

Duke Environmental Law & Policy Forum

Volume XI

Fall 2000

Number 1

BARRIERS AND INCENTIVES TO THE ADOPTION OF ISO 14001 BY FIRMS IN THE UNITED STATES

MAGALI A. DELMAS*

I. INTRODUCTION

During the past three decades, regulatory agencies in the United States and other countries of the Organization for Economic Co-Operation and Development (OECD) went through a three stage evolution in dealing with and managing environmental pollution, and gradually discovered that working with the private sector to manage industrial pollution can yield more beneficial results than traditional command and control approaches.¹ They started out with the traditional command and control approach which, if adequately enforced, has the virtues of high dependability and predictability, but sometimes proves to be inflexible and inefficient.² In the mid-1980s, envi-

* Assistant Professor, Bren School of Environmental Science and Management, University of California, Santa Barbara. This paper builds on a research project accomplished at the Bren School by Brad Edwards, Jill Gravender, Annette Killmer, Genia Schenke and Mel Willis under the supervision of professors James Frew and Arturo Keller. I thank them very much for their essential input. This paper benefited from the comments of David Vogel, Robert Kagan and Diahanna Lynch at UC Berkeley. I also thank Janet Kayfetz for her valuable contribution.

1. See Bill L. Long, *Environmental Regulation: The Third Generation*, THE OECD OBSERVER, June-July 1997, at 14, 14-16. See generally Rena I. Steinzor, *Reinventing Environmental Regulation: The Dangerous Journey from Command To Self-Control*, 22 HARV. ENVTL. L. REV. 103, 105-112 (1998) (discussing EPA's attempts to "reinvent" itself, culminating in the promotion of various voluntary initiatives).

2. See Long, *supra* note 1, at 15. On the shortcomings of command and control approach, see, e.g., Neil Gunningham & Darren Sinclair, *Integrative Regulation: A Principle-Based Approach To Environmental Policy*, 24 L. & SOC. INQUIRY 853, 861-862 (1999) (criticizing "inter-

ronmental regulation entered its second generation emphasizing the employment of market-based strategies and tools such as pollution taxes, tradable permits, and deposit-refund systems.³ These instruments were believed to improve both economic efficiency and environmental effectiveness by relying on market incentives.⁴ Finally, in the 1990s, environmental regulation entered its third generation placing great emphasis on voluntary environmental initiatives.⁵ Voluntary programs function by providing technical information and public recognition to participants, and in return ask participants to commit to the goal of pollution reduction, such as adopting technological changes that lead to pollution reduction.⁶ Voluntary initiatives signal a movement away from traditional adversarial relationships between industries and governments towards those which are more cooperative in nature and involve varying degrees of government intervention.⁷ To date there has been considerable research

ventionist approach” to environmental policies, including command-and-control approach, as being inefficient, ineffective, and less politically accepted); Steinzor, *supra* note 1, at 113-17 (criticizing the assumptions of command-and-control approach and the problems of “technology-based standard”); Eric W. Orts, *Reflexive Environmental Law*, 89 NW. U. L. REV. 1227, 1235-42 (1995) (arguing that “traditional command-and-control regulation breaks down under its own weight” mainly due to its “bureaucratic process”). *But see* Howard Latin, *Ideal Versus Real Regulatory Efficiency: Implementation of Uniform Standards and “Fine-Tuning” Regulatory Reforms*, 37 STAN. L. REV. 1267, 1304 (1985) (defending the command-and-control approach by arguing that focus on economic efficiency is misplaced in “many environmental protection contexts”).

3. *See* Long, *supra* note 1, at 15. On market mechanisms see generally Alan Moran, *Tools of Environmental Policy: Market Instruments versus Command-and-Control*, in *MARKETS, THE STATE AND THE ENVIRONMENT* 73 (Robyn Eckersley ed., 1995); Orts, *supra* note 2, at 1242-47 (discussing four “conventional economic approaches to environmental regulation”: (1) a modern Pigouvian approach of assessing “taxes or charges to activities that are environmentally harmful”; (2) Coasian approach of “internalizing externalities by expanding property”; (3) “creation of tradeable pollution rights”; and (4) “harness[ing] the consciences of consumers to favor environmentally friendly products”); WALDEMAR HOPFENBECK, *THE GREEN MANAGEMENT REVOLUTION: LESSONS IN ENVIRONMENTAL EXCELLENCE* 11-13 (1993).

4. *See* Richard B. Stewart, *Models for Environmental Regulation: Central Planning Versus Market-Based Approaches*, 19 B.C. ENVTL. AFF. L. REV. 547, 552-55 (1992) (arguing that market-based approach “reduces overall social costs” and “advances environmental protection”).

5. *See* Long, *supra* note 1, at 15-16.

6. *See* Magali A. Delmas & Ann Terlaak, *Voluntary Agreements for the Environment: Institutional Constraints and Potential for Innovation*, in *ENVIRONMENTAL CONTRACTS*, 349-50 (K. Deketelaere & Eric W. Orts eds. 2000).

7. *See* Kathryn Harrison, *Talking with the Donkey: Cooperative Approaches to Environmental Protection*, 2 J. INDUS. ECOLOGY 51, 52 (1999). *See also* Steinzor, *supra* note 1, at 112 (arguing that EPA’s major market-based initiatives are in nature voluntary, and thus, “without industry cooperation, [EPA’s] reinvention cannot proceed”).

into the application of regulatory and economic instruments for environmental policy.⁸ Furthermore, there has been meaningful research into the motivations for and advantages and disadvantages of voluntary initiatives, such as the ISO (International Organization for Standardization) 14000 series.⁹ However, to the author's knowledge, such research has not been based on independent empirical surveys of firms. Nor has there been any research based on empirical surveys of U.S. firms. In this respect, this paper partly fills this void by presenting an analysis of ISO 14001, based on empirical surveys of U.S. firms that have adopted the ISO 14001.¹⁰

An environmental management system (EMS) is one of the tools which firms can use to voluntarily implement environmental policy. An EMS consists of "a number of interrelated elements that function together to help a firm manage, measure, and improve the environmental aspects of its operations."¹¹ These elements include creating environmental policies, setting objectives and targets, implementing programs to achieve those objectives and targets, monitoring and measuring the effectiveness of the programs, correcting problems, if any, and reviewing the programs and their overall performance for

8. For research on voluntary initiatives, see generally Delmas & Terlaak, *supra* note 6, at 349-66; S. Labatt & V. W. Maclaren, *Voluntary Corporate Environmental Initiatives: a Typology and Preliminary Investigation*, 16 ENV'T PLANNING GOVT. POL'Y 1919 (1998); Kathleen Segerson & Thomas J. Miceli, *Voluntary Environmental Agreements: Good or Bad News for Environmental Protection?*, 36 J. ENVTL. ECON. MGMT. 108 (1998).

9. For research on cost benefit analysis of ISO 1400 and motivational aspect of firms adopting it, see, e.g., Paulette L. Stenzel, *Can the ISO 14000 Series Environmental Management Standard Provide a Viable Alternative to Government Regulation?*, 37 AM. BUS. L. J. 237, 263-81 (2000); Amy Pesapane Lally, *ISO 14000 and Environmental Cost Accounting: the Gateway to the Global Market*, 29 L. & POL'Y INT'L BUS. 501, 513-30 (1998); Christina C. Benson, *the ISO 1400 International Standards: Moving Beyond Environmental Compliance*, 22 N.C. J. INT'L L. & COM. REG. 307, 338-63; Naomi Roht-Arriaza, *Shifting the Point of Regulation: the International Organization for Standardization and Global Lawmaking on Trade and the Environment*, 22 ECOLOGY L.Q. 479, 522-38 (1995).

10. The ISO 14000 Series, including the ISO 14001 "Environmental Management Standards", [hereinafter ISO 14000] and ISO 9000 Series [hereinafter ISO 9000] are available from American National Standards Institute (ANSI), 11 West 42nd St., N.Y., N.Y., 10036; Phone: 212-642-4900; <<http://www.ansi.org>>. The table of contents of ISO 14001: 1996 has also been reproduced in Annex A.1 of ORG. ECON. COOPERATION DEV., ENVIRONMENTAL OBJECTIVES AND ALTERNATIVES TO REGULATION: WHAT DO STANDARDS FOR ENVIRONMENTAL MANAGEMENT SYSTEMS OFFER? 101, OECD Doc. ENV/EPOC/PPC(98)6/FINAL (May 4, 1998)[hereinafter OECD ISO Document]. The ISO 14001 standards may also be obtained from any ISO member or from the ISO Central Secretariat, Case Postale 56, 1211 Geneva 20, Switzerland.

11. Richard Welford, *The Standardization of Environmental Management Systems*, in CORPORATE ENVIRONMENTAL MANAGEMENT: SYSTEMS AND STRATEGIES 61, 66 (Richard Welford ed., 2d ed. 1996).

improvement thereof.¹² However, an obvious problem would arise if each firm designs its own system to meet its own particular needs: different non-compatible systems will emerge for each firm, making it difficult to compare the environmental effects resulting from such different systems.¹³ Even though the contents, aims, outcomes of initial reviews, and objectives of EMSs would probably differ from sector to sector, there are nonetheless common stages within an EMS that any organization or firm can utilize to ensure that the environment is considered in its policies and processes.¹⁴ Without a common international standard, firms would be forced to deal with dozens of separate and potentially incompatible EMSs for every country in which they conduct business.¹⁵ This could potentially increase the transaction cost for such firms and also function as an undesirable trade barrier.¹⁶

Since 1990 there have been efforts at the national level, within the European Union, and at the international level to standardize EMSs by defining the essential elements which such a system should

12. See generally Alan Netherwood, *Environmental Management Systems*, in CORPORATE ENVIRONMENTAL MANAGEMENT: SYSTEMS AND STRATEGIES, *supra* note 11, 37-60.

13. For example, industry associations have developed various codes of practice, such as:

- (1) the US Chemical Management Association's Responsible Care Program, see generally Jennifer Howard et. al., *Standard or Smokescreen? Implementation of a Voluntary Environmental Code*, 42 CAL. MGMT. REV. 63, 77 (2000); Andrew A. King & Michael J. Lenox, *Industry Self-Regulation Without Sanctions: The Chemical Industry's Responsible Care Program*, 43 ACADEMY MGMT. J. 698-716 (2000);
- (2) the Global Environmental Management Initiative ("GEMI"), see generally Susan Moore, *Business incentives: Powerful tools to improve the environment*, in 9 ENVTL. QUALITY MGMT., 71-77 (1999); and
- (3) the Environmental Self Assessment Program, see generally Orin M. Kurland, *Keeping the Corporation Green*, 41 RISK MGMT., 10, 11 (1994).

