] (surveying economic and legal theories underlying informational regulation as a means of generating positive changes in firm environmental behavior and performance).

<sup>18</sup> E. Donald Elliott, *Environmental TQM: Anatomy of a Pollution Control Program that Works!*, 92 MICH. L. REV. 1840, 1840 (1994).

<sup>19</sup> *Id.*

<sup>20</sup> See Mitchell F. Crusto, *Endangered Green Reports: “Cumulative Materiality” in Corporate Environmental Disclosure After Sarbanes-Oxley*, 42 HARV. J. ON LEGIS. 483, 484, 490-92 (2005) [hereinafter Crusto, *Endangered Green Reports*]; Crusto, *Green Business*, *supra* note 17, at 192.

<sup>21</sup> Crusto, *Green Business*, *supra* note 17, at 183. See also Crusto, *Endangered Green Reports*, *supra* note 20, at 490-92; Crusto, *Green Business*, *supra* note 17, at 195 (“[W]hen it comes to promoting environmental protection, U.S. corporate law apparently provides little to no incentives.”).

endeavor in numerous direct and indirect ways to change corporate environmental behavior.<sup>22</sup> However, such efforts, whether through direct regulatory oversight of corporate environmental behavior, market-based regulatory strategies, or self-regulatory initiatives, have fallen well short of the level of behavioral change necessary to achieve critical environmental protection goals.<sup>23</sup>

Evidence of the failure of traditional regulatory approaches to induce sufficient corporate environmental behavioral change is abundant. Corporate noncompliance with regulatory requirements is described as "pervasive."<sup>24</sup> Surveys of corporate general counsel and environmental lawyers representing business reflect a widespread belief that a substantial number of their clients are not in compliance with environmental laws.<sup>25</sup> More importantly, a growing body of empirical evidence demonstrates consistent and disturbing patterns of "significant" noncompliance by firms with environmental statutes and regulations.<sup>26</sup> David Spence cautions, however, that "there are relatively few studies addressing this question in a systematic way, perhaps because compliance rates

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<sup>22</sup> See Crusto, *Green Business*, *supra* note 17, at 222-40 (surveying attempts by external and internal corporate constituents to change corporate environmental behavior).

<sup>23</sup> *Id.* at 221-22; Crusto, *Endangered Green Reports*, *supra* note 20, at 490-93. See also DAVIES & MAZUREK, *supra* note 3, at 39-48 (summarizing the duties of environmental regulatory programs as divided between state and federal agencies).

<sup>24</sup> Malloy, *supra* note 10, at 452.

<sup>25</sup> J.B. Ruhl & James Salzman, *Mozart and the Red Queen: The Problem of Regulatory Accretion in the Administrative State*, 91 GEO. L.J. 757, 792 (2003) (describing a survey of environmental lawyers representing business clients that reported that "a startling number of respondents said they believe their clients [achieved full compliance with environmental regulations] less than two-thirds of the time."); Marianne Lavelle, *Environment Vise: Law, Compliance Companies Staff Up and Struggle to Stay Ahead of the Green Machine*, NAT'L L.J., Aug. 30, 1993, at S1-2 (describing a national survey of corporate general counsel that found that two-thirds admit that their employers violated federal or state environmental laws at least some time within previous year).

<sup>26</sup> See JOHN COEQUYT ET AL., ENVIRONMENTAL WORKING GROUP, ABOVE THE LAW: HOW CALIFORNIA'S MAJOR AIR POLLUTERS GET AWAY WITH IT (1999) (examining rates of noncompliance with Clean Air Act requirements among major California facilities in five industrial sectors); Joel A. Mintz, *Scrutinizing Environmental Enforcement: A Comment on a Recent Discussion at the AALS*, 30 ENVTL. L. REP. (ENVTL. LAW INST.) 10,639, at 10,640 (2000), available at <http://www.elr.info/articles/vol30/30.10639.cfm> (discussing studies of noncompliance under the Clean Water Act, Resource Conservation and Recovery Act, and the Clean Air Act); David Spence, *The Shadow of the Rational Polluter: Rethinking the Role of Rational Actor Models in Environmental Law*, 89 CAL. L. REV. 917, 966-67 (2001) (summarizing evidence of "significant" incidence of noncompliance reflected in studies involving Clean Air Act, Clean Water Act, RCRA and EPCRA).

are so difficult to measure.”<sup>27</sup> Another problem with assessing environmental regulatory compliance rates may be a substantial lack of available data on federal and state enforcement efforts.<sup>28</sup>

The perception that federal and state regimes’ enforcement of environmental laws is “weak and sporadic” exacerbates the problem of corporate regulatory noncompliance.<sup>29</sup> No matter the regulatory strategy utilized, effective enforcement mechanisms are required to achieve desired levels of change in corporate environmental behavior.<sup>30</sup> Indeed, “enforcement is the centerpiece of regulation, the visible hand of the state reaching into society to correct wrongs.”<sup>31</sup> Despite the critical importance of compliance enforcement in inducing desired modification of corporate environmental behavior, numerous constraints on its potential effectiveness exist.<sup>32</sup> Resource limitations may be the most significant problem hindering effective enforcement efforts. Congress has historically provided inadequate and unrealistic budgets to meet the overwhelming statutory mandates for environmental regulators.<sup>33</sup>

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<sup>27</sup> Spence, *supra* note 26, at 966.

<sup>28</sup> See David Markell, “Slack” in the Administrative State and its Implications for Governance: The Issue of Accountability, 84 OR. L. REV. 1, 28-43 (2005) (describing insufficiency of public information on the full extent and nature of EPA and state enforcement activities).

<sup>29</sup> See David R. Hodas, *Enforcement of Environmental Law in a Triangular Federal System: Can Three Not Be a Crowd When Enforcement Authority Is Shared by the United States, the States, and Their Citizens?*, 54 MD. L. REV. 1552, 1554 (1995) (quoting *Hearing on S. 1081 Before the Subcomm. on Environmental Protection of the Senate Comm. on Environment and Public Works*, 102d Cong., 689 (1991) (statement of Richard L. Hembra, Director, Environmental Issues, General Accounting Office)) (using enforcement of water quality standards as an example of the failure of the federal and state regulatory regime).

<sup>30</sup> Robert H. Cutting et al., *Enforcement Data: A Tool for Environmental Management*, 36 ENVTL. L. REP. (Envtl. Law Inst.) 10,060, at 10,060 (2006).

<sup>31</sup> PETER C. YEAGER, *THE LIMITS OF LAW: THE PUBLIC REGULATION OF PRIVATE POLLUTION* 251 (1990).

<sup>32</sup> Cutting et al., *supra* note 30, at 10,061 (“Despite the critical role compliance enforcement plays in the protection of environmental quality, enforcement components within regulatory agencies are controversial, politically manipulated, and subject to limitations such as budget, staffing, and technology that impede the complete compliance monitoring of regulated polluters.”).

<sup>33</sup> See NAT’L ACAD. OF PUB. ADMIN., *SETTING PRIORITIES, GETTING RESULTS: A NEW DIRECTION FOR EPA* 8 (1995) (“EPA is sometimes ineffective, in part, because Congress has frequently set impossible deadlines and unrealistic expectations, given the agency’s budget.”); Richard J. Lazarus, *The Tragedy of Distrust in the Implementation of Federal Environmental Law*, LAW & CONTEMP. PROBS., Autumn 1991, at 329 (“EPA has consistently received a level of funding far lower than the amount required to provide the agency with even a small chance of moderate success in implementing its statutory



Environmental policymaking is created and implemented within a fiercely combative political arena.<sup>34</sup> The politicization of enforcement budgets also has a negative impact on compliance monitoring and enforcement.<sup>35</sup> Even when not a result of partisan politics, historically insufficient budget allocations for enforcement on both federal and state levels often decrease further in the face of lean economic times.<sup>36</sup> This distressing combination of overwhelming statutory mandates and grossly insufficient resources devoted to meeting them compels two intuitive conclusions. First, "[g]overnment enforcement will never catch a big fraction of violations."<sup>37</sup> As David Hodas has observed:

Unfortunately, our system of public environmental enforcement is more fragile and overwhelmed than most people realize. Annual enforcement accomplishment reports praise government's effectiveness in enforcing the law. But, there

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mandates."); Rena I. Steinzor & William F. Piermattei, *Reinventing Environmental Regulation Via the Government Performance and Results Act: Where's the Money?*, 28 Env'tl. L. Rep. (Env'tl. Law Inst.) 10,563, at 10,564 (1998) (describing the EPA's strategic planning and budgeting process by which the agency "deploys its grossly inadequate resources to implement its overwhelming statutory mandates").

<sup>34</sup> See David W. Case, *The EPA's Environmental Stewardship Initiative: Attempting to Revitalize a Floundering Regulatory Reform Agenda*, 50 EMORY L.J. 1, 16-26 (2001) [hereinafter Case, *Regulatory Reform*] (discussing the adversarial political context of environmental policy creation and implementation).

<sup>35</sup> See Case, *Regulatory Reform*, *supra* note 34, at 23-25; Joel A. Mintz, "Neither the Best of Times Nor the Worst of Times": *EPA Enforcement During the Clinton Administration*, 35 Env'tl. L. Rep. (Env'tl. Law Inst.) 10,390, at 10,398-01 (2005) [hereinafter Mintz, *Neither the Best of Times*] (describing EPA budget conflict during the "Gingrich Revolution" of the 104th Congress); Joel A. Mintz, "Treading Water": *A Preliminary Assessment of EPA Enforcement During the Bush II Administration*, 34 Env'tl. L. Rep. (Env'tl. Law Inst.) 10,912, at 10,914, 10,920-21 (2004) [hereinafter Mintz, *Treading Water*] (describing politicization of EPA enforcement efforts under the Administration of President George W. Bush).

<sup>36</sup> See Mintz, *Neither the Best of Times*, *supra* note 35, at 10,406 (describing "cumulatively significant" annual budget cuts made in funds available for enforcement during the Clinton Administration); Mintz, *Treading Water*, *supra* note 35, at 10,921, 10,924-25 (discussing the trend of continuing budget decreases for enforcement efforts during the Bush Administration); R. Steven Brown, *Coping with the Budget Crunch: When the Axe Falls—How State Environmental Agencies Deal with Budget Cuts*, ECOSTATES, Winter 2002, at 16-19 (surveying state environmental agency experiences and responses to budget cuts caused by economic slowdowns).

