

GLOBAL ENVIRONMENTAL SOLUTIONS: MANAGEMENT SYSTEMS AND SYNCHRONICITY*

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I. INTRODUCTION

For the past several years, I have been invited to make presentations at environmental conferences in Europe and Asia, which have focused on the discovery and implementation of technologies to solve the pollution crisis in some of the most contaminated countries in the world. Environmental technology is developing at such a rapid rate that a host of solutions have already been discovered to alleviate these problems on a global basis. The discussions have led me to believe that it is possible that within, perhaps, a decade, we will be able to find technologies to solve the world's most serious environmental problems. Merely finding the technological solutions, however, does not ensure that existing contamination will be cleaned up, nor does it eliminate the continuing environmental degradation, which President Clinton has labeled "the national security issue of the 21st Century."¹ Indeed, permanent solutions have to be financed, managed, and implemented. To reverse the daily destruction of our environment, permanent solutions will require special attention and dedication from all of us.

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1. Cynthia Cotts, *NYU and White House Launch All-Day Forum on Globalization*, NAT'L L.J., Oct. 5, 1998, at B4.

In Kuala Lumpur, Malaysia, at the Seventh Annual Inter-Pacific Bar Association Conference in 1997, my presentation involved the use of a “systems approach” to solve global environmental problems. I used the term “synchronicity,” which according to C.G. Jung is “a meaningful coincidence of two or more events, where something other than the probability of chance is involved,”² to demonstrate that each of the participants at the conference had the means and the ability to solve global environmental problems, and could collectively cause dramatic and long lasting improvements of our natural environment. The following year I read Joseph Jaworski's remarkable book, *Synchronicity: The Inner Path of Leadership*,³ in which he described how, using the inherent power of synchronicity, we can create a network of strong and vibrant world leaders. Jaworski quit a successful practice of law in 1980 to start the American Leadership Forum, which links people together into a national community of leaders who develop the wisdom and power to serve others. Jaworski “envisioned a national, and later an international, community of ‘servant leaders’ — a community of enlightened, committed people.”⁴ These leaders would come to understand “the essential interrelatedness and interdependence of all phenomena — physiological, social, and cultural. We [are] talking about a systems view of life and a systems view of the universe . . . Everything is included in everything else.”⁵

While Jaworski did not discuss how his “servant leaders” might discover and implement long-range environmental solutions, his book was a revelation that global synchronicity, as he described it, might be used to speed up the process of remedying the environmental degradation of the past and eliminating or reducing future sources of pollution. In contrast to the United States, where in the

2. 8 C.G. JUNG, *Synchronicity: An Acausal Connecting Principle*, in *THE STRUCTURE AND DYNAMICS OF THE PSYCHE* 520, 520 (R.F.C. Hull trans., 2d ed. Princeton Univ. Press 1969).

3. JOSEPH JAWORSKI, *SYNCHRONICITY: THE INNER PATH OF LEADERSHIP* (1996).

4. *Id.* at 65. The term “servant leader” is derived from ROBERT K. GREENLEAF, *SERVANT LEADERSHIP: A JOURNEY INTO THE NATURE OF LEGITIMATE POWER AND GREATNESS* (1977).

5. JAWORSKI, *supra* note 3, at 80. Jaworski was heavily influenced by the British physicist and colleague of Albert Einstein, David Bohm. See generally DAVID BOHM, *WHOLENESS AND THE IMPLICIT ORDER* (1980) (studying quantum physics and its relationship to the totality of existence).

past thirty years there has been an extraordinary improvement of our nation's air and water quality, and a reduction of the use and disposal of toxic chemicals,⁶ in many other parts of the world the devastating impacts of pollution remain unabated. The World Health Organization has claimed that four million third-world children died in 1993 from acute respiratory disease brought on in most cases by air pollution, and UNICEF reported that 3.8 million children under the age of five died that same year from diarrhea diseases caused mostly by impure drinking water.⁷ These statistics are appalling and further emphasize the critical need for servant leaders to discover methods to quantify the impacts of pollution on the environment and implement universal solutions. Yet, if it is only a matter of time before we have the means to conquer any type of pollution problem, how can we speed up the process?