For a review of voluntary approaches, see generally Peter Kappas, *The Politics, Policy, Practice and Performance of Chemical Industry Self-Regulation* (1997) (unpublished Ph.D. dissertation, Department of Political Science, University of California, Los Angeles) (on file with the UCLA library).

14. A basic EMS provides a general framework for the role of top management: the setting of performance objectives, employee training, providing documentation, and continual assessment of the system's performance. See Netherwood, *supra* note 12, at 37-60.

15. See generally Roht-Arriaza, *supra* note 9, at 491 (discussing how the European Commission "was soon overwhelmed by the sheer number of potential regulations" when it "tried to harmonize differing national standards on product-by-product, issue-by, issue basis"); Lally, *supra* note 9, at 503-04 (arguing that "national environmental legal systems throughout the world" differ in their liability standards and the level of discretion in enforcement, and that was main reason for emergence of the ISO).

16. See generally Roht-Arriaza, *supra* note 9, at 590-91 (discussing the dilemmas of harmonizing EMS standards globally).

contain. For example, EMS standards, such as the British Standard BS 7750¹⁷ and the EU Eco-Management and Audit Scheme (EMAS)¹⁸ have been developed to provide firms with a standardized framework that would allow them to develop an EMS. The international standard ISO 14001 issued in 1996 is more ambitious as it is designed to be applicable worldwide.¹⁹ In general, ISO 14001 provides the basic framework for the establishment of an EMS, which can be certified and audited.²⁰ The main purposes for the creation of ISO 14001 was to provide an internationally accepted blueprint for sustainable development, pollution prevention, and compliance assurance, thereby expedite international trade by harmonizing otherwise diffuse EMSs.²¹

However, it is not clear how successful the internationalization of standardized management systems will be, as the diffusion of ISO 14001 varies significantly across the globe.²² Specific cultural, institutional, and organizational issues might hamper the implementation of such a standard.²³ These concerns might be more acute for environmental standards than for total quality management standards since

17. In 1990, the British Standard Institute (“BSI”) started to consider the question of third party assessment of environmental performance. *See Welford, supra* note 11, at 64. BSI had tackled the issue of quality management using a system approach producing the quality system standard BS 5750 (subsequently replaced by the ISO 9000 series of standards) and was of the opinion that environmental performance within organizations could be tackled using a similar approach, i.e. by the introduction of an environmental management system standard. *See id.* at 64g. The draft version of British Standard 7750 was published in March 1992. *See id.* at 64g.

18. BS 7750 predated EMAS. *See* Paula C. Murray, *The International Environmental Management Standard, ISO 14000: A Non-Tariff Barrier or a Step to an Emerging Global Environmental Policy?*, 18 U. PA. J. INT’L ECON. L. 577, 585 (1997). EMAS was adopted by the European Union (EU) in 1993, and became effective in 1995. *See* SALLY EDEN, ENVIRONMENTAL ISSUES AND BUSINESS: IMPLICATIONS OF A CHANGING AGENDA 91 (1996). The Commission originally intended to pursue mandatory participation but business lobbying successfully prevented this. *See id.* EMAS is a site-based registration system, i.e. the certification is granted for individual industrial sites, but considers off-site activities that may have a bearing upon environmental management at the registered site. EMAS is primarily aimed at the industrial sector. *See* Council Regulation 1836/93, *in* OECD ISO Document, *supra* note 10 (allowing voluntary participation by companies in the industrial sector in a community eco-management and audit scheme).

19. *See* INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, ISO 14001 Standard: *Environmental Management Systems – Specification with Guidance for Use* (1996) [hereinafter ISO 14001 Standard]. *See generally* Kerry E. Rodgers, *The ISO Environmental Standards Initiative*, 5 N.Y.U. ENVTL. L. J. 181, 275 (1996).

20. *See* ISO 14001 Standard, *supra* note 19.

21. *See* Roht-Arriaza, *supra* note 9, at 490–502. *See also* Lally, *supra* note 9, at 503-04.

22. *See* Roht-Arriaza, *supra* note 9, at 509-10.

23. *See id.* at 503-08 (discussing conflicting views on EMS between European and non-European delegations raised during the negotiation of the EMS standard).

environmental issues are more value sensitive than quality issues, and could create unique problems for firms. For example, regulatory violations by a firm applying for ISO 14001 might be revealed or disclosed during its environmental certification process, and if such violations are used by regulatory agencies or third parties against the applicant firm, then such legal proceedings would result in additional costs of certification to the applicant firm.²⁴

At the same time, however, there are many benefits to adopting ISO 14001, such as enhancement of a certified firm's environmental performance and enhancement of competitive advantage in certain markets.²⁵ Furthermore, these potential business advantages would be linked not only to the specifics of each firm and industry, but also to the value that stakeholders of such firms or industries, including distributors, customers, and insurance companies, attribute to the standard in its present form.²⁶

Partly due to these benefits and costs of adopting ISO 14001, the distribution of firms that implement ISO 14001 as an EMS standard varies significantly across the globe. As Table 1, *infra*, indicates, out of the 7,887 ISO 14001 certified facilities worldwide in December 1998, approximately twenty percent (19.6%) were located in Japan and approximately fifty percent (49.9%) in the European Union.²⁷ Furthermore, firms from the developing countries and the transitional economies of Central and Eastern Europe account for an insignificant proportion of the total. In contrast, the adoption of ISO 14001 has been relatively slow outside of Western Europe and the Asia-Pacific Region, accounting for approximately fifty-two percent (52.4%) and thirty-seven percent (37%) of the total certified firms, respectively.

Interestingly, in the United States firms seem to have a suspicious attitude toward ISO 14001. Only 290 facilities were certified in

24. See *infra* notes 54-58 and accompanying text.

25. See, e.g., Roger Adams, *ISO 14001: A Key Ingredient of Competitive Edge*, 11 EVTL LAW & MGMT. 103-104 (1999); Jacques Klaver & Jan Jonker, *The Significance of Recent EMS Standards as an Impetus for Improvement*, 5 ECO-MANAGEMENT AND AUDITING 1, 1-5 (1998); Benson, *supra* note 9, at 351-56.

26. See, e.g., Aseem Prakash, *A New-Institutionalist Perspective on ISO 14000 and Responsible Care*, 8 BUS. STRAT. ENVT. 322-35 (1999); Stenzel, *supra* note 9, at 268-73 (identifying suppliers, customers, investors, insurance companies and financial institutions as playing a positive role for ISO certification); Lally, *supra* note 9, at 525-27 (identifying consumers, investors, and insurers as playing a positive role for ISO certification).

27. For the latest data on ISO 14000 certification throughout the world, see ISO WORLD, *The Number of ISO 14001/EMAS Certification/Registration of the World*, (1999) (on file with author).

December 1998, accounting for only approximately four percent (3.7%) of the certified facilities in the world.

TABLE 1. ISO 14001 CERTIFIED FACILITIES WORLDWIDE (SOURCE INTERNATIONAL STANDARD ORGANIZATION)

Region	Country	Certified facilities	% total
Western Europe		4136	52.4
	UK	921	11.7
	Austria	132	45.4
	Denmark	314	218.1
	Finland	206	70.8
	France	295	204.9
	Germany	651	8.3
	Ireland	96	33.0
	Italy	123	85.4
	Netherlands	341	4.3
	Spain	164	2.1
	Sweden	304	3.9
	Switzerland	360	4.6
	Other	229	2.9
Asia-Pacific		2917	37.0
	Japan	1542	19.6
	Korea	263	3.3
	Taiwan	203	2.6
	Australia	352	4.5
	Other	557	7.1
North America		434	5.5
	Canada	104	1.3
	USA	291	3.7
	Mexico	39	0.5
Latin America		144	1.8
Africa/West Africa		138	1.7
Central and Eastern Europe		118	1.5
Total		7887	100.0

The purpose of this paper is to shed light on why ISO 14001 has been less attractive to U.S. firms compared to other regions, such as Asia and Western Europe. We start with an assumption that because ISO 14001 certification is voluntary, firms will only seek certification where it is in their best economical interest, i.e. the benefits of adopting ISO 14001 certification outweigh the costs. Based on such an assumption, the paper identifies the benefits and costs for firms, specifically U.S. firms, adopting ISO 14001 certification.²⁸ It also describes the practical barriers and driving forces associated with the adoption of ISO 14001 generally.²⁹ Specifically, the paper proposes a conceptual framework to explain the factors that either hamper or facilitate the adoption of an EMS standard in a specific institutional setting.³⁰ For example, it analyzes which elements of the U.S. institutional and business environment impact the cost of ISO 14001 certification, and describes how ISO 1400 certification can become a resource that might provide a competitive advantage to U.S. firms.³¹ This analysis is supported by primary data collected from a questionnaire mailed to a representative sample of ISO 14001 certified facilities in the United States.³²

The discussion is organized as follows: Part II provides a general introduction to ISO 14001 and describes the principles underlying it; Part III identifies the general costs and benefits of adopting ISO 14001 to firms in general; Part IV describes and analyzes the experience of U.S. firms in applying for ISO certification based on the empirical data received by U.S. ISO 14001 certified firms; and finally, based on this analysis, Part V discusses the necessary elements required to facilitate the adoption of ISO 14001 in the U.S.

28. *See infra* Part III.

29. *See id.*

30. *See infra* Parts III and IV.

31. *See infra* Part V.

32. The questionnaire was limited to U.S. certified firms only for two reasons. First, we were mainly looking for information on the incentives to seek certification as well as the difficulties to implement certification. Only certified firms would have enough knowledge of the standard implementation to be able to respond to these questions. Second, the population of certified firms was so small (200) that it was impractical to compare them with a representative sample of non-certified companies.

II. AN INTRODUCTION TO ISO

The development of the ISO 14000 Series was stimulated by two important events:³³ the 1992 Rio Conference³⁴ and the signing of the Final Act of the 1994 GATT Uruguay Round.³⁵

The 1992 Global Environmental Initiative in Rio de Janeiro was an essential step in the formation of ISO 14000.³⁶ Over one hundred of the countries attending the United Nations Conference on Environment and Development (UNCED) committed to improving international environmental management programs³⁷ and petitioned the International Standardization Organization to adopt this cause.³⁸

The 1994 Uruguay Round Ministerial Decision on Trade and the Environment established a committee under the World Trade Organization (WTO) to harmonize environmental and trade policy based on two key factors: 1) “identifying trade and environmental policy linkages to promote sustainable development” and 2) “avoiding protectionist measures while promoting the environmental objective agreed to at the UNCED.”³⁹

On the heels of ISO 9000’s success,⁴⁰ the International Standardization Organization responded to demands to address the field

33. See, e.g., Stenzel, *supra* note 9, at 253.

34. See Rio Declaration on Environment and Development, June 13, 1992, UNCED Document A/CONF.151/5/Rev. 1, reprinted in 31 I.L.M. 874.