<sup>37</sup> Donald A. Carr & William L. Thomas, *Devising a Compliance Strategy Under the ISO 14000 International Environmental Management Standards*, 15 PACE ENVTL. L. REV. 85, 98 (1997).

is less than meets the eye to claims that the law is being effectively enforced. Despite the many enforcement success stories reported by the government, the number of violations overwhelm the enforcement capacity of both the federal and state governments.<sup>38</sup>

Second, achievement of environmental regulatory goals is substantially dependent on voluntary compliance behavior by corporate environmental actors.<sup>39</sup>

Innovative, alternative approaches for inducing change in corporate environmental behavior are also necessary because the existing regulatory system "remains vastly under-inclusive, both in the *types* of harm it regulates and in the *sources* of harm it regulates."<sup>40</sup> Many critical problems fall outside the effective control of traditional environmental regulation.<sup>41</sup> Not all such problems are attributable solely to corporate or industrial activity.<sup>42</sup> However, this corporate and industrial behavior substantially impacts such under- or non-regulated concerns as global climate change, non-point source water pollution, risks related to manufacture and use of toxic chemicals, and wasteful consumption of natural resources and energy supplies.<sup>43</sup> Experimentation over the last two decades with alternative regulatory reform or "reinvention"<sup>44</sup> programs has sought to induce "beyond compliance"<sup>45</sup> behavior by organizations.<sup>46</sup> The

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<sup>38</sup> Hodas, *supra* note 29, at 1,558-60 (internal citations omitted). For a recent overview of EPA enforcement methods and principles, see Markell, *supra* note 28, at 47-58.

<sup>39</sup> Hodas, *supra* note 29, at 1,556-57.

<sup>40</sup> Ratcliffe, *supra* note 3, at 1,784; Case, *Regulatory Reform*, *supra* note 34, at 28.

<sup>41</sup> See Ratcliffe, *supra* note 3, at 1,784-85 (describing examples of unregulated environmental harms); Vandenberg, *Targets in Environmental Law*, *supra* note 3, at 818-19 (stating that "second generation problems are more difficult to address through traditional command and control regulations than many of the first generation problems").

<sup>42</sup> See Vandenberg, *New Era of Environmental Law*, *supra* note 4, at 533-37. Vandenberg discusses non-industrial sources as "a large and growing proportion of the remaining environmental harms." *Id.* at 534.

<sup>43</sup> Ratcliffe, *supra* note 3, at 1,784-85. See generally Vandenberg, *Targets in Environmental Law*, *supra* note 3, at 818-24.

<sup>44</sup> Case, *Regulatory Reform*, *supra* note 34, at 40.

<sup>45</sup> *Id.* at 64.

<sup>46</sup> *Id.* at 40-46, 64-87 (reviewing several Clinton-era reinvention initiatives designed to experiment with alternative approaches to traditional environmental regulation); Elizabeth Glass Geltman & Andrew E. Skroback, *Reinventing the EPA to Conform with the New American Environmentalism*, 23 COLUM. J. ENVTL. L. 1, 15-25 (1998); David B. Spence & Lekha Gopalakrishnan, *Bargaining Theory and Regulatory Reform: The Political Logic of Inefficient Regulation*, 53 VAND. L. REV. 599, 612-19 (2000).

effort to encourage organizations to achieve environmental performance that exceeds the minimum requirements of environmental law and regulation is in significant part an indirect means of addressing the under-inclusiveness problem of the existing regulatory regime.

Scholars debate whether regulatory policy can influence firms to engage in environmental performance behavior that exceeds the minimum requirements of existing regulation.<sup>47</sup> Encouraging such "beyond compliance" corporate environmental behavior is an important principle underlying the goal of "sustainable development," a concept first articulated by the United Nations' World Commission on the Environment and Development in 1987.<sup>48</sup> The precise meaning of "sustainable development" or the related term "sustainability" is the subject of some disagreement.<sup>49</sup> Generally, the concept concerns three dimensions of corporate behavior: environmental, social, and economic.<sup>50</sup> The World Commission describes "sustainable development as development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs.'"<sup>51</sup> Similarly, the President's Council on Sustainable Development (created by President Clinton in 1993) defines sustainable development as "ensuring that future generations have equivalent economic opportunities and quality of life enjoyed by the current generation through national policies that consider economic, environmental, and social equity interests in combination."<sup>52</sup>

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<sup>47</sup> See Case, *Regulatory Reform*, *supra* note 34, at 8-9. For a review of literature on beyond compliance environmental regulatory behavior and analysis of internal and external variables motivating corporate environmental behavior, see NEIL GUNNINGHAM ET AL., *SHADES OF GREEN: BUSINESS, REGULATION, AND ENVIRONMENT* 20-40 (2003). For a review of scholarly literature on the relationship of corporate behavior to environmental regulatory policy in the fields of economics, law and economics, sociology, and public policy, see Mark A. Cohen, *Monitoring and Enforcement of Environmental Policy*, in *THE INTERNATIONAL YEARBOOK OF ENVIRONMENTAL AND RESOURCE ECONOMICS 1999/2000: A SURVEY OF CURRENT ISSUES* 44 (Henk Folmer & Tom Tietenberg eds., 1999).

<sup>48</sup> Stenzel, *supra* note 11, at 237.

<sup>49</sup> See Case, *Corporate Environmental Reporting*, *supra* note 2, at 390 n.51.

<sup>50</sup> *Id.*

<sup>51</sup> Stenzel, *supra* note 11, at 237 (quoting WORLD COMM. ON ENV'T AND DEV., *OUR COMMON FUTURE* 8 (1987)).

<sup>52</sup> Case, *Regulatory Reform*, *supra* note 34, at 11; THE PRESIDENT'S COUNCIL ON SUSTAINABLE DEV., *SUSTAINABLE AMERICA: A NEW CONSENSUS FOR PROSPERITY, OPPORTUNITY, AND A HEALTHY ENVIRONMENT FOR THE FUTURE* i-ii (1996).

Public pressure for corporate actors to make sustainability a core value and fundamental business goal escalated rapidly during the 1990s.<sup>53</sup> Advocates argue that regulatory policies that emphasize environmental management frameworks will induce the internalization of environmental values and social norms, and will in turn bring about corporate behavior that facilitates sustainability and increased environmental protection.<sup>54</sup> Many doubt that regulatory policy can effectuate internalization of social norms and “beyond compliance” corporate behavior.<sup>55</sup> Nonetheless, supporters of EMS adoption “as a means for regulatory innovation” tout the potential of such a strategy to do just that.<sup>56</sup> Indeed, a primary motivation for design of leading EMS standards initiatives is to promote the goal of sustainable development.<sup>57</sup> Today’s global industrial environmental threats<sup>58</sup> warrant a stronger focus on potential links between corporate environmental behavior and management-based regulatory strategies.

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<sup>53</sup> See Case, *Regulatory Reform*, *supra* note 34, at 11-16 (discussing reports from the President’s Council on Sustainable Development and the Enterprise for the Environment recommending a national action strategy to promote sustainable development as a corporate values-driven approach to environmental protection); see also Stenzel, *supra* note 11, at 252-53.

<sup>54</sup> Case, *Regulatory Reform*, *supra* note 34, at 13. For a discussion of sustainable development within the context of “good governance, the rule of law, and compliance,” see Durwood Zaelke et al., *What Reason Demands: Making Law Work for Sustainable Development*, in 1 MAKING LAW WORK: ENVIRONMENTAL COMPLIANCE & SUSTAINABLE DEVELOPMENT 29, 30 (Durwood Zaelke et al. eds., 2005).

<sup>55</sup> Case, *Regulatory Reform*, *supra* note 34, at 10. See also Rena I. Steinzor, *Reinventing Environmental Regulation: The Dangerous Journey from Command to Self-Control*, 22 HARV. ENVTL. L. REV. 103, 162-64 (1998) (expressing doubt that government policy can “duplicate the circumstances” that produce examples of corporate internalization of environmental values and ethics).

<sup>56</sup> Keith Pezzoli, *Environmental Management Systems (EMSS) and Regulatory Innovation*, 36 CAL. W. L. REV. 335, 354 (2000). Andrews et al., *supra* note 10, at 31 (“Advocates argue that when implemented, EMSs have the potential not only to improve compliance with environmental regulations but also to refocus the organization’s attention beyond compliance toward a dynamic, continual process of improvement in environmental and economic performance.”).

<sup>57</sup> Stenzel, *supra* note 11, at 238, 252; W. GARY WILSON & DENNIS R. SASSEVILLE, SUSTAINING ENVIRONMENTAL MANAGEMENT SUCCESS: BEST BUSINESS PRACTICES FROM INDUSTRY LEADERS 10 (1999); Andrews et al., *supra* note 10, at 41.

<sup>58</sup> See, e.g., Keith Bradsher & David Barboza, *Pollution From Chinese Coal Casts Shadow Around Globe*, N.Y. TIMES, June 11, 2006, at 1 (discussing global effects of pollution produced by Chinese coal plants and coal-burning factories).

## II. EVOLUTION OF THE VOLUNTARY REGIME OF FORMAL EMS ADOPTION

An EMS is an organized, systemic process established to manage, control and minimize the environmental impact and effects of an organization's activities and operations.<sup>59</sup> More simply, an "EMS is . . . the application of well-accepted business principles to environmental protection."<sup>60</sup> In varying degrees of scale and quality, organizations have applied basic management principles to manage and control potential environmental liabilities and risks since the earliest days of governmental environmental regulation.<sup>61</sup> By necessity, firms eventually began to integrate individualized design and implementation of systems to manage environmental issues faced by the organization into existing internal management systems.<sup>62</sup> Leading examples of such "firm-structured EMSs" include those developed in the mid to late 1980s by the Polaroid Corporation and the Robbins Company to reduce natural resource and chemical use and waste in their operations.<sup>63</sup>

Although many propose the use of EMSs as the foundation for alternatives to traditional environmental regulation, government regulation does not mandate EMS implementation.<sup>64</sup> Nonetheless, a steadily increasing number of firms are voluntarily implementing formal EMSs to manage environmental issues.<sup>65</sup> Significantly, much of the momentum towards the widespread adoption of voluntary, formal EMSs has been industry-driven.<sup>66</sup>

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<sup>59</sup> See U.S. ENVTL. PROT. AGENCY, EPA-305-R-99-001, EPA/CMA ROOT CAUSE ANALYSIS PILOT PROJECT: AN INDUSTRY SURVEY 27 (1999).

<sup>60</sup> Christopher L. Bell, *The ISO 14001 Environmental Management System Standard: A Modest Perspective*, 27 Env'tl. L. Rep. (Env'tl. Law. Inst.) 10,622, at 10,623 (1997) [hereinafter Bell, *Modest Perspective*].

<sup>61</sup> See *id.*; see also David Morrow & Dennis Rondinelli, *Adopting Corporate Environmental Management Systems: Motivations and Results of ISO 14001 and EMAS Certification*, 20 EUR. MGMT. J. 159, 161 (2002).

<sup>62</sup> Bell, *Modest Perspective*, *supra* note 60, at 10,622.

<sup>63</sup> Nash & Ehrenfeld, *supra* note 10, at 62-64.