In other international conferences, such as the Conference on Environmental Development in Rio de Janeiro, Brazil, in 1992; the Summit of Eight in Denver, Colorado, in 1997; and the Climate Control Conference in Kyoto, Japan, later that year, the world political agenda has begun to focus on multinational accords that will require nations to work together to solve the world's environmental problems.⁸ There are growing concerns amongst nations that there is "an increasing awareness of the need for environmental protection on a global scale and at the same time, a recognition that international trade liberalization policies may be at odds with environmental protection."⁹ In this setting, industry, academia, environmental and public interest groups, and government agencies have been searching for more effective methods to achieve solutions without sacrific-

6. See generally GREGG EASTERBROOK, *A MOMENT ON THE EARTH* (1995) (analyzing pollution problems across the globe).

7. See Gregg Easterbrook, *Forget PCB's. Radon. Alar.*, N.Y. TIMES MAG., Sept. 11, 1994, at 60-61; see also Jason Hart, *The Asian Contagion*, INT'L ENVTL. SYSTEMS UPDATE (CEEM Inc.), Aug. 1998, at 1, 3.

8. 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, 581 (1997) (noticing a growing awareness that a more global approach to environmental protection is needed).

9. *Id.* at 577. Murray explains that there is very little consensus about how nations can achieve global environmental protection and increased international trade mobility. See *id.* Particularly in the emerging economies of developing nations, "[t]hese countries are almost always hostile to any linkage between international trade and environmental policy." *Id.* at 578.

ing the legitimate economic concerns of the industrialized and developing nations, and the national security concerns of their leaders. For several years there has been a growing belief that the global impacts of man-made pollution, e.g., solid and liquid wastes, climate change, deforestation, transboundary pollution, oil spills, excessive use of fossil fuels and ozone-depleting compounds, and other large scale environmental disorders will ultimately cause nations to protect their borders and natural resources by relying on systems that use technologies to reverse the impacts of pollution. Each nation, rich or poor, may become dependent upon others to create a systems approach to improve the environment for everyone.

In this context, the International Organization for Standardization (ISO),¹⁰ on September 1, 1996, approved the ISO 14000 series of environmental management system protocols.¹¹ These protocols provide a universal mechanism for large and small businesses, governments, and other non-business entities to use a systems approach to solve environmental problems and create opportunities for continuous improvement.¹² Informed businesses are using ISO 14000 to create products and provide services that have less adverse impacts on the ecosystem. Municipal governments are using ISO 14000 to render better services to their citizens, to lower their environmental societal costs, and to find methods to change the behavior of both their citizens and employees, whose practices cause most of the negative impacts on the environment. This Article traces the development of the standard, the impact on the world as the standard is adopted by thousands of businesses, and the benefits of adopting a systems approach to environmental management.

10. The term "ISO," which is commonly used when referring to the organization and its standards, is both an acronym for the organization's official title, and is derived from the Greek word "isos," which means "equal." See JOSEPH CASCIO ET AL., *ISO 14000 GUIDE: THE NEW INTERNATIONAL MANAGEMENT STANDARDS* 7 (1996); Mary Lynne Calkins, *Make Friends First, Certify Later: China and ISO 14000*, 9 GEO. INT'L ENVTL. L. REV. 609, 612 n.13 (1997) (citing ISO Web site: <<http://www.ISO.ch/invoe/intro.html>>).

11. See Murray, *supra* note 8, at 578. See generally TECHNICAL COMMITTEE ISO/TC 207, ENVIRONMENTAL MANAGEMENT, SUBCOMMITTEE SCI, ISO 14001: ENVIRONMENTAL MANAGEMENT SYSTEMS — SPECIFICATION WITH GUIDANCE FOR USE (1996) [hereinafter ISO 14001].

12. See JOHN VOORHEES & ROBERT A. WOELLNER, *INTERNATIONAL ENVIRONMENTAL RISK MANAGEMENT ISO 14000 AND THE SYSTEMS APPROACH* 3-10 (1998).