35. See General Agreement on Tariffs and Trade: Multilateral Trade Negotiations Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations, Apr. 15, 1994, 33 I.L.M. 1125.

36. See W. M. VON ZHAREN, ISO 14000: UNDERSTANDING THE ENVIRONMENTAL STANDARDS 8 (1996); Lally, *supra* note 9, at 505.

37. The international community recognized the vast scope of environmental problems at the Earth Summit in Rio de Janeiro in 1992. See Rio Declaration, *supra* note 34. Agenda 21, a non-binding agreement reached at the Summit, catalogs the wide variety of environmental problems facing the world today. See Agenda 21, § 8.1 <[http://www.unep.org/Documents/Default.asp? DocumentID=52](http://www.unep.org/Documents/Default.asp?DocumentID=52)>.

38. See OECD ISO Document, *supra* note 10, at 22.

39. Ridgway M. Hall & Kristine A. Tockman, *International Corporate Environmental Compliance and Auditing Programs*, 25 ENVTL. L. REP., 10395, 10404 (1995).

40. While the ISO originally focused on product technical standards, in 1979, it decided to address quality management and assurance standards. See TOM TIBOR AND IRA FELDMAN, ISO 14000: A GUIDE TO THE NEW ENVIRONMENTAL STANDARDS 29 (1996). As a result, ISO 9000 was published as a final standard in 1987. See *id.* This system establishes standards for quality management in all areas of business and a process for registration or verification of compliance. See *id.* at 29–30. ISO 9000 is voluntary, yet market forces have mandated ISO 9000 compliance as a virtual passport to international business. See *id.* at 27–31. Up to the end of December 1998, at least 271,966 ISO 9000 certificates have been awarded in 143 countries worldwide. See ISO, *The ISO Survey of ISO 9000 and ISO 14000 Certificates: the Eighth Cycle: up to and including 1998*, 2 <<http://www.iso.ch/infoe/8thcyclesurvey.pdf>>.

of environmental law and pollution.⁴¹ The ISO responded by establishing the Strategic Advisory Group on the Environment (SAGE) to determine whether an international environmental management standard could “promote a common approach to environmental management, enhance an organization’s ability to attain and measure improvements in environmental performance, and facilitate trade and remove trade barriers.”⁴² SAGE assessed the need for an international EMS standard that would encourage responsible environmental management without violating GATT.⁴³ As a result, Technical Committee 207 (TC 207) was formed in 1993 to develop the ISO 14000 Series.⁴⁴

In September 1996, ISO issued the first edition of the ISO 14000 Series, a set of guidelines for developing systems and practices in six environmental sectors, each containing one or more standards:⁴⁵

- (1) ISO standards 14001 and 14004: Environmental Management Systems;
- (2) ISO standards 14010 to 14012: Environmental Auditing;
- (3) ISO standards 14020 to 14025: Environmental Labels and Declarations
- (4) ISO standard 14031: Environmental Performance Evaluation;
- (5) ISO standards 14040 to 14043: Life Cycle Assessment; and

41. See TIBOR & FELDMAN, *supra* note 40, at 32. The International Organization for Standardization (ISO) was founded in 1946 to “develop manufacturing, trade, and communication standards The goal of ISO standards are to facilitate the efficient exchange of goods and services.” See *id.* at 27. There are 111 member countries within the ISO and each country has 1 official representative. See *id.* at 27. The United States’ representative is the ANSI. See *id.* See also *supra* note 10, 1-5 (1998); Benson, *supra* note 9, at 351-56.

42. TIBOR & FELDMAN, *supra* note 40, at 32.

43. See *id.*

44. See ANSI, *Formation, and Subject Areas of ISO/TC207* (visited September 30, 2000) < http://web.ansi.org/public/iso14000/form_2.html > [hereinafter ISO/TC207 Formation]. See also ISO/TC 207, *About ISO/TC 207* (visited September 30, 2000) <<http://www.tc207.org/aboutTC207/index.html>> [hereinafter ISO/TC207 Introduction]. Originally, six TC 207 subcommittees and one working group cover the following focus areas: (1) environmental management systems (SC1); (2) environmental auditing (SC2); (3) environmental labels and declarations (SC3); (4) environmental performance evaluation (SC4); (5) life-cycle assessment (SC5); (6) environmental management terms and definitions (SC6); and (7) environmental aspects in product standards (WG1). See *id.* However, thereafter, two more working groups have been formed, i.e., forestry (WG2) and design of the environment (WG3). See *supra* ISO/TC207 Introduction. For additional discussion on TC 207, see TIBOR & FELDMAN, *supra* note 40, at 32-38.

45. See *id.*

(6) ISO standard 14060: Environmental Aspects in Product Standards.

The first and only edition that was published in 1996 focused on the EMS standard ISO 14001 and the Environmental Auditing standards (ISO 14010 – 14012).⁴⁶ ISO 14001 is the only certifiable standard in the ISO 14000 Series, and all other standards in the Series describe supporting functions, which serve to maximize the effectiveness of the ISO 14001 EMS.⁴⁷ However, the implementation of these supporting standards is not required for ISO 14001 certification.⁴⁸ There are five requirements of ISO 14001: 1) formation of a corporate environmental policy and commitment to an EMS; 2) development of a plan for implementation; 3) implementation and operation of the EMS; 4) monitoring and possible corrective action; and, 5) top management review and continual improvement.⁴⁹

III. CONCEPTUAL APPROACH OF ISO 14001: ANALYSIS OF RELEVANT FACTORS THAT IMPACT GENERAL COSTS AND BENEFITS OF ADOPTING ISO 14001

The following discussion is dedicated to our conceptual approach. Based on the assumption that firms would adopt ISO 14001 only if its potential benefits offset its costs due to the voluntary nature of ISO 14001, we will analyze various relevant factors that impact the general costs and benefits of adopting ISO 14001. Section A describes how the institutional set-up can impact the transaction costs of acquiring ISO 14001 certification. Section B discusses the limitation of the “process standard” of ISO 14001, the positive role of stakeholders, and the potential competitive advantage that firms might gain by adopting ISO 14001. Section C discusses how ISO 14001 could provide valuable past experiences to firms in need.

46. The other sections were published in draft and are still being revised by TC 207. *See* ISO/TC207 Introduction, *supra* note 44 (stating that “ISO/TC 207 is the ‘umbrella’ committee under which the ISO 14000 series of environmental management standards are being developed”).

47. *Cf.* ISO/TC207 Introduction, *supra* note 44.

48. *See id.*

49. *See* ISO 14001 Standard, *supra* note 19.

A. *Institutional Environment as a Barrier and Incentive for Adoption of ISO 14001*

Building on the seminal work of Douglass North, the new institutional economics (NIE) considers institutions and public policies to be critical elements of the business environment.⁵⁰ The institutional environment, which creates the rules of the game among economic agents, influences an agent's ability to efficiently contract with other agents.⁵¹ This can put constraints on industrial organizations, the market in which they grow, and the way firms interact with their business partners.⁵² With reference to environmental issues, the institutional environment is an essential influencing factor for firms because it creates not only the rules of the game, but also the market for environmental products and services.⁵³ Uncertainty in the institutional environment, such as the behavior of environmental regulatory agencies, could prevent firms from seeking ISO 14001 certification.⁵⁴ For example, regulatory violations by an ISO applicant firm might be revealed or disclosed during its environmental certification process, and if such violations are used by regulatory agencies or other third parties against the applicant firm, then such legal proceedings would result in additional cost of certification to the applicant firm.⁵⁵

50. See generally DOUGLASS C. NORTH, INSTITUTIONS, INSTITUTIONAL CHANGE, AND ECONOMIC PERFORMANCE (1990).

51. See OLIVER E. WILLIAMSON, THE MECHANISMS OF GOVERNANCE 325 (1996).

52. See *id.* On the impact of property right systems on innovative strategies see generally Kenneth J. Arrow, *Technical Information and Industrial Structure*, 2 INDUS. & CORP. CHANGE 5, 645-52 (1996); Robert Merges & Richard Nelson, *On Limiting or Encouraging Rivalry in Technical Progress: the Effect of Patent Scope Decisions*, 25 J. ECONOMIC BEHAVIOR & ORG. 1-24 (1994). On the influence of antitrust regulation on cooperative strategies see generally Carl Shapiro & Robert Willig, *On the Antitrust Treatment of Production Joint Venture*, 4 J. ECONOMIC PERSPECTIVE 113-30 (1990). On the effect of government's credible commitment of on firm's behavior see generally Brian Levy & Pablo Spiller, *The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation*, 10 J. LAW, ECONOMICS & ORG. 201-246 (1994); Barry Weingast, *The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development*, 11 J. LAW ECO. ORG. 1-32 (1995).

53. See generally FOREST REINHARDT & RICHARD, BUSINESS MANAGEMENT AND THE NATURAL ENVIRONMENT (1996).

54. See generally Rodgers, *supra* note 19, at 267-74 (discussing various negative implications for U.S. firms derived from disclosure and auditing requirements from adopting ISO 14000).

55. See *id.* See also Benson, *supra* note 9, at 347, 348 (noting that "some companies have hesitated to initiate a formal environmental management program for fear that a large amount of internal documentation will be created that may be subject to discovery by regulatory agencies or other potential opposing parties").

Many U.S. firms considering ISO certification struggle with the potential for discovery of regulatory violations that the firm has not yet identified or resolved.⁵⁶ The process of ISO 14001 certification may inadvertently lead to the discovery of non-compliance with applicable environmental regulations. While forcing compliance with environmental laws and regulations should theoretically be considered a benefit of implementing ISO 14001 for an applicant firm, the identification of violations during the implementation phase or self or third-party audits can lead to real liabilities to the firm.⁵⁷ Specifically, applicable environmental regulations may have disclosure requirements and/or impose liability without showing of intent or negligence, i.e., strict liability.⁵⁸

Another potential risk of liability comes from the fact that ISO 14001, in order to track the effectiveness of the system, requires companies to document the details of environmental aspects of their operations that are not related to compliance with any regulatory scheme.⁵⁹ Audits conducted under ISO 14001 check these documents and may point out weaknesses in the firm's handling of environmental matters, such as records of system failures and minor spills. These findings, while they may not be governed by any regulations, might still be used as incriminating evidence in future legal proceedings.⁶⁰ In effect, a company adopting an EMS with a written policy

56. See *infra* Table 6, where sixty-nine percent (69%) of the surveyed U.S. firms identified "lack of regulatory flexibility" as "mild to serious constraint" in adopting ISO 14001 certification. See also Rodgers, *supra* note 19, at 271.

57. See Rodgers, *supra* note 19, at 270, 71 (discussing the risks for companies conducting audits or preparing documentation pursuant to ISO 14000, even under the current EPA's favorable policies for ISO 14000 certification).