<sup>64</sup> See DEPT. OF PUB. POL'Y, UNIV. OF N.C. AT CHAPEL HILL, ENVIRONMENTAL MANAGEMENT SYSTEMS: DO THEY IMPROVE PERFORMANCE, NATIONAL DATABASE ON ENVIRONMENTAL MANAGEMENT SYSTEMS PROJECT FINAL REPORT 1 (2003) [hereinafter NDEMS FINAL REPORT]; Case, *Regulatory Reform*, *supra* note 34, at 73.

<sup>65</sup> NDEMS FINAL REPORT, *supra* note 64, at 1.

<sup>66</sup> Indeed, since the early 1990s, a primarily industry-driven movement to develop formalized EMS standards and requirements has been underway. See Bell, *Modest Perspective*, *supra* note 60, at 10,623 (noting that the first formal EMS standards were the "British Standards Institute's BS 7750 EMS standard in 1992, or the European Union's

In the early 1990s, a number of business-oriented, non-governmental organizations sought to influence the environmental behavior of business organizations.<sup>67</sup> These non-governmental organizations provided early momentum to the standardization movement by creating guidelines for the development of EMSs.<sup>68</sup> Particularly celebrated examples include environmental management principles and guidelines published by the Global Environmental Management Initiative ("GEMI"), the Coalition for Environmentally Responsible Economies ("CERES"), and the International Chamber of Commerce ("ICC").<sup>69</sup> Public and social pressures on this issue influenced these business-oriented groups. Environmental advocacy groups such as Greenpeace, the Sierra Club, the Natural Resources Defense Council and others encouraged these organizations to develop environmental management guidelines.<sup>70</sup>

By 2000, seven trade associations had developed codes of environmental management practices and required their members to adopt these practices.<sup>71</sup> Notable trade-association EMS initiatives and guidance documents include the American Chemistry Counsel's "Responsible Care" program and the American Petroleum Institute's Strategies for Today's Environmental Partnership program.<sup>72</sup> The Responsible Care initiative is considered "a direct attempt by U.S. chemical manufacturers to institutionalize new norms of behavior for participants."<sup>73</sup> Other trade associations adopting similar EMS guidelines include those for chemical distribution, forestry and textile industries.<sup>74</sup>

By far, however, the most well known and influential standardization initiative is ISO 14001, "the voluntary international EMS standard [first] published by the Geneva-based International Organization for

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Environmental Management and Audit Regulation (EMAR) and Environmental Management and Audit Scheme (EMAS), both of which were published in 1993").

<sup>67</sup> See JOHN VOORHEES & ROBERT A. WOELLNER, INTERNATIONAL ENVIRONMENTAL RISK MANAGEMENT: ISO 14000 AND THE SYSTEMS APPROACH 11-24 (1998); Stenzel, *supra* note 11, at 250.

<sup>68</sup> VOORHEES & WOELLNER, *supra* note 67, at 11-24. Stenzel, *supra* note 11, at 250.

<sup>69</sup> See VASANTHAKUMAR N. BHAT, TOTAL QUALITY ENVIRONMENTAL MANAGEMENT: AN ISO 14000 APPROACH 58-62 (1998); Bell, *Modest Perspective*, *supra* note 60, at 10,623 n.4; Crusto, *Green Business*, *supra* note 17, at 235-37; Eric W. Orts, *Reflexive Environmental Law*, 89 NW. U. L. REV. 1,227, 1,287-89 (1995); Stenzel, *supra* note 11, at 249-50.

<sup>70</sup> Stenzel, *supra* note 11, at 249.

<sup>71</sup> Nash & Ehrenfeld, *supra* note 10, at 64-65. See also BHAT, *supra* note 69, at 57-69.

<sup>72</sup> BHAT, *supra* note 69, at 62-69; Case, *Regulatory Reform*, *supra* note 34, at 70; Nash & Ehrenfeld, *supra* note 10, at 64-66.

<sup>73</sup> Nash & Ehrenfeld, *supra* note 10, at 64.

<sup>74</sup> *Id.* at 65.

Standardization ("ISO") in 1996.<sup>75</sup> The initial objective underlying publication of ISO 14001 was to create a single, international EMS standard applicable to organizations of all types and sizes.<sup>76</sup> Early predictions that ISO 14001 would become the leading voluntary EMS standard around the globe have proven accurate.<sup>77</sup> From 1996 to the end of 2001, at least 1,645 United States businesses and firms "were registered as conforming to this standard."<sup>78</sup> At that time, United States registrations were increasing at a rate exceeding fifty percent per year.<sup>79</sup> By the end of 2001, "an estimated 36,765 organizations were registered" worldwide.<sup>80</sup> By the end of 2004, the estimated number of worldwide ISO 14001 registrations had increased to 90,569.<sup>81</sup> This number includes an estimated 4,759 businesses and firms in the United States.<sup>82</sup>

ISO 14001 was preceded by the European Union's ("EU") EMS standard for the continent, promulgated as part of the EU's Eco-Management and Audit Scheme ("EMAS") regulation in 1993.<sup>83</sup> Although originally intended to be mandatory, the EMAS regulation is a voluntary registration system "for companies to adopt standard procedures for environmental management, auditing, and reporting" in exchange for limited regulatory controls.<sup>84</sup> The original EMAS regulation created its own detailed EMS standard required for implementation by participating

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<sup>75</sup> Case, *Regulatory Reform*, *supra* note 34, at 70.

<sup>76</sup> See Bell, *Modest Perspective*, *supra* note 60, at 10,635.

<sup>77</sup> For these predictions, see Christopher L. Bell, *ISO 14001: Application of International Environmental Management Systems Standards in the United States*, 25 *Envtl. L. Rep. (Envtl. Law Inst.)* 10,678, at 10,678 (1995) [hereinafter Bell, *ISO 14001*] (noting that ISO 14001 was expected eventually "to become the leading voluntary environmental management systems standard inside and outside the United States."); Clifford Rechtschaffen, *Deterrence vs. Cooperation and the Evolving Theory of Environmental Enforcement*, 71 *S. CAL. L. REV.* 1,181, 1,258 (1998) ("[T]he ISO 14000 environmental standards are . . . predicted to become the most widely accepted global environmental standards and a condition of doing business with a number of countries and corporations.").

<sup>78</sup> NDEMS FINAL REPORT, *supra* note 64, at ES-1.

<sup>79</sup> *Id.*

<sup>80</sup> *Id.*

<sup>81</sup> ISO CENT. SECRETARIAT, *THE ISO SURVEY—2004 4* (2005), available at <http://www.iso.org/iso/en/prods-services/otherpubs/pdf/survey2004.pdf>.

<sup>82</sup> *Id.*

<sup>83</sup> S. WAYNE ROSENBAUM, *ISO 14001 AND THE LAW: LEGAL GUIDE FOR THE IMPLEMENTATION OF THE ENVIRONMENTAL MANAGEMENT STANDARDS* 19 (1998).

<sup>84</sup> Case, *Corporate Environmental Reporting*, *supra* note 2, at 402-03. See also Orts, *supra* note 69, at 1,233; Rosenbaum, *supra* note 83 at 19.

companies.<sup>85</sup> However, the regulation subsequently underwent a substantive revision and the EU enacted an amended version in 2001.<sup>86</sup> The perception that EMAS and ISO 14001 were in direct competition contributed to low rates of participation in the EMAS program.<sup>87</sup> "In an effort to reverse this trend," the revised EMAS regulation establishes ISO 14001 as the EMS "required as a condition of participation in the EMAS program."<sup>88</sup>

Notwithstanding standardization trends, significant variation in EMSs exist because of the differences inherent in individual organizational settings and various external standards adhered to by firms.<sup>89</sup> Cary Coglianese and Jennifer Nash emphasize that EMS standards "vary along five key dimensions," which include (1) "the ambitiousness of the environmental objectives they require managers to establish," (2) "the trustworthiness of the EMSs they specify," (3) "the level of monitoring they call for," (4) "the type of sanctions they impose on firms that do not measure up, and" (5) "the transparency of the EMS and of the organization's performance to the public."<sup>90</sup> Although such variation may impact their potential effectiveness, the fact that EMSs are uniquely adaptable to the organizations that use them is considered a virtue.<sup>91</sup> Implementing an EMS in conformance with an existing external standard, such as ISO 14001, still allows corporate managers substantial flexibility to design and adapt a system that reflects individualized needs and circumstances.<sup>92</sup> Despite such potential variability, there are a number of essential elements considered common to any formal EMS.<sup>93</sup>

The first essential component of a formal EMS is the adoption of a written environmental policy.<sup>94</sup> This policy is considered a public communication of the organization's commitment to the EMS and the value of the program to the organization's overall priorities and goals.<sup>95</sup> Moreover,

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<sup>85</sup> See Orts, *supra* note 69, at 1,299-1,301 (describing components of EMS requirements contained in original EMAS regulation).

<sup>86</sup> Case, *Corporate Environmental Reporting*, *supra* note 2, at 403.

<sup>87</sup> *Id.* at 403-404 n.143.

<sup>88</sup> *Id.* at 404 n.143.

<sup>89</sup> Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 4. For a basic comparison of EMS requirements between firm structured, trade association, and standardized EMSs, see *id.* at 4-7, and Nash & Ehrenfeld, *supra* note 10, at 68-70.

<sup>90</sup> Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 5.

<sup>91</sup> *Id.* at 4.

<sup>92</sup> *Id.* at 6-7.

<sup>93</sup> *Id.*

<sup>94</sup> Darnall et al., *Environmental Management Systems*, *supra* note 15, at 1; Andrews et al., *supra* note 10, at 32.

<sup>95</sup> WILSON & SASSEVILLE, *supra* note 57, at 72.



this policy is intended to guide and inform all activity relating to design, implementation, and execution of the operating systems created to achieve the objectives of the EMS.<sup>96</sup> Next, the system must establish a process to identify the "environmental aspects and impacts of [the organization's] operations," including the environmental regulatory requirements with which the firm must comply.<sup>97</sup> The system must further establish priorities, objectives, and "targets for continuous improvement in [the firm's] environmental performance."<sup>98</sup> These goals and objectives are based on "the environmental aspects and impacts of [the company's] operations" and are intended to create an organizational understanding of what implementation of the EMS is expected to achieve.<sup>99</sup>

Next, the EMS must "assign clear responsibilities for [system] implementation, training, monitoring [system performance], and [for the undertaking of] corrective actions."<sup>100</sup> Further, the system must include a process of periodic evaluation and refinement to promote continuing improvement in implementation of the system, and the achievement of desired goals and objectives.<sup>101</sup> Conceptually, an EMS is a perpetually ongoing process.<sup>102</sup> Thus, "continuing measurement and review" must be conducted to provide information to make such periodic adjustments as may be necessary to achieve the desired environmental performance.<sup>103</sup>

These core components are often referred to as the "plan-do-check-act" model of systemic management because of emphasis upon continuous improvement in goal setting, implementation, monitoring, and corrective action procedures.<sup>104</sup> EMSs are founded on a "total quality management" framework, a groundbreaking approach to managing complex organizations developed by W. Edwards Deming in the 1950s.<sup>105</sup> A central

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<sup>96</sup> See generally Nash & Ehrenfeld, *supra* note 10, at 67.