II. ISO

In 1946, ISO was founded in Geneva, Switzerland, as a world-wide federation to promote the development of international manufacturing, trade, and communication standards, thereby facilitating the international exchange of goods and services.¹³ During the post-war reconstruction of Europe, ISO grew rapidly, and its purview became global by involving nations outside of Europe in the process of developing international product standards. By 1998, there were 111 members of ISO who are the standards organizations from nations around the world, as well as additional countries who participate as observers in the standard development process.¹⁴ The United States is a full voting member of ISO, officially represented by the American National Standards Institute (ANSI).¹⁵

ISO builds consensus within government, industry, and other interested parties to create globally accepted standards that are voluntarily adopted by the international business community. In developing standards, the diverse views of manufacturers, vendors and users, consumer groups, testing laboratories, governments and regulators, engineering professionals, and research organizations are considered.¹⁶ Neither precise application methods nor techniques are specified. Instead, the development of techniques are left to the discretion of industry and government leaders and certain market place pressures. The goal of ISO is to promote standardization, to facilitate the international exchange of goods and services, and to achieve consensus and cooperation in the sphere of intellectual, scientific, technological, and economic pursuits.¹⁷

13. See Ridgway M. Hall, Jr., *ISO 14000 Environmental Management Standards: Making the Benefits Outweigh the Burdens*, 1996 A.B.A. SEC. NAT. RESOURCES, ENERGY & ENVTL. L. 1; 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, 489 (1995).

14. See IMPLEMENTING ISO 14000 15 (Tom Tibor & Ira Feldman eds., 1997) [hereinafter Tibor & Feldman].

15. The 1300 members of ANSI come from the public and private sector and include the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), and the Department of Energy (DOE). The governmental members of ANSI have no special privileges conferred by membership, which differs from other countries who have chosen to be represented by organizations that are closely tied to their governments. See CASCIO ET AL., *supra* note 10, at 6.

16. See Tibor & Feldman, *supra* note 14, at 16.

17. See ISO, *Introduction to ISO* (visited Feb. 25, 1999) <<http://www.iso.ch/info/>

ISO uses the following three basic principles in developing its standards: consensus, encouragement of full participation, and voluntary adoption. As a non-government organization, “[ISO] has no authority to impose its standards on any country or organization.”¹⁸ However, many countries and organizations elect to make ISO standards mandatory.¹⁹ The development process for ISO standards attempts to achieve consensus following three basic steps. First, an appointed committee, usually part of a subcommittee, prepares a justification for a proposed standard, and formally submits a New Work Item proposal for a vote to the entire technical committee or subcommittee.²⁰ If the majority of participating members vote in favor of the proposal and at least five members declare their commitment to actively support the project, development of the new standard proceeds.²¹ Second, a group of experts is assembled to prepare a working draft of the new standard which is advanced to the next phase where controversies are discussed, contentious issues are resolved, and a general consensus emerges amongst the experts.²² Third, the working document is then formalized as a Committee Draft and distributed for comments to the entire technical committee.²³ Comments are reviewed, and as many committee drafts are produced as necessary until consensus is reached among the technical committee members.²⁴ The Draft International Standard is then ready to proceed to the approval stage. The Draft International Standard is circulated to all ISO member bodies for voting and comment within a period of six months.²⁵ If a two-thirds majority of the participating members approve the standard and not more than one quarter of the members disapprove it, the standard is approved and published.²⁶

Consensus is a built-in component of the standards development process, which is achieved first by the technical experts, then by the

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18. CASCIO ET AL., *supra* note 10, at 7.

19. *See id.*; Tibor & Feldman, *supra* note 14, at 15.

20. *See* VOORHEES & WOELLNER, *supra* note 12, at 8.

21. *See id.*

22. *See id.*

23. *See id.*

24. *See id.*

25. *See id.*

26. *See* Tibor & Feldman, *supra* note 14, at 17.

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technical committee, and finally by all the participating countries' standards organizations and their experts throughout the world.²⁷ At the conclusion of this lengthy development process, there is confidence that an ISO standard contains a high degree of technical integrity, which is based upon the consensus of both industry experts and national standards bodies from the ISO member countries.