58. See Robert C. Wilson, *What You Don't Know Can Definitely Hurt You*, 30 POLLUTION ENGINEERING 33 (1998).

59. See ISO 14001 § 4.5, *supra*, note 19.

60. See, e.g., Rodgers, *supra* note 19, at 270-71 (discussing how "information generated and documented in connection with the ISO EMS, EPE, and audit standards could be subject to discovery in private tort actions in the United States," in effect providing "free discovery" to private plaintiffs); Donald Stever, *The Private Sector's Need for Environmental Secrecy: Product Regulation and the Secrecy of Proprietary Information*, 2 N.Y.U. ENVTL. L. J. 224, 230-31 (1993) (noting that information disclosed "to the government in regulatory submissions or in the context of a Superfund action provides free discovery to private plaintiffs, because the potential plaintiffs can access this information through a Freedom of Information Act (FOIA) request"); Benson, *supra* note 9, at 347-48 (commenting that "[d]espite some reassurances from the EPA and state agencies, many U.S. companies remain concerned that undergoing a third party ISO audit may expose them to legal liability if information from the audit is made available to regulatory agencies").

specifying targets and objectives on environmental matters may also be defining a standard under which it may be held accountable.⁶¹

Levy and Spiller highlight how the credibility and effectiveness of a regulatory framework, and hence its ability to facilitate private investment, vary with a country's political and social institutions.⁶² It is suggested here that the institutional environment's commitment to industry could take the form of regulatory flexibility for ISO 14001 companies.⁶³ For example, in recognition of ISO 14001 compliance as a positive behavior, environmental regulatory agencies might choose not to use information released during the process of certification against an ISO applicant company.

Thus, this work proposes that, if applicable regulatory agencies do not change the rules of the game to allow some regulatory flexibility and shed a positive light on applicants of ISO 14001 certification, then the cost of obtaining ISO certification will be too high for certain firms who are subject to such regulatory agencies' rules and policies.

B. *Limitation of a Process Standard, the Positive Role of Stakeholders, and Competitive Advantage*

An EMS standard like ISO 14001 can be identified as an intangible resource or a capability since it indicates to the firm's environmental management skills.⁶⁴ However, at present it is not clear how customers can assess the value of an ISO 14001 certification.⁶⁵ The

61. See generally Michael S. Mostek, *Limited Privilege and Immunity for Self-Evaluative Environmental Audits in Nebraska: Moving Environmental Performance to the Next Level*, 32 CREIGHTON L. REV. 545 (1998).

62. See Brian Levy & Pablo T. Spiller, *The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation*, 10 J. L. ECON. ORG. 201, 205-209 (1994).

63. As Levy & Spiller note, "regulation is likely to be far more credible—and the regulatory problem less severe—in countries with political systems that constrain executive and legislative discretion," i.e., constrain the flexibility of such regulative agencies. However, they go on to note that such inflexibility could hurt efficiency, by stating "credibility is often achieved at the expense of flexibility....The same mechanisms that make it difficult to impose arbitrary changes in the rules may also make it difficult to enact sensible rules in the first place, or to efficiently adapt the rules in the face of changing circumstances." See *id.* at 206-07.

64. See Stuart L. Hart, *A Natural-Resource-Based View of the Firm*, 20 ACADEMY OF MGMT. REV. 986, 1000 (1995). See also Mostek, *supra* note 61, at 554 (noting that "[a]s the environmental ethic has emerged, more businesses realize that good environmental management is a necessary component of effective business management practices").

65. See Roht-Arriaza, *supra* note 9, at 534 (remarking that "[a] major drawback to the current IOS effort is its heavily procedural nature....The standards contain no specific commit-

standard itself can be regarded as more a process standard than a product standard.⁶⁶ The ISO 14001 certified firm is unable to benefit from an actual label that would signal to the market that a product has been produced with environmental sensitivity.⁶⁷ This discussion is complicated by the fact that consumers might not identify or understand the advantages of ISO 14001, as the standard does not provide any real measure of environmental performance.⁶⁸ Indeed, the standard not only fails to establish absolute requirements for environmental performance other than a commitment to compliance with applicable regulations, but it also fails to identify environmental performance as a factor in the actual certification process.⁶⁹

True to the well-known axiom “you can’t manage what you don’t measure,” section 4.5.1 of ISO 14001 requires an organization to have procedures to “monitor and measure, on a regular basis, the key characteristics of its operations and activities that can have a significant impact on the environment” as part of the checking and corrective action portion of its EMS.⁷⁰ Although ISO 14001 requires an organization to measure and track its environmental performance, there are no adopted or commonly accepted environmental performance indicators.⁷¹

ments to emissions reductions, source reduction, materials or industrial process changes, or the like.”).

66. *See id.*

67. ISO 14001 is not linked to ISO 14020-14025 which are the environmental labeling standards discussed under the supervision of Technical Committee 207. *See supra* note 20, ISO 14020 (covering Environmental Labels and Declarations: General Principles); ISO 14021 (covering Environmental Labels and Declarations: Self-declared environmental claims (Type II environmental labeling)); ISO 14024 (Environmental Labels and Declarations: Principles and procedures (Type I environmental labeling)); ISO/TR 14025 (Environmental Labels and Declarations: Type III environmental declarations).

68. *Cf.* Stenzel, *supra* note 9, at 284 (noting that “ISO 14001 certification is based on goals set by the company being certified,” and this could be viewed as a flaw “because companies may set very lenient goals for themselves”); Roht-Arriaza, *supra* note 9, at 534 (commenting that “[a] major drawback to the current IOS effort is its heavily procedural nature”).

69. *See* ISO 14001 Standard, § 4.5.1, *supra* note 19.

70. ISO 14001 does not refer to the term “environmental performance”. *See id.* In fact, Section 4.5.1, which covers monitoring and measurement, provides that “the organization shall establish and maintain documented procedures to monitor and measure, on a regular basis, the key characteristics of its operations and activities that can have a significant impact on the environment. This shall include the recording of information to track performance, relevant operational controls and conformance with the organization’s environmental objectives and targets.” *Id.*

71. *See* ISO 14031, *supra* note 10 (entitled Guidelines on Environmental Performance Evaluation), containing over 100 examples of measures and indicators. However, it does not propose a core set of metrics for comparison and benchmarking of performance, nor does it establish performance levels.

Due to this lack of definition of precise environmental variables for monitoring purposes, the resulting data may not provide companies, policy-makers, and the public with accurate information they can use to make comparative judgements about organizational environmental performance issues. Thus, it would be very difficult for consumers to put a value on this resource.

If not a direct signal to consumers, ISO 14001 can be a signal to other stakeholders⁷² that the management of a certified firm is environmentally sound.⁷³ As noted by Lally, “[t]he expanding nature of environmental risks and liabilities has led investment and insurance groups to require more thoughtful environmental analysis in the preparatory stages of a transaction.”⁷⁴ In this respect, companies with pollution prevention programs and EMSs like ISO 14001 should be far more attractive to insurance underwriters and could gain better rates.⁷⁵ However, the difficulty in assessing environmental performance might also be a problem for these stakeholders since they lack tangible elements on which to base their analysis of a firm’s environmental performance. But this limitation can be minimized in certain

72. Numerous definitions have been set forth to identify stakeholders. At one end, there are the broad conceptualizations that regard stakeholders as any individual or group having an interest in or in any way affected by the corporation. See generally R. EDWARD FREEMAN, *STRATEGIC MANAGEMENT: A STAKEHOLDER APPROACH* (1984); ARCHIE B. CARROLL, *BUSINESS AND SOCIETY: ETHICS AND STAKEHOLDER MANAGEMENT* (1989). In the middle, there are theories that define stakeholders as those groups or individuals who assume some degree of risk in their contacts or activities with the corporation. See generally M. Clarkson, *A Stakeholder Framework for Analyzing and Evaluating Corporate Social Performance*, 20 *Academy of Management Review* (1995). Finally, at the other end, there are narrow views that only recognize stakeholders as those whose relationship to the firm is primarily economic. See generally M. Friedman, *The Social Responsibility of Business is to Increase its Profits*, *New York Times Magazine* (September 13) (1970). Regardless of the differences in these definitions of stakeholder, these models all encompass a *relationship-based on a two-way exchange*, i.e., stakeholders are not only affected by the corporation but can also have an effect on its activities as well. For the purpose of our discussion, we adopt this relation-based definition of “stakeholder”, which would include, but not limited to, employees, distributors, suppliers, customers, shareholders, and regulatory agencies.

73. See Stenzel, *supra* note 9, at 283 (noting that “[a]t a minimum, ISO 14001 certifications will help citizens identify those companies that are likely to be responsible stewards of the environment”).

74. Lally, *supra* note 9, at 526.

75. See generally Stenzel, *supra* note 9, at 272 (noting that “[a] growing number of individual investors and investment and mutual fund managers are searching for environmentally responsible firms.... [I]nsurance companies may reduce rates on insurance policies covering accidental pollution releases if a company demonstrates that it has an EMS in place”); Roberto Cenicerros, *ISO 14001 Can Enhance an Overall Plan*, 34 *BUSINESS INSURANCE* 6 (Feb 7, 2000) (observing that “[c]onforming to ISO 14001 standards can be part of a comprehensive environmental risk management program”).

industries, where environmentally sound process segments of manufacturing are key factors underlying a firm's profitability. These industries, which would seem to include the electronics industry⁷⁶ and the chemical industry⁷⁷ would therefore be more likely to pursue ISO 14001 certification.⁷⁸

If ISO 14001 is used by many firms in one market, and if firms require their suppliers to be ISO 14001 certified, we could safely assume that ISO 14001 standardization will become a requirement for any and all firms wishing to access this market.⁷⁹ Certification will function as a barrier hampering a non-certified firm's entry into the market.⁸⁰ For example, the large diffusion of environmental management standards such as BS 7750 or EMAS in some sectors of Europe might act as a real obstacle to the entry of non-certified foreign firms into the European market. Similarly, since ISO 14001 is supposed to be applicable on a global scale, if it is successfully diffused globally in certain industries, then ISO certified firms would have a competitive advantage over non-certified firms in those industries.⁸¹ Indeed ISO 14001 would be seen as a resource that might facilitate firms' entry into foreign markets where EMS standards are

76. See Benson, *supra* note 9, at 341 (noting that "[a]s an increasing number of government contractors become certified, there will be significant incentives for companies in industries which are heavily dependent on government contracts—such as electronics and aerospace—to gain the certification").

77. The chemical industry has already adopted the "Responsible Care" program, which represents the longest established industry code of Environmental Health and Safety practice as implemented by sixteen U.S. chemical companies, and it bears some similarity to ISO 14001. See generally, Howard, *supra* note 13, at 63-82.