<sup>97</sup> WILSON & SASSEVILLE, *supra* note 57, at 72-73; Andrews et al., *supra* note 10, at 32; Darnall et al., *Environmental Management Systems*, *supra* note 15, at 1.

<sup>98</sup> Andrews et al., *supra* note 10, at 32; Darnall et al., *Environmental Management Systems*, *supra* note 15, at 1.

<sup>99</sup> WILSON & SASSEVILLE, *supra* note 57, at 73; Darnall et al., *Environmental Management Systems*, *supra* note 15, at 1.

<sup>100</sup> WILSON & SASSEVILLE, *supra* note 57, at 75-77; Andrews et al., *supra* note 10, at 32; Darnall et al., *Environmental Management Systems*, *supra* note 15, at 1-2.

<sup>101</sup> Andrews et al., *supra* note 10, at 32; Darnall et al., *Environmental Management Systems*, *supra* note 15, at 2.

<sup>102</sup> WILSON & SASSEVILLE, *supra* note 57, at 77.

<sup>103</sup> *Id.*

<sup>104</sup> *Id.* at 69; Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 11; Malloy, *supra* note 10, at 493.

<sup>105</sup> Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 10; Elliot, *supra* note 18, at 1,853.

premise of total quality management theory is that poor system design contributes to more problems in quality than inattentive or potentially neglectful workers.<sup>106</sup> Thus, managers and all employees should strive to continuously improve not only the company's products but also the processes by which those products are produced.<sup>107</sup> Within a total quality management approach all employees of the organization carry out activities in pursuit of the same goals and objectives.<sup>108</sup> The expected positive effect of a total quality management approach on the company's environmental performance is founded on the theory that "systematic efforts tend to yield better results than nonsystematic or haphazard efforts."<sup>109</sup> ISO 14001 was strongly influenced by the earlier published (1987) and widely utilized ISO 9000 series of total quality management system standards.<sup>110</sup>

Numerous factors contributed to the increase in the voluntary adoption of EMSs.<sup>111</sup> Regulatory pressures imposed by more than three decades of increasingly strict environmental legislation have motivated many regulated entities to take management of environmental concerns seriously.<sup>112</sup> Substantial focus and effort towards regulatory compliance "shaped the environmental management of leading firms."<sup>113</sup> Importantly, regulatory pressures increased demand for sophisticated environmental management methods and environmental specialists to help firms comply with regulatory mandates.<sup>114</sup> Empirical studies suggest that regulatory pressures strongly and specifically influence the decisions of many firms to voluntarily adopt a formal EMS.<sup>115</sup>

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<sup>106</sup> Elliot, *supra* note 18, at 1,853.

<sup>107</sup> Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 10-11; Elliot, *supra* note 18, at 1,853.

<sup>108</sup> Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 11; Nash & Ehrenfeld, *supra* note 10, at 67.

<sup>109</sup> Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 10.

<sup>110</sup> See Stenzel, *supra* note 11, at 241-42; see also WILSON & SASSEVILLE, *supra* note 57, at 179; Bell, *ISO 14001*, *supra* note 77, at 10,679; Nash & Ehrenfeld, *supra* note 10, at 67.

<sup>111</sup> See Bell, *Modest Perspective*, *supra* note 60 at 10,623; Carr & Thomas, *supra* note 37, at 88-95; Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 8.

<sup>112</sup> Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 8.

<sup>113</sup> *Id.*

<sup>114</sup> *Id.*

<sup>115</sup> NDEMS FINAL REPORT, *supra* note 64, at 93-94, 105 (noting that of the external drivers motivating such decisions, "traditional regulatory pressures had the greatest influence on [study participants'] decisions to adopt an EMS"); Nicole Darnall, *Motivations for Participating in a U.S. Voluntary Environmental Initiative: The Multi-State Working Group and EPA's EMS Pilot Program*, in RESEARCH IN CORPORATE SUSTAINABILITY 123, 138-41 (S. Sharma & M. Starik eds., 2003).

Moreover, beginning in the mid-1980s, criminal enforcement of environmental regulatory non-compliance became a serious concern for corporate managers.<sup>116</sup> Criminal provisions were added to various federal environmental statutes throughout the 1970s.<sup>117</sup> However, the "American phenomenon" of the "criminalization of environmental law" did not commence in earnest until the late 1980s and into the 1990s.<sup>118</sup> Indeed, only twenty-five environmental criminal prosecutions were commenced during the 1970s.<sup>119</sup> It was not until the early 1980s, after Congress created environmental felonies, that the "use of criminal proceedings [in environmental enforcement] became standard practice."<sup>120</sup>

During the 1990s, the likelihood for both corporate and individual criminal penalties due to regulatory non-compliance placed increased pressure upon corporate executives and managers to "achieve and maintain full compliance with environmental laws."<sup>121</sup> Because many environmental laws and regulations lack intent requirements or knowledge standards, prosecutions of corporate officers and managers are possible in situations where there is no specific intent to violate the law.<sup>122</sup> Averse to the possibility of such consequences, corporate managers increasingly emphasized the implementation of improved environmental management practices and tools.<sup>123</sup> Related factors that encourage firms to adopt EMSs are that prosecutorial decisions as to whether to bring a criminal enforce-

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<sup>116</sup> Carr & Thomas, *supra* note 37, at 88-95.

<sup>117</sup> Jeremy Firestone, *Enforcement of Pollution Laws and Regulations: An Analysis of Forum Choice*, 27 HARV. ENVTL. L. REV. 105, 110 (2003).

<sup>118</sup> *Id.*

<sup>119</sup> *Id.*

<sup>120</sup> *Id.* For a discussion of more recent environmental criminal enforcement efforts, see Neal Shover & Aaron S. Routhe, *Environmental Crime*, 32 CRIME & JUST. 321 (2005).

<sup>121</sup> Carr & Thomas, *supra* note 37, at 88.

<sup>122</sup> *Id.* See, e.g., *United States v. Weitzenhoff*, 35 F.3d 1,275, 1,283-84 (9th Cir. 1994) (finding that intent requirement for criminal conduct under the Clean Water Act means knowingly engaging in conduct that is a regulatory violation rather than the knowing intent to violate the regulation). The merits of applying general rather than specific intent *mens rea* requirements in environmental criminal enforcement have been vigorously debated. See also Carr & Thomas, *supra* note 37, at 100-02; Richard J. Lazarus, *Meeting the Demands of Integration in the Evolution of Environmental Law: Reforming Environmental Criminal Law*, 83 GEO. L.J. 2,407 (1995); Lois J. Schiffer & James F. Simon, *The Reality of Prosecuting Environmental Criminals: A Response to Professor Lazarus*, 83 GEO. L.J. 2,531 (1995).

<sup>123</sup> Carr & Thomas, *supra* note 37, at 85-86, 97, 102.

ment action as well as mitigation in sentencing for corporate environmental crimes can be affected by the existence of such a management program.<sup>124</sup>

Incentives for self-auditing of regulatory compliance contained in self-policing policies of federal and state environmental agencies also encourage firms to adopt formal EMSs.<sup>125</sup> The Environmental Protection Agency ("EPA"), seeking to encourage firms to use environmental auditing to assist regulatory compliance efforts, adopted its first self-policing policy in 1986.<sup>126</sup> This initial policy did not induce regulated entities into significant voluntary auditing.<sup>127</sup> As a result, the EPA adopted an expanded policy statement in 1995 that provided for reductions and even waivers of civil and criminal penalties for regulatory violations discovered through regular environmental audits if self-reported and promptly corrected.<sup>128</sup> The EPA adopted a further revised policy statement in 2000.<sup>129</sup>

The EPA's policy provides greater benefits to firms that voluntarily disclose violations discovered through "systematic discovery," meaning "through an environmental audit or a compliance management system that reflects the entity's due diligence in preventing, detecting and correcting violations."<sup>130</sup> Specifically, "gravity-based penalties" are fully waived for voluntarily disclosed regulatory violations detected through "systematic discovery," while such penalties are only reduced by 75 percent for violations discovered through other, non-systematic means.<sup>131</sup> "Gravity-based penalties" are the punitive portion of a civil penalty.<sup>132</sup> This is the "portion of a penalty over and above the economic benefit" to

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<sup>124</sup> Bell, *Modest Perspective*, *supra* note 60, at 10,623 (discussing U.S. Department of Justice prosecutorial discretion policies and federal sentencing guidelines in the area of environmental criminal enforcement).

<sup>125</sup> See BHAT, *supra* note 69, at 104-08; Carr & Thomas, *supra* note 37 at 106-19; Stenzel, *supra* note 11, at 264-68. For a recent discussion of state adoption of environmental audit legislation and self-policing policies, see Sarah L. Stafford, *State Adoption of Environmental Audit Initiatives*, 24 CONTEMP. ECON. POLY 172, 173-79 (2006).

<sup>126</sup> See Environmental Auditing Policy Statement, 51 Fed. Reg. 25,004 (July 9, 1986).

<sup>127</sup> See Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations, 60 Fed. Reg. 66,706 (Dec. 22, 1995) [hereinafter 1995 Policy on Incentives for Self-Policing]; Allison F. Gardner, *Beyond Compliance: Regulatory Incentives to Implement Environmental Management Systems*, 11 N.Y.U. ENVTL. L. J. 662, 676-77 (2003).

<sup>128</sup> Gardner, *supra* note 127, at 662, 676-77.

<sup>129</sup> Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations, 65 Fed. Reg. 19,618 (Apr. 11, 2000) [hereinafter 2000 Policy on Incentives for Self-Policing].

<sup>130</sup> *Id.* at 19,620.

<sup>131</sup> *Id.* at 19,625.

<sup>132</sup> *Id.*

the defendant from non-compliance with environmental regulation.<sup>133</sup> Criminal penalties are also eligible for waiver if voluntarily disclosed under the terms of the EPA's self-policing policy, although waiver of criminal penalties is not limited solely to violations discovered through systematic means.<sup>134</sup> In this regard, the 2000 policy is a change from the 1995 policy, under which only violations discovered through an environmental audit or other systemic process and promptly disclosed and corrected were eligible for waiver of criminal penalties.<sup>135</sup>

The EPA's self-policing policy defines a "compliance management system" as "encompass[ing] the regulated entity's documented systematic efforts, appropriate to the size and nature of its business, to prevent, detect and correct violations."<sup>136</sup> The "due diligence criteria" from the 1995 policy, which included but did not define the term "compliance management system," are now included within the definition of "compliance management system" in the 2000 policy.<sup>137</sup> The EPA policy does not specify any particular standard to which a "compliance management system" must adhere but does state:

Compliance management programs that train and motivate employees to prevent, detect and correct violations on a daily basis are a valuable complement to periodic auditing. Where the violation is discovered through a compliance management system and not through an audit, the disclosing entity should be prepared to document how its program reflects the due diligence criteria defined in Section B of the Policy statement. These criteria, which are adapted from existing codes of practice—such as Chapter Eight of the U.S. Sentencing Guidelines for organizational defendants, effective since 1991—are flexible

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<sup>133</sup> *Id.*

<sup>134</sup> *Id.*

<sup>135</sup> 1995 Policy on Incentives for Self-Policing, *supra* note 127, at 66,711.