For many years following World War II, ISO focused entirely on technical performance specifications for products and standardized test methods. In a half century, ISO has developed over 8000 internationally accepted manufacturing, trade, and communications standards for diverse items such as cargo containers, screw threads, and film speeds.²⁸ By the late 1970s, ISO decided to shift its focus and create a series of management standards to facilitate international trade and, at the same time, improve industrial performance.²⁹

A. ISO 9000

In 1979, ISO created a technical committee (TC 176) to develop quality management and assurance systems widely known in the business world as Total Quality Management (TQM). Eight years passed before TC 176 and ISO were able to reach consensus on a management standard for product and service quality that could be universally applied. In 1987, ISO promulgated the ISO 9000 series of standards which established guidelines for companies to use when they create product management systems for themselves and their suppliers.³⁰ If a company is certified to the ISO 9000 standards, it is able to declare that its production processes can deliver a quality product that consistently meets purchaser requirements.³¹ "The

27. See VOORHEES & WOELLNER, *supra* note 12, at 8.

28. See Tibor & Feldman, *supra* note 14, at 16.

29. See *id.* at 17.

30. See Murray, *supra* note 8, at 586 (citing Roht-Arriaza, *supra* note 13, at 499). The three documents in the ISO 9000 series are classified as requirements documents: ISO 9001 creates a standard for quality assurance in design, production, installation and service; ISO 9002 is a standard for quality assurance in production and installation; ISO 9003 is a standard for quality assurance in the final inspection and test; and ISO 9004 is a guidance document for developing and implementing the management system. See CASCIO ET AL., *supra* note 10, at 22-23.

31. See Calkins, *supra* note 10, at 612.

basic rationale of ISO 9000 is that consistently meeting specifications for quality products and services depends partly on implementing and maintaining a systematic quality system.³² The goal of the ISO 9000 series is to improve the delivery of products and services without making the standards themselves specifically apply to the products or services delivered. Rather, the standard applies to the production processes that actually produce the products and services.³³ An ISO 9000 certified company may publicly declare that it has a quality management system in place that can assure uniformity in product production. The components of ISO 9000 include a policy to assure product quality; procedures for systems review, measurement, and monitoring; and a commitment to making necessary improvements in the TQM system.

In just twelve years, over 100,000 companies have become certified to ISO 9000. The early and sustained success of ISO 9000, particularly in European countries, led to general optimism that through the consensus approach, ISO might be able to develop a standard that could improve a company's environmental performance,³⁴ and respond to the proliferation of various environmental standards worldwide.³⁵ If an ISO 9000 certified company could consistently provide a quality product that meets all of a purchaser's requirements, why not create a similar environmental management system standard that is designed to improve environmental performance? Several aspects of ISO 9000 foreshadowed the development of an environmental management system standard, such as the requirements of regular internal audits, and outside verification to become certified to the standard.³⁶ Also, in order to achieve compliance with the standard, a company must take into consideration that its products and services "comply with societal statutes and regulations including environmental rules."³⁷ ISO 9000, with its sharp focus on the efficiency of proactive management systems provided an entirely new approach that served as a baseline for the

32. Tibor & Feldman, *supra* note 14, at 17.

33. *See id.*

34. *See* Calkins, *supra* note 10, at 612; Murray, *supra* note 8, at 584 (citing Roht-Arriaza, *supra* note 13, at 499-500).

35. *See* Tibor & Feldman, *supra* note 14, at 19.

36. *See* Murray, *supra* note 8, at 586.

37. *Id.*

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development of an innovative environmental management system standard.