78. See generally Stanley Fielding, *ISO 14001 Delivers Effective Environmental Management & Profits*, 43 PROFESSIONAL SAFETY 27 (1998) (explaining how many companies in the electronics industry are realizing that instituting a sound environmental management system, such as ISO 14001 actually leads to higher profits, produces a positive public relations image, and results in a cleaner earth).

79. See Stenzel, *supra* note 9, at 270 (arguing that "[a]s a result of green procurement, ISO 14001 certification may become a de facto requirement for doing business with the U.S. government and large business").

80. See Lally, *supra* note 9, at 512-14.

81. See Benson, *supra* note 9, at 342 (noting that "[o]nce the larger multinational firms being to require ISO 14000 certification of their suppliers, a domino effect will lead to a widespread adoption of the standards along the supply chain of various industries...Certification will at first be viewed as a means of gaining competitive advantage within a particular industry, but will ultimately be perceived as a de facto "passport" for doing business internationally.").

already requirements.⁸² This would support the trading-up hypothesis developed by Vogel.⁸³

C. *Role of Past Experience*

It is clear that past experience plays an important role in developing resources, i.e., path dependency.⁸⁴ Although ISO 14001 is open to any firm that wishes to invest in obtaining the certification, there is a learning curve at the sector or even institutional level that might facilitate the adoption of the certification.⁸⁵ For this reason, it is submitted here that it is easier for a firm in a particular industry to obtain certification in an environment where other firms in that same industry have already been certified. Since the standard does not offer much guidance, it is important that firms be able to benefit from the experience of other firms through an established pool of consultants. In an environment where many firms within the same industry have been certified, the development of knowledgeable consulting companies will be useful for firms in search of certification. In such a context, a certification organization such as the ISO might be useful for firms seeking ISO 14001. Specifically, ISO 14001 can be a resource difficult to acquire for those firms which do not benefit from an environment where other similar firms have already had experience with the certification procedure. Along these lines, ISO 14001 is clearly derived from ISO 9000—the standard for total quality management.⁸⁶ Firms that know how to deal with ISO 9000 should be more inclined to obtain ISO 14001 certification.⁸⁷

In summary, since ISO 14001 is a voluntary standard, we assume that firms will implement it if they are confident that the potential costs of certification are less than the benefits resulting from the business opportunities that the standard will ultimately provide them. First, the institutional environment can impact both the cost of ac-

82. *See id.*

83. *See generally* DAVID VOGEL, TRADING UP: CONSUMER AND ENVIRONMENTAL REGULATION IN A GLOBAL ECONOMY (1995) (arguing that that increased economic interdependence has been associated with stronger, not weaker, consumer and environmental regulations).

84. On discussion on the “learning curve” see generally David Besanko et. al., THE ECONOMICS OF STRATEGY 196-202 (1996).

85. *See* Benson, *supra* note 9, at 356, 357.

86. *See* ISO 9000, *supra* note 10.

87. *See* Benson, *supra* note 9, at 356, 357 (noting that “ISO 14000 should be relatively easy and less costly to implement for firms that have already been through the ISO 9000 certification”).

quiring certification as well as the ability of firms to reap the full benefits from certification. Second, since the ISO standard is in nature a process standard, and thus does not present “tangible” results regarding improvement of a firm’s environmental performance, stakeholders belief in the benefits of ISO 14001 standardization and their commitment to promote it is crucial for the success of ISO certification in a certain industry. Furthermore, if this is achieved, then the certified firms can transform its certification into a competitive advantage. In addition, firms would be more likely to pursue certification if they belong to a sector where process manufacturing as well as pollution prevention are core components of business advantage, i.e., where process standards have a special value to the industry. It seems likely that firms would also pursue ISO 14001 certification if they wanted to enter countries where certification was required. Certification would then be similar to, and would function as, an entry barrier. Finally, ISO 14001 would be easier to acquire for firms which have already been ISO 9000 certified and which belong to an industry or a country where there is some significant experience in ISO 14001 certification.

IV. ANALYSIS OF RELEVANT CONSIDERATION MADE BY U.S. FIRMS IN APPLYING FOR ISO 14001

As noted in Table 1, the number of U.S. certified facilities is low compared to other European and Asian countries.⁸⁸ With 291 certified facilities representing 90 firms in 1998, the United States lagged behind 9 other countries, the United Kingdom, Germany, Sweden, the Netherlands, Switzerland, Denmark, Japan, France, and Australia.⁸⁹ Within the U.S., many ISO 14001 certification decisions were made by non-US firms. Approximately thirty percent (30.8%) of these certified firms were headquartered outside the U.S.⁹⁰ Of the foreign multinational firms that had certified their facilities in the U.S., the largest percentages were from Japan accounting for approximately nineteen percent (19.2%) and the European Union accounting for approximately ten percent (9.6%).⁹¹ This raises the question of why U.S. firms are generally deterred from seeking ISO 14001 certification, which requires an inquiry into the U.S. environ-

88. *See supra* Table 1.

89. *See id.*

90. *See* PRATIMA BANSAL, TAKING STOCK OF ISO 14001 CERTIFICATIONS, FINAL REPORT 8 (Environmental Protection Agency Working Paper No. 17, 1999).

91. *See id. at 9.*

ment. To evaluate the incentives and barriers to the implementation of ISO 14001 for U.S. firms, a questionnaire was mailed to U.S. certified companies. Of the 152 corporate questionnaires mailed, a total of 55 responses accounting for thirty-six percent (36%) were received as of February 15, 1999. The responses represent thirty percent (30%) of the 200 U.S. ISO 14001 certified firms identified in the Globus International Database on November 1998.⁹²

The geographical location of respondents closely mirrors the distribution of certified firms in the U.S., as indicated in Table 2 below. The distribution of responding firms by industry is also similar to the actual distribution of ISO 14001 U.S. certified firms, as indicated in Table 3 below. Seventy-eight percent (78%) of the certified facilities in the sample belonged to large companies with annual sales greater than \$500,000,000.

TABLE 2. GEOGRAPHIC DISTRIBUTION OF CERTIFIED FIRMS IN THE U.S. AND OF QUESTIONNAIRE RESPONDENTS

	U.S. Distribution	Questionnaire Responses
West	18%	15%
Midwest	19%	18%
Central	10%	9%
Northeast	34%	42%
Southeast	18%	15%
Total	99%	99%

92. See Directory of Registered Organization/North American (visited October 2, 2000) <<http://www.worldpreferred.com>> (Globus Registry website has been changed to World-preferred). It should be noted that the population of certified firms was so small (200) that it was practically impossible to compare it to a representative sample of non-certified companies.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	7.3	7.3	7.3
Chemicals	5	9.1	9.1	16.4
Electric/Gas Service	3	5.5	5.5	21.8
Electronics	10	18.2	18.2	40.0
Engineering	4	7.3	7.3	47.3
Industrial Machinery	4	7.3	7.3	54.5
Instrument & related	4	7.3	7.3	61.8
Metal Mining	1	1.8	1.8	63.6
Metal Products	2	3.6	3.6	67.3
Misc. Manufacturing	1	1.8	1.8	69.1
Paper	1	1.8	1.8	70.9
Primary Metal Industry	4	7.3	7.3	78.2
Printing & Publishing	1	1.8	1.8	80.0
Textiles	2	3.6	3.6	83.6
Transport Equipment	9	16.4	16.4	100.0
TOTAL	55	100.0	100.0	

TABLE 3. DISTRIBUTION OF FIRMS BY INDUSTRY

The questionnaire asked managers to state the importance of several factors that led to their decision to become ISO 14001 certified. Three of the questions from the survey were selected for analysis in this paper.⁹³ The first question concerns the incentives for a firm to adopt ISO 14001, as indicated in Table 4 below. The second question concerns the level of involvement of stakeholders in assisting firms to design their ISO 14001 EMS, as indicated in Table 5 below. The last question pertains to the constraints associated with the implementation of ISO 14001 certification, as indicated in Table 6 below. The responses to the first two questions were rated on a five-

93. See Brad Edwards et al., *The Effectiveness of ISO 14001 in the United States* 145-50 (1999) (unpublished M.E.S.M. group thesis, University of California, Santa Barbara) (on file with the author) [hereinafter U.S. ISO Firm Survey].

point scale from non-important to very important. The responses to the third question were ranked from serious constraints to no constraint.

TABLE 4. INCENTIVES TO ISO CERTIFICATION

Descriptive Statistics	%	%
	Not important to important (1-3)	Quite important to very important (4-5)
Improved management of environmental impacts	28	72
Public demonstration of environmental stewardship	34	66
Reduced pollution	38	62
Reduced environmental risk	38	62
Increased competitive advantage	38	62
Improved compliance with government regulations	45	55
Greater market share	46	54
Improved regulatory compliance	49	51
Increased international trade opportunities	49	51
Improved internal communication among managers	53	47
Access to new markets	57	43
Marketing/Advertising opportunity	57	43
Communication with the community	60	40
Increased shareholder value	64	36
Customer requirement	68	32
Fewer regulatory fines	73	27
Greater permit flexibility	76	24
Revised approach to regulatory inspections	77	23
Decreased insurance costs	85	15
Decreased permit costs	85	15
Greater access to capital	87	13
Buyer requirement	90	10
Lender requirement	94	6
N=53		

TABLE 5. STAKEHOLDERS' INVOLVEMENT IN DESIGN OF ISO 14001

Descriptive Statistics	%	%
	Not involved to involved (1-3)	Quite to very involved (4-5)
Involvement of environmental managers	11	89
Involvement of senior management	39	61
Involvement of employees	43	57
Involvement of corporate representatives	54	46
Involvement of lawyers	83	17
Involvement of marketing/public relations	89	11
Involvement of regulatory officials	93	7
Involvement of shareholders	96	4
Involvement of customers/clients	98	2
Involvement of community members	100	0
Involvement of distributors	100	0
Valid N (listwise)= 53.00		

TABLE 6. CONSTRAINTS TO THE ADOPTION OF ISO 14001

Descriptive Statistics	%	%
	Mild to serious constraint (1-4)	Not a constraint (5)
Lack of top management support	77	23
Design costs of ISO 14001 EMS	75	25
Lack of regulatory flexibility	69	31
Registration costs	67	33
Lack of understanding of ISO requirements	67	33
Annual costs of maintaining an ISO 14001 EMS	67	33
Lack of time to implement a quality EMS	65	35
Uncertainty with regulatory agencies' utilization of EMS audit information	62	38
Potential legal penalties from voluntary disclosure	60	40
Lack of personnel to implement/manage EMS	58	42
Valid N (listwise)= 52.00		

A. U.S. Institutional Environment for ISO 14001

As to whether the regulatory framework favors or discourages the adoption of ISO 14001, the variables considered in the survey were: “greater permit flexibility,” “revised approach to regulatory inspections,” “fewer regulatory fines,” and “decreased permit costs.”⁹⁴ These variables were rated from not important (1) to very important (5). A great majority of firms did not consider these factors to be important incentives to their decision to become ISO 14001 certified.⁹⁵ More than seventy-six percent (76%) of the firms in our sample considered “greater permit flexibility” to be not a very important factor in their decision to apply for ISO 14001 certification.⁹⁶ Likewise, seventy-seven percent (77%) of the firms said that “revised approach to regulation inspections” was not very important; seventy-six percent (76%) said the same for “greater permit flexibility;” seventy-three percent (73%) for “fewer regulatory fines;” and eighty-five percent (85%) for “decreased permit costs.”⁹⁷ In line with this survey, it seems clear that the institutional set-up does not provide any incentive for U.S. firms to adopt the standard. In fact, the institutional set-up seems to be more of a constraint, hampering firms from adopting the standard.