<sup>136</sup> 2000 Policy on Incentives for Self-Policing, *supra* note 129, at 19,625.

<sup>137</sup> *See id.* at 19,621 ("The revised Policy uses the term 'compliance management system' instead of 'due diligence,' which was used in the 1995 Policy. . . . No substantive difference is intended by substituting the term 'compliance management system' for 'due diligence.'"); Gardner, *supra* note 127, at 677; *see also* Carr & Thomas, *supra* note 37, at 112-13 (discussing due diligence criteria of 1995 self-policing policy). Compare 1995 Policy on Incentives for Self-Policing, *supra* note 127, at 66,710-11 (describing due diligence criteria) with 2000 Policy on Incentives for Self-Policing, *supra* note 129, at 19,625 (defining "compliance management system").

enough to accommodate different types and sizes of businesses and other regulated entities. The [EPA] recognizes that a variety of compliance management programs are feasible, and it will determine whether basic due diligence criteria have been met in deciding whether to grant Audit Policy credit.<sup>138</sup>

A formal EMS established pursuant to a leading external standard such as ISO 14001 would appear to satisfy the formal requisites for a "compliance management system" as defined by the EPA self-policing policy.<sup>139</sup> Paulette Stenzel argues that "ISO 14001 certification, and maintenance of that certification, can be used to demonstrate that a company has a compliance management program" which should, "[i]n turn, . . . qualify the company for relief from gravity-based penalties resulting from environmental laws violations."<sup>140</sup> In an evaluation of the 1995 policy conducted by the EPA in 1999, "forty-three percent of the responding regulated entities reported that they implemented some" form of EMS as a direct result of the policy, and fifty percent of others indicated "that the Policy encouraged improvements to their [existing] EMS."<sup>141</sup> These survey results are somewhat limited in their empirical value, however, because the sample group numbered only 50 entities.<sup>142</sup> Moreover, no data on the quality or comprehensiveness of the EMSs in question was included as part of the survey.<sup>143</sup>

Another factor that potentially encourages voluntary EMS adoption among businesses is the strategic desire to promote a regulatory model of industry "self-regulation" as an alternative to traditional environmental regulation.<sup>144</sup> Since the late 1980s advocates of "next generation" regulatory

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<sup>138</sup> 2000 Policy on Incentives for Self-Policing, *supra* note 129, at 19,621.

<sup>139</sup> *Id.*

<sup>140</sup> Stenzel, *supra* note 11, at 266. See also 2000 Policy on Incentives for Self-Policing, *supra* note 129, at 19,621; Bell, *Modest Perspective*, *supra* note 60, at 10,623 ("The elements of due diligence [in the 1995 audit policy] are consistent with the basic principles of EMS, including ISO 14001.").

<sup>141</sup> Gardner, *supra* note 127, at 681 (citing Evaluation of "Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations" Policy Statement, Proposed Revisions and Request for Public Comment, 64 Fed. Reg. 26,745 (May 17, 1999)).

<sup>142</sup> Gardner, *supra* note 127, at 681-82.

<sup>143</sup> *Id.* at 682. For an analysis of the effect of the EPA's self-policing policy on compliance behavior, see Sarah Stafford, *Does Self-Policing Help the Environment? EPA's Audit Policy and Hazardous Waste Compliance*, 6 VT. J. ENVTL. L. 1, 16-21 (2005).

<sup>144</sup> Stenzel, *supra* note 11, at 257-58; Andrews et al., *supra* note 10, at 41.

reform have promoted the self-regulation concept which seeks exemptions "from specific command-and-control requirements in lieu of industry proposed alternative compliance plans often designed in collaboration with government regulators and public interest groups."<sup>145</sup> In this regard, heavily regulated industries and trade associations may have embraced EMS approaches out of a desire to potentially "preempt more stringent environmental regulation," as well as to encourage consideration of self-regulation through formal EMSs as a viable alternative to government regulation.<sup>146</sup> In addition, market pressures from consumers, customers, and competitors, as well as social pressures, developed through "environmental groups, citizens groups and the media," are cited as potential influences on the decisions of firms to adopt formal EMSs as a means of signaling environmentally responsible behavior to such constituencies.<sup>147</sup>

The EPA and state environmental agencies are also encouraging voluntary EMS adoption by firms through voluntary initiatives and creation of other incentives for EMS experimentation and research.<sup>148</sup> The EPA has issued multiple position statements committing to "promote the voluntary adoption of EMSs," including in 1998, 2002, and, most recently, in February 2006.<sup>149</sup> The most recent statement reflects the EPA's vow to continue to "encourage widespread use of EMSs across a range of organizations and settings, with particular emphasis on adoption of EMSs to achieve improved environmental performance and compliance, pollution prevention through source reduction, and continual

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<sup>145</sup> Case, *Regulatory Reform*, *supra* note 34, at 33, 36. See also Steinzor, *supra* note 55, at 104.

<sup>146</sup> NDEMS FINAL REPORT, *supra* note 64, at 94. See Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 14-15; Stenzel, *supra* note 11, at 257-58.

<sup>147</sup> NDEMS FINAL REPORT, *supra* note 64, at 95. See Andrews et al., *supra* note 10, at 47-49; Stenzel, *supra* note 11, at 270-71; see also Pezzoli, *supra* note 56, at 354 ("Theories developed within the framework of strategic management, organizational, and innovation studies suggest that public pressures have been among the most important driving forces for changes in firm behavior.").

<sup>148</sup> See NDEMS FINAL REPORT, *supra* note 64, at 94-95, 276; Case, *Regulatory Reform*, *supra* note 34, at 70-75; Nash & Ehrenfeld, *supra* note 10, at 73. For a listing of EMS initiatives supported by the EPA, see U.S. ENVTL. PROT. AGENCY, EMS INITIATIVES SUPPORTED BY EPA, <http://www.epa.gov/ems/initiatives/index.htm> (last visited Dec. 1, 2006).

<sup>149</sup> Position Statement on Environmental Management Systems (EMSs), 71 Fed. Reg. 5,664, at 5,665 (Feb. 2, 2006) [hereinafter 2006 EPA Position Statement]. See EPA Position Statement on Environmental Management Systems and ISO 14001, 63 Fed. Reg. 12,094, 12,095 (Mar. 12, 1998); Gardner, *supra* note 127, at 674 n.51 (discussing 2002 EMS position statement which was not published in the Federal Register).

improvement.”<sup>150</sup> Significantly, the 2006 statement also emphasizes the EPA’s intent to “encourage the use of recognized environmental management frameworks, such as the ISO 14001 Standard, as a basis for designing and implementing EMSs that aim to achieve outcomes aligned with the nation’s environmental policy goals.”<sup>151</sup>

Similarly, in April 2004, the EPA issued a report declaring the agency’s continuing commitment to participating in “informed experimentation . . . on the potential benefits and drawbacks of incorporating EMSs into the regulatory structure.”<sup>152</sup> Regarding the potential for incorporating EMSs into environmental regulatory strategy, the 2004 report states:

EPA will continue to promote the widespread adoption of EMS, while exploring the potential value of linking EMSs to regulatory structures—either in terms of improving the regulatory structure, encouraging EMSs, or both. EPA is interested in exploring the use of EMSs as an alternative within the regulatory structure through careful experimentation. . . . [However,] EPA has no intention of mandating the use of EMSs in rules and[/]or permits. Rather, by looking at the possible consideration of EMSs within regulatory structures, EPA is hoping to determine whether drafting rules or permits to provide organizations that choose to adopt EMSs with regulatory alternatives, options, or benefits may lead to more effective and efficient regulations. EPA will continue to explore the future of EMS efforts within voluntary programs and will expand this exploration to determine how and if these efforts should extend into the regulatory arena.<sup>153</sup>

Previously, the EPA issued a major report in 1999 entitled *Aiming for Excellence: Actions to Encourage Stewardship and Accelerate Environmental Progress* affirming the agency’s commitment to significant evaluation

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<sup>150</sup> 2006 EPA Position Statement, *supra* note 149, at 5,665.

<sup>151</sup> *Id.*

<sup>152</sup> EMS PERMITS AND REGULATIONS WORKGROUP, EPA’S STRATEGY FOR DETERMINING THE ROLE OF ENVIRONMENTAL MANAGEMENT SYSTEMS IN REGULATORY PROGRAMS 3 (2004), available at <http://www.epa.gov/permits/ems/emsstrategy.pdf>.

<sup>153</sup> *Id.*



and research efforts to determine how EMSs might be used to further environmental policy.<sup>154</sup>

A number of Clinton-era EPA regulatory "reinvention" programs focused on testing and evaluation of formal EMSs, including Project XL, the Common Sense Initiative, and the Environmental Leadership Program ("ELP").<sup>155</sup> The purpose of the ELP, launched in June 1994, was to "test innovative environmental management techniques and approaches,"<sup>156</sup> and was described by Clifford Rechtschaffen as "[t]he EPA's vehicle for encouraging environmental management systems."<sup>157</sup> The ELP has been supplanted by the EPA's National Environmental Performance Track initiative established in June 2000.<sup>158</sup> The Performance Track initiative draws on earlier EPA EMS-related programs, and seeks to encourage firms to implement formal EMSs and obtain superior levels of environmental performance in exchange for such benefits as public recognition by the EPA as a leader in environmental compliance.<sup>159</sup>

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<sup>154</sup> Case, *Regulatory Reform*, *supra* note 34, at 70-71; EPA INNOVATION TASK FORCE, U.S. ENVTL. PROT. AGENCY, EPA 100-R-99-006, AIMING FOR EXCELLENCE: ACTIONS TO ENCOURAGE STEWARDSHIP AND ACCELERATE ENVIRONMENTAL PROGRESS 12 (1999). For an analysis of the entirety of the EPA's *Aiming for Excellence* report, see Case, *Regulatory Reform*, *supra* note 34, at 59-89. For additional discussion of the implications of EMS adoption on environmental policy, see Cary Coglianese & Jennifer Nash, *Toward a Management-Based Environmental Policy*, in REGULATING FROM THE INSIDE: CAN ENVIRONMENTAL MANAGEMENT SYSTEMS ACHIEVE POLICY GOALS?, *supra* note 4, at 222 [hereinafter Coglianese & Nash, *Toward a Management-Based Environmental Policy*].