In 1991, ISO created the Strategic Advisory Committee on the Environment (SAGE), whose mission was to study other environmental standards that were in varying stages of development. In December 1990, the European Union (E.U.) released the eco-management and audit scheme (EMAS) as a mandatory requirement that applied to most polluting industries within the E.U.³⁸ The regulation was withdrawn and later republished as a voluntary standard that became official in 1993.³⁹ The goal of EMAS was to develop a E.U.-wide environmental policy that protected the environment and also allowed for free trade and regional differences.⁴⁰ The essential components of the EMAS standard include an environmental management system, including internal audits and external auditor verification, and public environmental reports.⁴¹ In 1992, the United Kingdom published its own version of an environmental management system standard known as BS7750. Following an extensive pilot program, the standard was republished in 1994, and was later harmonized with EMAS.⁴² SAGE studied the origins and rationale behind EMAS, BS7750, and ISO 9000, but then disbanded to allow ISO to appoint a formal committee to draft an international environmental management standard.

In 1993, ISO formed Technical Committee 207 (TC 207) to create an environmental management system standard that would guide businesses in developing internal organizational mechanisms to control environmental impacts. Modelled after ISO 9000, ISO 14000 became a means “to reduce pollution by weaving environmental thinking into the design and manufacture of products, rather than simply tagging on environmental management as an after-thought to production.”⁴³

III. ISO 14000 AND THE SYSTEMS APPROACH

38. See Tibor & Feldman, *supra* note 14, at 270.

39. See *id.* at 271 (citing 1993 O.J. (L168) 1–18).

40. See *id.* at 270.

41. See Murray, *supra* note 8, at 585.

42. See Tibor & Feldman, *supra* note 14, at 288.

43. Calkins, *supra* note 10, at 612.

ISO 14000 is a series of generic and reliable global standards that provide a structured mechanism for businesses to measure, manage, and ultimately reduce their environmental risks and impacts.⁴⁴ The ISO 14000 standards contain two major themes. “First is the desire for consistency in environmental management standards and practices. The idea is that wherever a company may be located, if its program complies with these standards, its excellence will be universally recognized.”⁴⁵ For the first time, the practice of environmental management is being promoted on a worldwide basis.⁴⁶

The second important theme is that in designing an [environmental management system], each company should be allowed the flexibility to consider its own processes, products and values, and to design for itself the most effective procedures to achieve and measure adherence to, or progress towards, the goals which are set forth in the program.⁴⁷

While the standards were written to assist businesses in controlling their environmental risks and impacts by creating environmental management systems, there is no reason why the standards cannot also be used by non-business entities like municipalities, governments, foundations, charities, academic institutions, sports leagues, the Olympics, and other entities that have impacts on the environment. Like ISO 9000, the ISO 14000 standards are intended to help businesses and non-business organizations establish and meet their own policy goals by defining objectives and targets, designing organizational structures, and creating management controls and review mechanisms. The focus is on total quality environ-

44. Within the ISO 14000 series of standards there are ISO 14001 (the core standard for the development of an environmental management system); ISO 14004 (general guidelines on Principles, Systems, and Supporting Techniques); ISO 14010 (general principles for environmental auditing); ISO 14011 (auditing environmental management systems); ISO 14012 (qualification criteria for environmental auditors); ISO 14021 (self-declaration environmental claims, also known as eco-labeling); ISO 14031 (environmental performance evaluation); ISO 14040 (life-cycle assessment principles); ISO 14050 (terms and definitions); and ISO 14060 (product standard guide). As of this writing, only ISO 14001, 14004, and 14010–12 are finalized. The other standards are still in development.

45. Hall, *supra* note 13, at 7.

46. See CASCIO ET AL., *supra* note 10, at 69.

47. Hall, *supra* note 13, at 7.

mental management rather than on performance standards. ISO 14000 does not dictate emissions and discharge limitations or prohibit the use of toxic chemicals or set quotas for the usage of fossil fuels, ozone depleting compounds, or natural resources. The centerpiece of this section, the 14001 standard for environmental management systems, provides a simple framework for assessing, managing, and reducing the impacts, risks, and liabilities normally associated with environmental aspects of operations. Through several key requirements contained in the 14000 series, environmental management becomes a strategic, decision-making concern, allowing management to use a "systems approach" to make more effective decisions for improving environmental performance.