In contrast, the variables that represent regulatory constraints, “uncertainty with regulatory agencies’ utilization of EMS audit information,” “potential legal penalties from voluntary disclosure,” and “lack of regulatory flexibility” were considered to be important by firms.⁹⁸ The five-point scale ranged from “not a constraint” (1) to “a very serious constraint” (5). Sixty-two percent (62%) of surveyed firms considered “uncertainty with regulatory agencies’ utilization of EMS audit information” to be a constraint.⁹⁹ Likewise, sixty percent (60%) indicated that the “potential legal penalties from voluntary disclosure,” and sixty-nine percent (69%) for “lack of regulatory flexibility.”¹⁰⁰

94. *See supra* Table 4.

95. *See id.*

96. *See id.*

97. *See id.*

98. *See supra* Table 6.

99. *See id.*

100. *See id.*

B. *Costs of Adopting ISO 14001 for U.S. Firms*

The survey indicated that the design cost of ISO 14001 was less than \$100,000 for seventy-five percent (75%) of the firms.¹⁰¹ Furthermore, the initial registration cost was less than \$50,000 for ninety-four percent (94%) of the firms.¹⁰² It is quite difficult to evaluate the full range of transactional costs of the certification process since the majority of the firms implemented the standard only recently. However, several variables can approximate these costs, namely, “design cost,” “certification cost,” and “annual cost of maintaining an ISO 14001 EMS.”¹⁰³

The survey indicates that the “design costs of ISO 14001 EMS” are a more important constraint than are the “registration costs” and the “annual cost of maintaining an ISO 14001.”¹⁰⁴ Seventy-five percent (75%) of the firms in our sample considered that the “design costs of ISO 14001 EMS” was a constraint.¹⁰⁵ This is compared to sixty-seven percent (67%) for the “registration costs” and the “annual costs of maintaining an ISO 14001 EMS.”¹⁰⁶ A majority of firms, sixty-two percent (62%), considered the “lack of time to implement a quality EMS” as a constraint for adopting ISO 14001, and fifty-eight percent (58%) felt the same about the “lack of personnel to implement/manage EMS.”¹⁰⁷

C. *Past Experience in Standardization and Stakeholders’ Involvement*

Eighty-five percent (85%) of the facilities in our sample are also ISO 9000 certified.¹⁰⁸ According to the survey, it is quite clear that the experience in dealing with ISO 9000 positively impacted the decision of firms to obtain ISO 14001 certification. Furthermore, of the fifty-five (55) facilities in the sample, sixteen (16) belonged to firms

101. See U.S. ISO Firm Survey, *supra* note 93, wherein the firms surveyed were asked the question (#14): “How much did it cost to design your ISO 14001 EMS, excluding initial certification costs?” This required them to include internal as well as external costs, i.e., employee time, process design, and consultants.

102. See *id.* The firms surveyed therein were asked the question (#15): “How much did it cost to initially register your facility (certification costs)?”

103. See *supra* Table 6.

104. See *id.*

105. See *id.*

106. See *id.*

107. See *id.*

108. See U.S. ISO Firm Survey, *supra* note 93, wherein the firms surveyed were asked the question (#3): “Is your facility ISO 9000 certified?”

which had at least two facilities ISO 14001 certified accounting for thirty percent (30%).¹⁰⁹

Since many certification decisions are made by non-U.S. firms—in fact, mainly European and Asian firms—it seems that the country of origin of the firm might have an influence on ISO 14001 certification. This is confirmed by the fact that U.S. firms generally do not benefit from the involvement of external stakeholders to help them design their EMS.¹¹⁰ The totality of surveyed firms say neither their “distributors” nor “community members” have been actively involved in the design of their EMS; ninety-eight percent (98%) said the same for their “customers/clients;” ninety-six percent (96%) for their “shareholders;” eighty-nine percent (89%) for their “marketing/public relations personnel;” eighty-three percent (83%) for their “lawyers;” and ninety-three percent (93%) for their “regulatory officials.”¹¹¹

On the contrary, most of the firms consider that it is the individuals *within* the company who are most substantially (“quite to very”) involved in the design of the EMS: with forty-six percent (46%) citing the involvement of “corporate representatives;” fifty-seven percent (57%) citing “employees;” sixty-one percent (61%) citing “senior management;” and eighty-nine percent citing “environmental managers.”¹¹² Thus, the survey suggests that U.S. firms are building on their own resources to put their ISO 14001 EMS in place and do not rely on outside help.

D. *ISO 14001 and Environmental Performance*

As discussed above, one of the primary goals of the standard is to improve environmental performance.¹¹³ Thus, we should ask whether firms in our survey consider the improvement of environmental performance as one of their primary goals in acquiring the ISO 14001 certification. Four variables were designed to represent environmental performance: “improved regulatory compliance,” “improved management of environmental impacts,” “reduced environmental risk,” and “reduced pollution”.¹¹⁴ According to the survey, a modest majority of managers considered these variables to be at

109. *See id.*

110. *See supra* Table 5.

111. *See id.*

112. *See id.*

113. *See supra* note 12 and accompanying text.

114. *See supra* Table 4.

least “quite important” in their decision to become ISO 14001 certified: fifty-one percent (51%) for “improved regulatory compliance;” seventy-two percent (72%) for “improved management of environmental impacts;” sixty-two percent (62%) for “reduced environmental risk;” and sixty-two percent (62%) for “reduced pollution.”¹¹⁵ These figures indicate that managers believe the improvement of environmental performance is an important reason to seek certification.

However, it should be noted that the strongest reason to seek certification in the context of “environmental performance” was “improved management of environmental impacts,” which accounted for seventy-two percent (72%).¹¹⁶ This confirms the point made earlier in Section B of Part III that one of the weaknesses of the standard is its lack of specific performance indicators and common metrics for tracking and comparing environmental performance.¹¹⁷ In addition, the survey supports our main finding that ISO 14001 does not directly improve environmental performance but does influence the management of environmental impacts.¹¹⁸

E. *ISO 14001 and the Role of Stakeholders and Search for Competitive Advantage*

It is clear from the survey that, in the U.S. at least, whether or not ISO 14001 is adopted is not related to stakeholders’ requirements.¹¹⁹ A vast majority of firms considered the concerns of various stakeholders as largely *unimportant* in seeking certification: sixty-four percent (64%) of firms so found regarding “increased shareholder value;” sixty-eight percent (68%) of firms regarding the motivation of “customer requirement;” ninety percent (90%) regarding a “buyer requirement;” and ninety-four percent (94%) regarding a “lender requirement.”¹²⁰ In general, very few U.S. companies at present require that their suppliers be ISO 14001 certified.¹²¹ In fact, IBM is one of the few that do require certification—which might explain the high rate of certification in the electronics industry.¹²²

115. *See id.*

116. *See id.*

117. *See supra* notes 64-83 and accompanying text.

118. *See supra* note 71 and accompanying text.

119. *See supra* Table 4.

120. *See id.*

121. *See* Kara Sissell, *Autos and Electronics Drive Certification*, 162 CHEMICAL WEEK, April 5, 2000, at 14, 42-43.

122. *See id.*

According to the survey results, ISO 14001 certification is better used as a public demonstration of environmental stewardship.¹²³ Sixty-six percent (66%) of the firms in our sample consider “public demonstration of environmental stewardship” as an important reason to get ISO 14001 certification.¹²⁴ However, “communication with community” and “marketing/advertising opportunity” are less important for firms as incentives in seeking certification, accounting for only forty percent (40%) and forty-three percent (43%), respectively.¹²⁵

According to the survey, one of the main incentives for applying for ISO 14001 originates from the need to access markets where ISO 14001 is a requirement.¹²⁶ The variables representing the potential to gain a competitive advantage from the adoption of ISO 14001 are all deemed important reasons by the majority of managers to seek certification: “increased international trade opportunities” accounting for fifty-one percent (51%); “increased competitive advantage” accounting for sixty-two percent (62%); and “greater market share” accounting for fifty-four percent (54%).¹²⁷ Only “access to new markets” does not muster a majority, accounting for only forty-three percent (43%).¹²⁸ These results indicate that U.S. firms believe that there is a positive link between the adoption of ISO 14001 certification and the attainment of business advantages, including competitive advantage.

In summary, our results of the survey of U.S. firms regarding ISO 14001 certification show the following:

- (1) In the U.S., firms that became certified are mostly multi-nationals with experience in dealing with management standards;
- (2) U.S. certified firms believe that the U.S. institutional setup does not facilitate the adoption of ISO 14001 and might even be a constraint to its implementation;
- (3) There is neither a demand, nor involvement from U.S. stakeholders to push firms to adopt the standard. More specifically, U.S. stakeholders generally are not contrib-

123. *See supra* Table 4.

124. *See id.*

125. *See id.*

126. *See id.*

127. *See id.*

128. *See id.*

- uting to the implementation of the standard at the firm level and are not requiring firms to obtain certification; and
- (4) Managers do believe that the adoption of the ISO 14001 standard will improve their environmental performance. However, since the standard is not valued by U.S. stakeholders, it is mainly used to demonstrate environmental stewardship to the public and to increase trade opportunities.

V. NECESSARY ELEMENTS REQUIRED TO FACILITATE THE ADOPTION OF ISO 14001 IN THE U.S.

Based on prior discussions, the following will be devoted to the identification of various changes that would be required to favor the adoption of ISO 14001 by U.S. firms. Section A discusses the current U.S. institutional and regulative barriers to the adoption of ISO 14001, and how these could be changed. Section B discusses how the fact that ISO 14001 is a non-performance standard could hamper the adoption of ISO 14001 by U.S. firms, and how it could be modified.