<sup>155</sup> Case, *Regulatory Reform*, *supra* note 34, at 41.

<sup>156</sup> *Id.* at 40-41.

<sup>157</sup> Rechtschaffen, *supra* note 77, at 1,260.

<sup>158</sup> See Program Description of the National Environmental Achievement Track, 65 Fed. Reg. 41,655 (July 6, 2000); Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 15; Gardner, *supra* note 127, at 689-90. For current information on the National Environmental Performance Track, see Environmental Protection Agency, National Environmental Performance Track, <http://www.epa.gov/performancectrack> (last visited Dec. 1, 2006).

<sup>159</sup> Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 15; Gardner, *supra* note 127, at 691-92. In a recent EPA news release, the Agency described overall benefits of the Performance Track program as follows:

The benefits of Performance Track go beyond cleaner air, water, and soil. First, Performance Track allows EPA and state regulators to maximize their resources, because members' demonstrated commitment to environmental excellence, when combined with EPA's ongoing oversight, mean Performance Track facilities can be considered a lower priority for routine inspections. Second, the recognition afforded to Performance Track members shines a spotlight on each facility's environmental performance, encouraging them to live up to and exceed public expectations. Third, Performance Track members reach out to

Notwithstanding the proliferation of such voluntary initiatives to promote EMS adoption, there is an open question as to whether such programs are inducing firms to adopt formal EMSs in significant numbers.<sup>160</sup> A “relatively small proportion” of firms in the United States participate in voluntary environmental initiatives.<sup>161</sup> Indeed, consistently low participation rates in such initiatives have been a fundamental criticism, contributing to a “perception that EPA voluntary programs are largely insignificant and ultimately ineffectual.”<sup>162</sup> As of August 2006, the EPA reported that “more than 400” industrial facilities are participating in the Performance Track.<sup>163</sup> However, because such participants are “a self-selected group” likely engaged in “beyond compliance” level environmental performance prior to choosing to participate, the program may not be inducing EMS adoption by firms not otherwise already inclined to do so.<sup>164</sup>

### III. INDUCING CORPORATE BEHAVIORAL CHANGE THROUGH THE USE OF FORMAL EMSs

Policy approaches encouraging or mandating EMS adoption may have the potential to induce change in corporate environmental behavior that will result in increased environmental protection. Cary Coglianese

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their local communities to identify and respond to concerns and to keep community members informed of their environmental performance. Finally, Performance Track members regularly share their knowledge and experience with other members and nonmembers, promoting the wider adoption of environmental best practices.

Environmental Protection Agency, Performance Track Celebrates Five Years of Environmental Leadership, <http://www.epa.gov/performance-track/5th-Anniversary.htm> (last visited Dec. 1, 2006) [hereinafter Performance Track Celebrates Five Years].

<sup>160</sup> See Malloy, *supra* note 10, at 514 (observing that EPA EMS-based programs such as Performance Track and StarTrack and a similar state program established in Oregon appear “unlikely to produce widespread adoption of EMSs”).

<sup>161</sup> NDEMS FINAL REPORT, *supra* note 64, at 93.

<sup>162</sup> David W. Case, *The EPA’s HPV Challenge Program: A Tort Liability Trap*, 62 WASH. & LEE L. REV. 147, 198 (2005) (discussing low participation rates for EPA voluntary environmental initiatives and noting that “[s]uch minimal participation rates are among explanations offered as to why past EPA voluntary programs disappoint both in terms of results and impact.”).

<sup>163</sup> Performance Track Celebrates Five Years, *supra* note 159.

<sup>164</sup> Gardner, *supra* note 127, at 692. See also Andrews et al., *supra* note 10, at 45, 57 n.7 (discussing participants in EPA supported National Environmental on Environmental Management Systems research pilot project and reporting that “nearly two-thirds reported [prior] participation in other voluntary environmental management incentive programs” including prior EMS implementation).

and Jennifer Nash characterize this as "management-based" environmental regulatory strategy "used by those *outside* an organization to change the management practices and behaviors of those on the *inside*."<sup>165</sup> But, how does adopting a formal EMS potentially effectuate positive change in corporate environmental behavior? Extant research on the role of formal EMS adoption suggests that their impact on firm behavior "is by no means assured or always significant."<sup>166</sup> Indeed, the individual conditions and circumstances under which firms design, implement, and operate a formal EMS play a critical role in their potential success in producing improved environmental performance.<sup>167</sup>

In exploring the potential of formal EMS adoption to motivate corporate environmental behavioral change, however, a recurrent theme is the ability of such systems to generate information on a firm's environmental impacts and performance.<sup>168</sup> Information has emerged as a potential success story in the search for effective and efficient alternatives to traditional environmental regulatory approaches.<sup>169</sup> Empirical research, though limited, demonstrates that public information disclosure can motivate environmental performance improvements by regulated firms.<sup>170</sup> Such "informational regulation" utilizes information

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<sup>165</sup> Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,005. *See also* Malloy, *supra* note 10, at 460 (discussing "an alternative regulatory approach in which the regulator directly intervenes in the management function, mandating or otherwise encouraging the use of an environmental management system.").

<sup>166</sup> Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,004. *See also* NDEMS FINAL REPORT, *supra* note 64, at ES-25 (noting that because of their variability, "[t]he existence or certification of an EMS per se does not necessarily provide any clear information, or information comparable to other facilities, about the facility's actual environmental performance, compliance, or rate of improvement.").

<sup>167</sup> *See* NDEMS FINAL REPORT, *supra* note 64, at ES-25 to ES-27; Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,004; Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 16; Nash & Ehrenfeld, *supra* note 10, at 73-75. *See generally* Andrews et al., *supra* note 10, at 35-43 (discussing theories of corporate behavior and environmental performance).

<sup>168</sup> *See* Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 16.

<sup>169</sup> *See* Case, *Corporate Environmental Reporting*, *supra* note 2, at 381; Vandenberg, *New Era of Environmental Law*, *supra* note 4, at 530.

<sup>170</sup> *See* James T. Hamilton, *Pollution as News: Media and Stock Market Reactions to the Toxics Release Inventory Data*, 28 J. ENVTL. ECON & MGMT. 98 (1995); Madhu Khanna et al., *Toxics Release Information: A Policy Tool for Environmental Protection*, 36 J. ENVTL. ECON & MGMT. 243 (1998); Shameek Konar & Mark A. Cohen, *Information as Regulation: the Effect of Community Right to Know Laws on Toxic Emissions*, 32 J. ENVTL. ECON & MGMT. 109 (1997). For further discussion of these studies, *see* Case, *Environmental Information as Regulation*, *supra* note 17, at 10,777-80.

disclosure mechanisms to enlist the aid of social institutions such as economic markets and public opinion to create incentives for firms to engage in self-regulatory behavior.<sup>171</sup> In theory, post-disclosure pressures brought to bear by these social institutions are a critical driver in inducing positive change in corporate environmental behavior.<sup>172</sup> Thus, the ability of formal EMSs to generate environmental performance information has important implications for the use of such instruments to motivate corporate behavioral change.

Many argue that significant and long-term improvement in a firm's environmental performance requires change in organizational structures and corporate culture.<sup>173</sup> Formal EMS development and implementation is a substantial, organization-wide undertaking, especially under leading external EMS standards.<sup>174</sup> This process can have a fundamentally transformative effect on a firm's organizational architecture and culture.<sup>175</sup> Successful EMS implementation entails integrating environmental management issues into the company's existing internal governance systems.<sup>176</sup> Such organizational restructuring integrates environmental considerations with all other primary corporate functions, theoretically resulting in cultural change that will beneficially impact the firm's environmental performance and outcomes.<sup>177</sup>

Indeed, the very nature of EMS design and implementation is to "embark on a prolonged and fundamental program[] of [organizational] change."<sup>178</sup> Thus, a "fully operational" EMS is expected to "exert a

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<sup>171</sup> See Case, *Corporate Environmental Reporting*, *supra* note 2, at 383. For additional discussion of "informational regulation" in the environmental arena, see Case, *Environmental Information as Regulation*, *supra* note 17; Mark A. Cohen, *Information as a Policy Instrument in Protecting the Environment: What Have We Learned?*, 31 *Env'tl. L. Rep.* (Env'tl. Law Inst.) 10,425 (2001); Bradley C. Karkkainen, *Information as Environmental Regulation: TRI and Performance Benchmarking, Precursor to a New Paradigm?*, 89 *GEO. L.J.* 257 (2001); Vandenberg, *New Era of Environmental Law*, *supra* note 4, at 529-33.

<sup>172</sup> Case, *Corporate Environmental Reporting*, *supra* note 2, at 383.

<sup>173</sup> Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 11.

<sup>174</sup> *Id.* at 11-12; John Moxen & Peter A. Strachan, *ISO 14001: A Case of Cultural Myopia*, 7 *ECO-MGMT. & AUDITING* 82, 86 (2000).

<sup>175</sup> Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 11-12; Moxen & Strachan, *supra* note 174, at 86.

<sup>176</sup> Magali Delmas, *Stakeholders and Competitive Advantage: The Case of ISO 14001*, 10 *PRODUCTION & OPERATIONS MGMT.* 343, 346 (2001). See also Andrews et al., *supra* note 10, at 39 (discussing arguments for "increased integration of environmental considerations throughout . . . corporate management incentive systems.").

<sup>177</sup> Delmas, *supra* note 176, at 346.

<sup>178</sup> Moxen & Strachan, *supra* note 174, at 86.

powerful influence" over the perceptions, actions and decision-making of managers and employees.<sup>179</sup> However, such a profound impact on the organization is more likely to occur if employees at all levels, from top management to front line workers, are involved in design and implementation of the EMS.<sup>180</sup>

As emphasized in Part II, a formal EMS requires upper management to develop an environmental policy to guide implementation and operation of the system.<sup>181</sup> The policy guides identification of the organization's environmental impacts and determination of environmental goals and objectives.<sup>182</sup> This process may create new or increased environmental awareness and comprehension at the highest levels of the organization, and "instill new ways of thinking" about environmental impacts by top-level management.<sup>183</sup> Commentators caution, however, that the attitude or commitment that managers bring to environmental management concerns *ex ante* may strongly influence the potential effectiveness of formal EMSs in improving a firm's environmental performance.<sup>184</sup> Said another way, the existing attitudes and commitments of firm managers towards environmental concerns may well be an independent variable affecting the ability of formal EMSs to induce positive corporate behavioral change.<sup>185</sup>

Nonetheless, the ability to involve employees at all levels in EMS design, implementation, and operation potentially has organization-wide implications for corporate behavior.<sup>186</sup> Such universal employee involvement increases environmental awareness firm-wide, which may positively influence actions and decision-making at all levels of the organization.<sup>187</sup> Further, leading EMS standards such as ISO 14001 require substantial and ongoing "programs for training, awareness and competence among

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<sup>179</sup> *Id.* at 85.

<sup>180</sup> Delmas, *supra* note 176, at 346.

<sup>181</sup> See *supra* notes 94-96 and accompanying text.

<sup>182</sup> See *supra* note 95 and accompanying text.

<sup>183</sup> Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 12.

<sup>184</sup> *Id.* at 18 ("Firms that volunteer to adopt an EMS do so because of some preexisting commitment to improving their environmental performance and therefore are less likely to implement these systems merely in token ways."); Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,007-08; GUNNINGHAM ET AL., *supra* note 47, at 96-97.

<sup>185</sup> See Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,007-08; Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 17-18.

<sup>186</sup> See Delmas, *supra* note 176, at 346.

<sup>187</sup> *Id.*

all employees.”<sup>188</sup> Such programs will further “increase awareness of environmental impacts of operations among all employees,”<sup>189</sup> and focus firm-wide attention toward opportunities for environmental performance improvement.<sup>190</sup>

As emphasized above, the linchpin to the ability of formal EMS adoption to change corporate environmental behavior is the information that such management systems generate.<sup>191</sup> Commentators observe that information generated through EMSs has the potential to change corporate behavior by “providing feedback directly to decisionmakers” regarding opportunities to reduce environmental impacts and risks.<sup>192</sup> As Shelley Metzenbaum emphasizes, “[i]f the information gets distributed to people who can and will do something about it, then environmental feedback information can improve the organization’s environmental performance.”<sup>193</sup> Further, information generated through EMSs can be disseminated to external stakeholders who then influence the behavior of corporate decisionmakers by bringing to bear post-disclosure public and market-based pressures.<sup>194</sup>

“Management-based” environmental regulatory strategies require firms and their managers to “invest in information gathering.”<sup>195</sup> Firms may lack adequate incentives to gather information necessary to identify opportunities to improve environmental performance.<sup>196</sup> Leading external EMS standards, however, require firms to collect copious amounts of information and to generate and maintain records as part of ongoing environmental management processes.<sup>197</sup> This investment in the generation of information on environmental impacts, risks, and performance alternatives is the “key” to internal, management-directed corporate

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<sup>188</sup> Morrow & Rondinelli, *supra* note 61, at 162.

<sup>189</sup> *Id.* at 163.

<sup>190</sup> *Id.*

<sup>191</sup> See Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,009; Shelley H. Metzenbaum, *Information, Environmental Performance, and Environmental Management Systems*, in *REGULATING FROM THE INSIDE: CAN ENVIRONMENTAL MANAGEMENT SYSTEMS ACHIEVE POLICY GOALS?*, *supra* note 4, at 146, 156-59.

<sup>192</sup> Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,009.

<sup>193</sup> Metzenbaum, *supra* note 191, at 155.

<sup>194</sup> Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,009.

<sup>195</sup> *Id.*

<sup>196</sup> *Id.*

<sup>197</sup> WILSON & SASSEVILLE, *supra* note 57, at 119-21, 128-29; Morrow & Rondinelli, *supra* note 61, at 162.

behavioral change.<sup>198</sup> Indeed, "knowledge of any environmental problem is a necessary condition for managers to find a solution."<sup>199</sup>

Moreover, even in the absence of evidence that EMSs improve environmental outcomes, policymakers may nonetheless want to encourage firms to adopt EMSs because of the ability of such systems to generate "credible and comparable environmental performance information."<sup>200</sup> Considerable policy benefits can occur if such information is disseminated to third parties, such as workers, consumers, shareholders, regulators, and the general public.<sup>201</sup> Public disclosure of comparable environmental performance data has the potential to encourage corporate environmental behavioral change through "a multilayered, mutually reinforcing system of internal and external performance monitoring and benchmarking."<sup>202</sup> In a seminal *Georgetown Law Journal* article on environmental informational regulation, Bradley Karkkainen emphasized that the informal monitoring regime triggered by public information disclosure imposes diverse forms of social and market-based pressure on corporate environmental behavior.<sup>203</sup> This informal regime includes self-monitoring from firm managers and external monitoring performed by industry competitors, government regulators, local communities, and economic markets.<sup>204</sup>

Significantly, however, EMSs do not necessarily require public disclosure of information relative to the firm's environmental performance.<sup>205</sup> For example the leading external EMS standard, ISO 14001, requires disclosure of the firm's written environmental policy, but no other environmental performance information must be publicly disclosed.<sup>206</sup> Nonetheless, linkages between formal EMSs and corporate environmental information disclosure mechanisms are encouraged by some EMS standards and guidelines.

For example, the EU's EMAS regulation mandates extensive public environmental performance reporting.<sup>207</sup> Although implementation

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<sup>198</sup> Coglianesi & Nash, *Management-Based Strategies*, *supra* note 11, at 10,009.

<sup>199</sup> *Id.*

<sup>200</sup> Metzenbaum, *supra* note 191, at 159.

<sup>201</sup> *Id.*

<sup>202</sup> Case, *Environmental Information as Regulation*, *supra* note 17, at 10,785.

<sup>203</sup> Karkkainen, *supra* note 171, at 261-62.

<sup>204</sup> *Id.* at 261, 295-97, 309-12, 316, 323-27; Case, *Environmental Information as Regulation*, *supra* note 17, at 10,785-86.

<sup>205</sup> Coglianesi & Nash, *New Policy Agenda*, *supra* note 4, at 6.

<sup>206</sup> *Id.*; Rechtschaffen, *supra* note 77, at 1,263; Morrow & Rondinelli, *supra* note 61, at 162.

<sup>207</sup> See Case, *Corporate Environmental Reporting*, *supra* note 2, at 404-07 (describing public environmental information reporting requirements of EMAS regulation).

of a formal EMS is a core element of participation, the EMAS is primarily "an information disclosure-based system designed to promote transparency in the environmental operations and performance of participating businesses."<sup>208</sup> Indeed, the "prime objective" of EMAS is public environmental performance information disclosure, which is primarily achieved through the mandatory preparation of a formal corporate environmental report.<sup>209</sup> Further, environmental management principles and guidelines created by some non-governmental environmental organizations, most notably GEMI, CERES, and the ICC, also call for periodic reporting of information to the public as part of an overall environmental management strategy.<sup>210</sup>

Similar to the trend toward formal EMS adoption, the practice of voluntary disclosure of environmental performance information by firms through publicly available formal corporate environmental reports has gained considerable momentum over the last two decades.<sup>211</sup> And, somewhat analogous to the growth of EMS adoption adhering to the ISO 14001 standard, the practice of voluntary environmental reporting is witnessing an ambitious standardization movement through the Amsterdam-based non-profit Global Reporting Initiative.<sup>212</sup> Regulatory approaches that link these two instruments, as is the case with the EMAS regulation, embrace a "reflexive environmental law" philosophy.<sup>213</sup> Indeed, environmental information disclosure mechanisms and environmental management systems are each included within a "family of legal instruments that reflect an emerging . . . 'reflexive law' conception of regulation."<sup>214</sup>

Reflexive law theory argues that complex social problems caused or exacerbated by business activities are often beyond the capacity of legal institutions alone to satisfactorily resolve.<sup>215</sup> Michael Vandenberg observes that "[p]roponents of reflexive environmental law assert that the complexity of environmental problems undermines both command

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<sup>208</sup> Case, *Regulatory Reform*, *supra* note 34, at 73.

<sup>209</sup> Case, *Corporate Environmental Reporting*, *supra* note 2, at 404.

<sup>210</sup> *Id.* at 396-97.

<sup>211</sup> See *id.* at 394-401 (describing evolution of voluntary regime of formal corporate environmental reporting since the late 1980s and early 1990s).

<sup>212</sup> *Id.* at 397-401.

<sup>213</sup> For a general discussion of the concept of "reflexive environmental law" see Case, *Corporate Environmental Reporting*, *supra* note 2, at 427-30; Orts, *supra* note 69, at 1,252-68; Vandenberg, *New Era of Environmental Law*, *supra* note 3, at 532-33.

<sup>214</sup> Richard B. Stewart, *A New Generation of Environmental Regulation?*, 29 CAP. U. L. REV. 21, 127, 133 (2001).

<sup>215</sup> Orts, *supra* note 69, at 1,313.



and control and market mechanisms as regulatory tools.”<sup>216</sup> Thus, “fundamental structural change in the everyday life of business institutions” is necessary to overcome the limitations of traditional regulatory methods to induce socially desirable behavior.<sup>217</sup> Reflexive law strategies seek to shift regulatory efforts away from direct regulation of firm behavior towards creation of structural processes that promote self-regulatory behavior.<sup>218</sup> These structural processes are intended to stimulate communication between firms and societal stakeholders creating incentives for corporate internalization of important societal norms.<sup>219</sup>

Environmentally beneficial management practices, such as the adoption of formal EMSs, play an important role in a reflexive environmental law strategy.<sup>220</sup> However, the most critical component influencing the potential effectiveness of a reflexive environmental law strategy is the generation and public disclosure of appropriate information.<sup>221</sup> Without sufficient information, communication between the organization and societal stakeholders about appropriate norms of corporate environmental behavior cannot occur.<sup>222</sup> Absent such communication, societal environmental goals are not internalized by corporate actors and thus integrated into corporate decision-making.<sup>223</sup> Ultimately, the primary objective of reflexive environmental law approaches, the “transformation of business culture,” will not take place.<sup>224</sup> Thus, reflexive environmental law theory strongly suggests that to effectuate positive corporate environmental behavioral change, public information disclosure mechanisms must be incorporated within formal EMS standards.

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<sup>216</sup> Vandenberg, *New Era of Environmental Law*, *supra* note 4, at 533.

<sup>217</sup> Orts, *supra* note 69, at 1,313.

<sup>218</sup> Michael P. Vandenberg, *The Private Life of Public Law*, 105 COLUM. L. REV. 2,029, 2,040 n.50 (2005); Case, *Corporate Environmental Reporting*, *supra* note 2, at 428-29.

<sup>219</sup> Stewart, *supra* note 214, at 127-29.

<sup>220</sup> *Id.* at 133; Case, *Corporate Environmental Reporting*, *supra* note 2, at 429. *See also* Malloy, *supra* note 10, at 495 (“[A]n EMS can explicitly focus managers’ and other workers’ attention on understanding how different activities affect compliance and on how the firm processes information and makes decisions. This is the ‘reflexive’ value of the EMS: increasing communication and reflection within the firm concerning environmental responsibilities.”).

<sup>221</sup> Case, *Corporate Environmental Reporting*, *supra* note 2, at 429. *See also* Stewart, *supra* note 214, at 134-43 (“The procedural and structural role of government under a theory of reflexive law has many aspects, but the simplest level is to ensure individuals have information about the environmental performance of organizations: external transparency.”).

<sup>222</sup> Stewart, *supra* note 214, at 134-35.

<sup>223</sup> *Id.*

<sup>224</sup> Orts, *supra* note 69, at 1,313.