A. *Institutional Barriers in the U.S. and Remedies Thereto*

In a competitive market in which contract losses due to non-compliance with applicable environmental regulations—or even worse, a hefty legal settlement—could irreparably damage the prestige and finances of a company, ISO 14001 can offer firms an organized approach to managing environmental issues. As discussed in Sections B and C of Part III above, using this approach, a firm can cut environment-related costs and thereby increase profits in a variety of ways.¹²⁹

However, as discussed in Sections A of Part III above, the process of acquiring ISO 14001 certification might be costly if there is uncertainty about regulatory agency commitment to the standard.¹³⁰ An EMS audit under ISO 14001 may reveal not only procedural defects, but also environmental performance problems including non-compliance with existing command-and-control regulations.¹³¹ If firms are required to disclose this information to appropriate enforcement authorities as part of the certification process, and if these

129. See *supra* notes 64-83 and accompanying text.

130. See *supra* notes 54-63 and accompanying text.

131. See *supra* notes 54-58 and accompanying text.

authorities do not commit to interpreting these audits in a positive way, then there will be potential liability costs for certified companies.¹³² These additional costs are potentially a major obstacle to the initiation of ISO 14001 certification for U.S. firms.¹³³

The Environmental Protection Agency (EPA) has moved haltingly from a strict command-and-control approach toward more open communication and flexible programs.¹³⁴ The EPA is proposing more innovative approaches and recognizes that industrial commitment and advancement in the area of pollution prevention could properly be considered when rendering decisions on prioritizing enforcement goals, defining what penalties will be sought for specific actions, and negotiating settlements.¹³⁵ However, it is not clear to what extent the adversarial culture between industry and regulatory agencies has actually tempered—or whether that is really possible—enough to effect a positive shift towards the diffusion of ISO 14001 in the U.S.¹³⁶ From industry's point of view, the few initiatives launched by the EPA that have been developed to foster the development of ISO 14001 might still appear inadequate.¹³⁷

ISO 14001 stipulates that audit findings from internal or external audits be documented in a detailed written audit report.¹³⁸ In the U.S. context, firms might fear that these audit reports would become the new “smoking gun” of environmental litigation.¹³⁹ Indeed, it is not clear how firms would be able to protect the confidentiality of audit reports and other documents solely through the attorney-client

132. *See supra* note 55 and accompanying text.

133. *See supra* note 56 and accompanying text.

134. *See* Mary McKiel, *ISO 14001: Implications for US Environmental Programs*, in OECD ISO Document, *supra* note 10, at 57.

135. *See* Lally, *supra* note 9, at 519, 520.

136. *See supra* note 54 and accompanying text.

137. *See* Rodgers, *supra* note 19, at 267-74. However, recently, there have been positive coordinated efforts by the EPA and state agencies, and public interest community (NGOs) to facilitate the ISO 14001 certification in the U.S., such as the the Multi-State Working Group on Environmental Management Systems (MSWG) which coordinates an array of pilot projects at the state level. *See generally*, Robert D. Stephens, *Multi State Working Group on Environmental Management Systems*” in OECD ISO Document, *supra* note 10, at 81-87. One of the MSWG's primary purposes is to facilitate research efforts that examine EMSs and new regulatory innovations. *See id.* at 81-82. The working group's various projects and events are designed to provide members and others with better information on ISO 14001, EMAS and other EMS frameworks. *See id.* at 84.

On other initiatives linked to ISO 14001 at the U.S. federal and state level see generally McKiel, *supra* note 134, at 60-62.

138. *See* ISO 14001 Standard, § 4.5.3, *supra* note 19.

139. *See supra* notes 60, 61 and accompanying text.

privilege and the attorney work product doctrine, which are the two traditional legal privileges that grant confidentiality.¹⁴⁰ Past attempts to protect the results of the ISO 14001 “Certification and Surveillance Audits” conducted by an external auditing team under these two privileges have not been successful.¹⁴¹ The attorney-client privilege does not apply because the third-party audits would probably not involve the consultation of an attorney for legal advice.¹⁴² Instead, an independent registrar evaluates the EMS in order to give an opinion on the state of the EMS to the National Registration Board. In that respect, using the terms of Hunt & Wilkins, third-party audits would be considered as a “Management Audit” rather than a “Compliance Audit,” and thus would not be protected by attorney-client privilege.¹⁴³

In fact, results of even an internal EMS audit could be kept confidential under the attorney-client privilege only if the audit were conducted under the *supervision* of an attorney.¹⁴⁴ Thus, in order for this privilege to be recognized in courts, the audit must be directed and controlled by the attorney and the role of the attorney must be to give legal advice.¹⁴⁵ Furthermore, the work product doctrine only protects information gathered in anticipation of litigation. However, “because...routine compliance or management system audits are not prepared “in anticipation of litigation,” industry only rarely will be able to rely on the work product doctrine to prevent disclosure of these audit results.”¹⁴⁶ Thus, the information gathered in the external audits would probably be discoverable in courts.

140. For a full discussion of the attorney-client privilege and work-product doctrine and their applicability to environmental audits, see generally Terrell E. Hunt & Timothy A. Wilkins, *Environmental Audits and Enforcement Policy*, 16 HARV. ENVTL. L. REV. 365, 376-88 (1992).

141. See Rodgers, *supra* note 19, at 263 (noting that “given the availability of broad discovery and FOIA requests in the United States, plaintiffs bringing private citizen suits or tort actions against an organization and/or its officers may be able to obtain information generated and documented through environmental audits . . . [E]ven if environmental audit reports are controlled by counsel, they may not be considered privileged under attorney-client, work product, or self-critical analysis doctrines Thus, if no statutory privilege applies in a particular jurisdiction, environmental audit reports, and conceivably EPE documentation, may be subject to discovery during private litigation.”).

142. See Hunt & Wilkins, *supra* note 140, at 381, 382.

143. For comparison on “Management Audits” and “Compliance Audits” see *id.* at 366, 367.

144. See *id.* at 383-89.

145. See *id.*

146. Hunt & Wilkins, *supra* note 140, at 385.

However, a potential protection against self-incrimination through an EMS audit may come about with the emergence of a "self-evaluation privilege."¹⁴⁷ With such a privilege, liability derived from audit reports would be limited from civil, criminal, or administrative court proceedings, provided that the company being audited meets certain conditions of the EPA.¹⁴⁸ Specifically, the EPA developed a document in 1995 called "Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations," which provides guidance to design a "self-evaluation privilege" regulation.¹⁴⁹ However, by mid-1997, only 19 states had passed the self-evaluation privilege into law.¹⁵⁰ Since the privilege has been recently introduced, it is not clear whether and to what extent the courts will recognize it.¹⁵¹ These results underscore the importance as well as the complexity of the legal implications of ISO 14001.¹⁵²

Furthermore, as discussed in Section C of Part III, the cost of designing and implementing an EMS might be high in an environment where there is little industry experience to build upon and few con-

147. See generally Voluntary Environmental Self-Policing and Self-Disclosure Interim Policy Statement, 60 Fed. Reg. 16,875, 16,878 (1995); Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations, 60 Fed. Reg. 66,706 (1995); Eric W. Orts & Paula W. Murray, *Environmental Disclosure and Evidentiary Privilege*, 1997 U. ILL. L. REV. 1, 14-20 (noting that "[a]lthough the EPA again rejected the notion of an audit privilege, its 1995 policy statement offered new incentives for environmental auditing"); Hunt & Wilkins, *supra* note 140, at 389-92 (discussing how the courts have dealt with "Critical Self-Analysis" privilege).

148. See Orts & Murray, *supra* note 147, at 14. However, it should be noted that such privilege would be limited to legal proceedings brought by the EPA, and thus the audited company might still be liable against other non-EPA litigants.

149. See 60 Fed. Reg. 66,706 (1995). According to EPA's document, "a company that discovers a violation through routine environmental auditing or due diligence, the EPA promises to eliminate gravity-based, punitive civil penalties....However, the following six conditions must be met in order for a company to be eligible: (1) the company must promptly report the violation to the EPA; (2) the company must remediate the damage caused by the legal violation; (3) the company must adopt preventative measures to avoid similar violations in the future; (4) the violation may not be a "repeat" violation; (5) the company must "cooperate" with the EPA in providing information; and (6) the violation must not cause "serious actual harm" or present "an imminent and substantial endangerment to public health or the environment." Orts & Murray, *supra* note 147, at 14.

150. See Alexander Volokh, *Carrots Over Sticks: the Case for Environmental Self-Audits*, 29 WASHINGTON MONTHLY No. 6, June 1997, 28, at 29.

151. See Hunt & Wilkins, *supra* note 140, at 389-92.

152. See Orts & Murray, *supra* note 147, at 47, where they identify four incentives, or "carrots," that would encourage the participation of firms in a voluntary environmental standard, such as the ISO 14001 in the United States: "(1) an evidentiary self-evaluative privilege [to protect the subjective evaluations and remedial recommendations made in environmental audits]; (2) significantly reduced civil penalties for self-reported legal violations; (3) leniency in criminal prosecution; and (4) a transitional period of limited amnesty."

sulting companies to utilize.¹⁵³ The experience of the firm in dealing with management standards is also important.¹⁵⁴ In that respect, the time and cost for implementing ISO 14001 partly depends on: 1) whether a site has a functioning ISO 9000 Quality Management System to build on;¹⁵⁵ 2) whether it has implemented responsible care programs, such as programs for pollution prevention, community awareness and emergency response and process safety programs;¹⁵⁶ and, 3) if it has systems in place to maintain compliance with state and federal regulations.

In light of these factors, the lack of adoption of ISO 14001 in the U.S. can be explained by the institutional specificity of the American context. In contrast, the European context seems to provide a better ground for the development of EMS standards.¹⁵⁷ The European Commission has been at the origin of the development of EMAS in conjunction with industry.¹⁵⁸ Cultural elements in Europe, such as better relationships between regulatory agencies and industry, have mitigated firms' fears of transaction costs linked to the adoption of the EMS certification.¹⁵⁹ In Asia as well, regulatory agencies have actively pushed the development of ISO 14001.¹⁶⁰ Unfortunately, the quality of exchange that can be observed in both Europe and Asia between industry and regulatory agencies does not exist in the U.S. Thus, it is suggested here that the lack of cooperation between industry and regulatory agencies in the U.S. most likely accounts for the slow pace of adoption of ISO 14001.

In Europe and Asia, governments have adopted practical measures to facilitate the development of Environmental Management

153. See *supra* notes 85-87 and accompanying text.

154. See *supra* note 87 and accompanying text.

155. See Fielding, *supra* note 78, at 4.

156. For discussion on how "Responsible Care" bares communality with ISO 14001 see *supra* notes 13, 26, 77 and accompanying text.