Since the late 1990s, a substantial push in the public and private sectors has been underway to evaluate whether formal EMSs are positively correlated with improved corporate environmental performance.<sup>225</sup> Although significant research has been conducted to date, the research agenda related to EMSs and management-based regulatory strategies is still in its relative infancy.<sup>226</sup> Nonetheless, initial indications are quite positive that implementation of formal EMSs and increased focus on management-based regulatory strategies are associated with improvements in environmental performance by firms.

The most ambitious research study to date has been the National Database on Environmental Management Systems ("NDEMS"), a joint venture between the EPA, the University of North Carolina, the Multi-State Working Group on Environmental Management Systems, and the Environmental Law Institute.<sup>227</sup> The NDEMS project was launched in connection with the EPA's 1999 *Aiming for Excellence* report.<sup>228</sup> The primary purpose of the NDEMS study was to consider the effects of EMS implementation on environmental and economic performance of firms.<sup>229</sup> The study involved eighty-three facilities in seventeen U.S. states and was the first to "collect longitudinal, real-time, facility-level comparative data on performance changes associated with EMS introduction."<sup>230</sup>

The University of North Carolina issued a comprehensive final report on the NDEMS in January 2003.<sup>231</sup> The report emphasizes significant limitations of the study, most notably the small sample size and the fact that participating facilities were a self-selected group.<sup>232</sup> Nonetheless, the report concludes that the overall evidence suggests that EMS implementation "is associated with improvements in environmental performance."<sup>233</sup> Other recent empirical studies on the effect of EMS-based strategies on the environmental performance of firms indicate that such

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<sup>225</sup> See Case, *Regulatory Reform*, *supra* note 34, at 71-72 (describing research and evaluation activities supported by EPA and others).

<sup>226</sup> See Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,003-14 (summarizing research presented at 2003 conference organized by the Regulatory Policy Program at Harvard's Kennedy School of Government and observing that management-based regulatory strategies are "relatively new and unstudied").

<sup>227</sup> See Case, *Regulatory Reform*, *supra* note 34, at 71-72.

<sup>228</sup> *Id.* at 5, 71-72.

<sup>229</sup> NDEMS FINAL REPORT, *supra* note 64, at ES-2.

<sup>230</sup> *Id.* at ES-2, ES-3.

<sup>231</sup> *Id.* at title page.

<sup>232</sup> *Id.* at ES-24.

<sup>233</sup> *Id.* at ES-4.

strategies often, though not always, produce "clearly positive" results.<sup>234</sup> However, regarding the future of utilizing EMSs as an environmental regulatory policy tool, scholars emphasize that considerable further research is necessary to determine under what circumstances such systems contribute to improved environmental performance.<sup>235</sup> Significantly, the final NDEMS report identifies systematic study of the "relationships between environmental performance outcomes and public reporting on environmental performance indicators" as an important component of a future EMS research agenda.<sup>236</sup>

## CONCLUSION

The continuing public policy debate over strategies to improve the effectiveness of the existing environmental regulatory regime benefits from increased focus on the internal management practices of firms. The results of major research efforts such as the NDEMS provide grounds for optimism that formal EMSs have value as public policy tools for achieving

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<sup>234</sup> Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,008-09 (summarizing results of empirical studies on EMS implementation and management-based strategies). See Ulrich Steger, *Environmental Management Systems: Empirical Evidence and Further Perspectives*, 18 EUR. MGMT. J. 23, 26, 33-37 (2000) (concluding positive results on environmental compliance from review of two dozen separate empirical studies of EMS performance).

<sup>235</sup> See NDEMS FINAL REPORT, *supra* note 64, at ES-28 to ES-30 (describing the future research agenda for evaluating links between EMSs and corporate environmental performance); Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,011 ("A key challenge in the development of management-based approaches to environmental policy will be to identify which [policy] design elements, or which combinations of these elements, yield the most successful outcomes under specific conditions."); Coglianese & Nash, *New Policy Agenda*, *supra* note 4, at 16 ("When it comes to crafting public policy with EMSs in mind, it is important to know which . . . explanatory factors contribute most to improved environmental performance and under what circumstances they do."). Cary Coglianese and Jennifer Nash further emphasize that:

[E]xisting research cannot yet discern whether the implementation of an EMS is itself a necessary or sufficient condition for real environmental improvement. Much of what we currently know about EMSs has been drawn from close study of organizations that have strong environmental programs. Researchers understand less well how the managers of more typical firms—or even firms that are atypical in their disregard for the environment—use EMSs.

Coglianese & Nash, *Toward a Management-Based Environmental Policy*, *supra* note 154, at 228.

<sup>236</sup> NDEMS FINAL REPORT, *supra* note 64, at ES-28.

environmental protection goals. Regulatory strategies encouraging or mandating EMS adoption may positively impact corporate behavior by improving compliance rates as well as reducing non-regulated environmental impacts and risks of firm activities. Indeed, some research findings suggest that EMS-based strategies may be more effective in improving non-regulated impacts of corporate environmental behavior than those already the subject of conventional regulation.<sup>237</sup>

In theory, the realignment of organizational structures and culture in order to focus more specifically on environmental concerns will result in behavioral change through increased awareness of environmental impacts. This enhanced knowledge base will potentially lead to more effective organizational decision-making regarding environmental performance and outcomes. Perhaps the most significant potential driver of corporate environmental behavioral change, however, may be the opportunity to link the substantial information-generating capabilities of formal EMSs with public information disclosure mechanisms. Indeed, the potential for EMSs to produce environmental performance data that companies would not otherwise generate has important implications for policymakers interested in expanding the use of informational regulation as an environmental protection policy tool.<sup>238</sup>

However, the promise of an EMS-based approach to environmental regulatory reform should not be overblown. Not nearly enough is known about potential causal links between formal EMS implementation and corporate environmental performance improvement, or whether the social benefits of EMS-based strategies would exceed their social costs. Continued empirical research is needed to narrow the determinants of when EMS-based strategies are more apt to work effectively and efficiently and when they are not. An EMS-based regulatory strategy is unlikely to ever be a feasible substitute for direct legal controls on corporate environmental behavior. However, understanding which circumstances and problems are optimal for use of EMS-based approaches would allow development of targeted strategies to complement direct control systems and attendant enforcement regimes. As part of a reflexive law strategy, a primary objective of EMS-based approaches should be to encourage self-regulatory corporate behavior to supplement, rather than substitute for, traditional environmental regulation.

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<sup>237</sup> See Coglianese & Nash, *Management-Based Strategies*, *supra* note 11, at 10,012.

<sup>238</sup> See Case, *Corporate Environmental Reporting*, *supra* note 2, at 381-87.

To this point, the trend of formal EMS adoption by firms has evolved within a voluntary regime. The EPA's current position is that the potential public policy value of EMSs should be considered solely from the standpoint of incentives to encourage voluntary EMS adoption by firms.<sup>239</sup> There has been considerable dialogue among scholars over the merits of voluntary versus mandatory approaches to environmental regulatory reform efforts.<sup>240</sup> Depending on the context, both approaches have relative strengths and weaknesses.<sup>241</sup> However, the EPA's apparently single-minded focus on voluntary, incentive-based policy approaches to EMSs, while perhaps more politically palatable, is short-sighted.

While incentive-based EMS programs are of significant value, a mandatory approach to EMS implementation in certain circumstances may offer advantages over voluntary programs.<sup>242</sup> As noted in Part II above, participation rates by firms in voluntary environmental initiatives are consistently low.<sup>243</sup> Thus, incentive-based systems have been unable to secure widespread participation within targeted industry sectors.<sup>244</sup> To the extent that an EMS-based approach would produce significant increases in environmental protection in certain circumstances, a voluntary program may significantly under-produce environmental policy benefits. A mandatory program, on the other hand, could specifically target a particular population of firms for which policymakers view formal EMS implementation to serve important public policy goals.<sup>245</sup>

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<sup>239</sup> See EMS PERMITS AND REGULATIONS WORKGROUP, *supra* note 152, at 1-3.

<sup>240</sup> See Case, *Corporate Environmental Reporting*, *supra* note 2, at 439 (noting differing views regarding voluntary corporate environmental reporting regimes and mandatory information disclosure); Sonja Gallhofer & Jim Haslam, *The Direction of Green Accounting Policy: Critical Reflections*, 10 ACCT., AUDITING & ACCOUNTABILITY J. 148, 149-65 (1997) (contrasting views supporting a voluntary approach to environmental reporting to a critical theoretical justification for an interventionist regulatory approach); Malloy, *supra* note 10, at 511-23 (comparing relative strengths and weaknesses of incentive-based and mandatory EMS approaches); Josephine Maltby, *Setting Its Own Standards and Meeting Those Standards: Voluntarism Versus Regulation in Environmental Reporting*, 6 BUS. STRATEGY & THE ENV'T 83, 89-91 (1997).

<sup>241</sup> See Malloy, *supra* note 10, at 512.

<sup>242</sup> See *id.* at 511-23.

<sup>243</sup> See *supra* notes 161-163 and accompanying text.

<sup>244</sup> See Malloy, *supra* note 10, at 513-16 (discussing the problem of inadequate incentives to secure industry participation in voluntary EMS-based initiatives).

<sup>245</sup> See *id.* at 519 ("Compared to incentive-based programs, a mandatory program has significantly greater capacity to determine the population of firms pulled within its orbit.").

Moreover, to the extent that linking formal EMS adoption with public information disclosure mechanisms is deemed important to maximizing the potential of management-based regulatory strategies to foster positive corporate behavioral change, the "under-inclusiveness problem" inherent in voluntary programs may become even more pronounced.<sup>246</sup> Participation rates by firms in voluntary environmental information disclosure initiatives have been "disturbingly low."<sup>247</sup> Thus, notwithstanding the public policy benefits that could result from such disclosure, firms may be less likely to voluntarily participate in incentive-based EMS programs if significant formal public information disclosure is required. Again, a mandatory regulatory strategy would overcome the many disincentives firms may have to voluntarily implement formal EMSs requiring public environmental performance information disclosure.<sup>248</sup> Indeed, legal mandates, rather than market forces or voluntary self-regulatory behavior, are often the most important motivation underlying corporate environmental behavior.<sup>249</sup> Thus, future evaluation of the potential public policy value of EMSs should include research related to and experimentation with mandatory approaches.

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<sup>246</sup> *Id.*

<sup>247</sup> Case, *Corporate Environmental Reporting*, *supra* note 2, at 439.

<sup>248</sup> See *id.* at 439-42 (discussing the factors that contribute to underproduction of the public good of information justifying government intervention in the form of mandatory disclosure laws).

<sup>249</sup> Andrea Ross & Jeremy Rowan-Robinson, *It's Good to Talk! Environmental Information and the Greening of Industry*, 40 J. ENVTL. PLAN. & MGMT. 111, 113 (1997). See also *supra* notes 112-14 and accompanying text.