157. Cf. *supra* Table 1.

158. See Orts, *supra* note 2, at 1290-92.

159. See generally *id.* at 1287-1313.

160. For literature on ISO 14001 and Asia, see generally Keikou Terui, *ISO 14001 Implementation in Japan*, in OECD ISO Document, *supra* note 10, at 67-71 (discussing how ISO 14001 has been received in Japan); Naomi Roht-Arriaza, *Environmental Management Systems and Environmental Protection: Can ISO 14001 be Useful Within the Context of APEC?* 6 J. ENV'T. & DEV. 292, 310 (Sept. 1997); Naomi Roht-Arriaza, *Developing Countries, Regional Organization, and the ISO 14001 Environmental Management Standard*, 9 GEO. INT'L ENVTL. L. Rev. 583, 599-601 (1997) (noting that ISO 14001 in Asian developing countries is motivated by the government's concerns on trade and export).

Standards.¹⁶¹ For example, “local German authorities have begun to ease administrative enforcement requirements on EMAS certified sites.”¹⁶² As the ISO Background Paper suggests, such policy could provide an indirect benefit to the regulatory agencies themselves, in that “it frees control resources and enables the authorities to concentrate efforts on non-EMAS certified sites.”¹⁶³ In Asia, central governments from various countries have promoted the ISO 14001 certification more directly: 1) “fundin[g] ISO 14000 support programmes already in place;”¹⁶⁴ and/or 2) “offer[ing] technical or financial assistance to companies taking up ISO 14000.”¹⁶⁵

In addition to regulatory agencies from central governments, some “local government administrations are also taking a number of measures to promote the use of ISO 14001.”¹⁶⁶ For example, Kanagawa Prefectural government in Japan, issued an “Ordinance on Conservation of Living Environment,” which allows ISO 14001 certified companies “to be exempted from frequent inspections and reporting requirements.”¹⁶⁷ Moreover, to facilitate the certification process, “some local governments [in Japan] have acquired registration themselves.”¹⁶⁸

Thus, this piece suggests that to facilitate U.S. firms’ adoption of ISO 14001 certification, applicable regulatory agencies such as the EPA or state and local environmental agencies should promulgate regulations limiting the liability of ISO applicant firms’ when violations of applicable regulations are revealed or disclosed through the certification or documentation process required under ISO 14001. Additionally, applicable government agencies, including federal, state and local agencies, could actively promote ISO 14001 certification by initiating practical measures, such as 1) easing administrative enforcement requirements on ISO 14001 certified sites; 2) providing technical and/or financial assistance to already certified firms or firms

161. See Background Paper: Review of the Development of International Environmental Management Systems [hereinafter “ISO Background Paper”], in OECD ISO Document, *supra* note 10, at 15, 32-34.

162. *Id.* at 32.

163. *Id.*

164. According to the ISO Background Paper, “[t]hese countries include: Japan, China, South Korea, Taiwan, Hong Kong, Thailand, Malaysia, Singapore, Indonesia, Vietnam, and Sri Lanka.” *Id.*

165. *Id.* (noting that “Singapore, Thailand, Taiwan, Korea, Japan and China” provide such assistance).

166. *Id.*

167. *Id.* See also Terui, *supra* note 160, at 71.

168. See Terui, *supra* note 160, at 70-71.

adopting ISO 14001 certification; and, 3) providing exemptions to certified firms' company sites from frequent inspections and reporting requirements.

B. *Non-Performance Standards as Barriers, and Remedies Thereto*

As discussed in Section B of Part III above, one explanation of the difficulty in promulgating ISO 14001 resides in its incompleteness in dealing with the measurement of environmental performance.¹⁶⁹ In order to provide firms with a potential competitive advantage, the standard should clearly define a procedure for the assessment of environmental performance.¹⁷⁰ Although commitment to improved environmental performance and compliance with existing command-and-control regulations are prerequisites to ISO 14001 certification, the standard does not require release of any real measure of environmental performance.¹⁷¹ Thus, it is difficult for stakeholders to assess the value of such a standard. The European environmental management standard EMAS partly deals with this problem by requiring preparation and public dissemination of "environmental statements."¹⁷² Environmental statements must accurately summarize the findings and conclusions of the more detailed internal audits,¹⁷³ and a statement for each site must "be designed for the public and written in a concise," non-technical form.¹⁷⁴ Public disclosure of environmental performance is at the heart of the EMAS.¹⁷⁵ Most EMAS certified companies in Europe are also ISO 14001 certified.¹⁷⁶ This might explain why stakeholders in Europe are more receptive to environmental management standards than in the U.S.¹⁷⁷ Stakeholders

169. See *supra* notes 65-71 and accompanying text.

170. See *supra* notes 72-83 and accompanying text.

171. See ISO 14001 Standard, § 4.5.1, *supra* note 19. See also *supra* notes 68-70 and accompanying text.

172. See Council Regulation 1836/93, art. 5, 1993 O.J. (L 168) 1, 4, in OECD ISO Document, *supra* note 10, at 107.

173. See *id.*, art. 5.3.

174. See *id.*, art. 5.2.

175. Article 2.2 of the Council Regulation states that "[t]he objective of the scheme shall be to promote continuous improvements in the environmental performance of industrial activities by:...(e) the provision of information of environmental performance to the public." See *id.* at 105.

176. Cf. Lally, *supra* note 9, at 523 (noting that "EU site registration to ISO 14001 may simultaneously constitute EMAS participation").

177. See generally, Roht-Arriaza, *supra* note 9, at 504 (noting that "[w]hile regulatory compliance and potential liability drive the move towards environmental management and auditing standards in the U.S., demonstrating to the public that a company is "green" and taking its environmental responsibilities seriously is a primary motivation for establishing environmental

in Europe have tangible information on the environmental performance of certified companies.¹⁷⁸ Furthermore, since ISO 14001 is a process standard and is not linked to any eco-labeling standard, it does not send a clear signal to customers regarding a firm's environmental improvements.

In addition, as the standard does not include any specification regarding life cycle assessment,¹⁷⁹ it does not encourage firms to actively research innovative and lucrative solutions to environmentally sensitive components of the production process. Life Cycle Assessment is an analysis that covers every stage and every significant environmental impact of a product from the extraction and use of raw materials to the eventual disposal of the components of the product and their decomposition back to the elements.¹⁸⁰ Moreover, ISO 14001 does not suggest any Design for the Environment practices ("DfE").¹⁸¹ This means that the implementation of ISO 14001 does not require the firm to re-think its links with suppliers and distributors, nor does it push the firm to re-design its products to reduce their environmental impacts. It is therefore likely that ISO 14001 certification will not lead to innovative changes in production processes.

Assuming that regulatory agencies would be more inclined to promote a standard that increases the competitiveness of the industry, it is submitted here that that a more comprehensive standard is required for ISO 14001 to be accepted on an international scale. Regulatory agencies would then compete for the adoption of a standard that provides a competitive advantage to their industry.¹⁸²

auditing standards in Europe"); Stenzel, *supra* note 9, at 271 (noting that in Germany and the Netherlands, consumers prefer "commodities manufactured with environmental consideration and priced higher than those without such consideration").

178. See Roht-Arriaza, *supra* note 9, at 507. See also Ronald Begley, *Is ISO 14000 Worth It?* 17 J. BUS. STRATEGY 1754-55 (1996).

179. On Life Cycle Assessment, see generally Richard Welford, *Life Cycle Assessment*, in CORPORATE ENVIRONMENTAL MANAGEMENT: SYSTEMS AND STRATEGIES, *supra* note 11, at 138-147.

180. See *id.* It should be noted that ISO 14040 to 14043 on Life Cycle Assessment are not yet subject to certification.

181. The idea behind DfE is to ensure that all-relevant and ascertainable environmental considerations and constraints are integrated into a firm's product realization (design process). See generally Braden Allenby, *Integrating Environment and Technology: Design For Environment* in ENVIRONMENTAL MANAGEMENT 245, at 247 (Michael V. Russo et. al., 1999). The goal is to achieve environmentally preferable manufacturing processes and products while maintaining desirable product price/performance characteristics. See *id.* at 247.

182. See Daniel C. Esty & Damien Geradin, *Market Access, Competitiveness, and Harmonization: Environmental Protection in Regional Trade Agreements*, 21 HARV. ENVTL. L. REV. 265, 293 (noting that ISO 14001 is one form of procedural harmonization, but unlike

Thus, this paper recommends that to facilitate U.S. firms' adoption of ISO 14001 certification, applicable government agencies and relevant industry actors should require EMSs to clearly define a procedure to assess environmental performance. Such a procedure would be similar to that of EMAS, which requires preparation and public dissemination of environmental statements designed for the public and written in a concise, non-technical form.

VI. CONCLUSION

Spearheaded by the International Organization for Standardization, with the participation of 50 of its 111 member nations, ISO 14001 is a voluntary environmental management and procedural standard. Since ISO 14001 is voluntary, it appears that firms seek certification when the potential transaction costs of acquiring the certification are offset by the advantages the certification will ultimately provide to the firm. This paper has analyzed how a specific institutional context can impact the cost of implementing such an EMS standard at the firm level. It has also described the benefits that adoption of the standard provides firms with respect to competitive advantage.

Uncertainty of regulatory behavior toward firms seeking ISO 14001 certification impacts the level of transaction costs between the firm and the certification body, because the transaction demands a high level of asset specificity. Furthermore, since the standard does not present tangible results of the actual improvement of environmental performance to a firm's stakeholders, it becomes vital that all stakeholders believe in the underlying benefits of the ISO 14001 standardization and promote them. If presented with such a mandate from stakeholders, firms are more likely to transform certification into a potential competitive advantage.

The survey of U.S. certified firms supported our propositions. Firms seemed to perceive that American regulatory institutions do not provide enough regulatory flexibility to allow the smooth development of ISO 14001. Stakeholder pressures to push the adoption of the standard were still weak. The data indicated that firms are using

EMAS, only focuses on procedure and not substance). Esty & Geradin further discuss the "disadvantage of relying on environmental systems," such as the ISO 14001: "there may be little convergence in the substantive requirements that are imposed from jurisdiction to jurisdiction. As a result, wide variations in environmental compliance costs may persist and competitiveness tensions may endure. A harmonized approach to environmental systems would reduce the risk of a race toward the bottom." *Id.*

the certification more to increase trade opportunities than to obtain a competitive advantage within their own market. Ultimately, in the United States it was not clear whether the competitive advantage gained from the adoption of the ISO 14001 standard would offset its potential associated transaction costs.

This paper suggests that the institutional environment should credibly commit to promoting the standard by protecting firms from the subjective evaluations and remedial recommendations made in an environmental audit. The standard should also be improved by requesting a public disclosure of their environmental performance. This would allow stakeholders to compare firms' performance and to drive the demand for certification.

The United States is an interesting example, because the question still remains whether obtaining ISO 14001 certification offers value to companies. The problem of the implementation of ISO 14001 might be even more critical in developing countries where the resources to promote the standard are often less available. Further research could productively address the issue of the diffusion of ISO 14001 even more comprehensively and in the international sphere.