The ISO 14000 systems approach is an organizational framework for the systematic identification, control, and improvement of all environmental aspects and impacts.⁴⁸ ISO 14001 defines an environmental aspect as an "element of an organization's activities, products or services that can interact with the environment."⁴⁹ An environmental "impact" is "any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services."⁵⁰ When a company discovers and quantifies its environmental aspects and impacts, management and employees learn how to take steps to protect the environment with clear individual and collective assignment of accountability and responsibility.

Implementation of a comprehensive and integrated environmental management system can result in a successful effort by a business organization in simultaneously managing, reducing, and transferring environmental risk. These three separate, but interrelated concepts, are merged in the systems approach. Businesses learn how to identify and eradicate liability creating conduct. Risk management includes the process of discovering how environmental operations impact directly, and indirectly, on businesses' activities and the production of goods and services. Businesses can set and achieve targeted performance levels if they wish and engage in careful environmental planning throughout the product or process life cycle.

48. See VOORHEES & WOELLNER, *supra* note 12, at 27.

49. ISO 14001, *supra* note 11, at 1.

50. *Id.* at 2.

Companies are encouraged to change their manufacturing and service processes to reduce environmental impacts, redesign their products to benefit rather than degrade the environment (design for the environment), and report their environmental accomplishments to the consuming public. Appropriate and sufficient resources need to be allocated to achieve sustained environmental management, while establishing and maintaining open communications with internal and external interested parties. Employees are provided adequate training to understand their individual and collective roles in sustaining the environmental performance of their company. Management creates a mechanism to audit and review the environmental management system, to identify opportunities for improvement of the system, and to set an example for the employees of a “top-down” commitment to the environment.

Rather than focusing on environmental performance levels and, hence, falling into the trap of reacting to command and control regulatory authority, the standard requires a management system to be voluntarily employed to monitor and control environmental performance. This is a marked departure from the conventional approach utilized by state and federal environmental protection agencies in the United States to regulate business activities. While management will still be held accountable for attaining emissions and discharge levels prescribed by regulations, the integrated series of management systems in ISO 14000 is intended to motivate and encourage business leaders to actively seek ways to reduce or eliminate pollutants and otherwise go beyond compliance.

The ISO 14000 standards are based upon the following four principles: (1) existing environmental management practices are universally inadequate and ineffective, (2) businesses will seek to improve environmental performance for economic and social reasons, (3) regulators, stakeholders, and the public will increasingly hold businesses accountable for their impacts to the environment, and (4) environmental management systems must be an integrated and efficient part of the business processes.⁵¹

The ISO 14001 standard for environmental management systems requires five basic and logical activities that certified businesses must follow.

51. See VOORHEES & WOELLNER, *supra* note 12, at 27.

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- Establish senior management commitment to environmental management and promulgate a comprehensive environmental policy,
- Develop targets and a program to implement the environmental priorities stated in the policy,
- Perform the activities necessary to achieve the objectives and targets, develop documents and records, and train employees in their environmental responsibilities,
- Monitor and measure on a regular basis the performance of the environmental management system, and
- Review the entire set of environmental management activities periodically to ensure continual improvement.⁵²

The ISO 14000 series defines the boundaries of environmental responsibility through the policy statement; establishes a system to identify and achieve targets and objectives; and seeks structural solutions through comprehensive monitoring, internal audits, and management reviews. By adopting these five basic activities, a business can allocate its resources; assign responsibilities; and evaluate practices, procedures, and processes to ensure achievement of the environmental policy requirements.

ISO 14000 recognizes that businesses cannot achieve lofty environmental goals on their own. There is the need for governmental authorities, industry leaders, and the public to work together to design and implement administrative and structural procedures to improve environmental conditions. Most businesses will have to modify their corporate behavior to implement the standard. In particular, some will have to learn how to develop better working relationships with the public and engage in collaborative decision-making to improve environmental performance. Governments will need to redirect their agencies to change existing regulatory schemes and create further incentives for businesses to protect the environment and measure their progress using appropriate environmental indicators rather than aggregated fines and jail terms.⁵³ The federal and state governments will need to develop better working relationships

52. *Id.* at 27–28.

53. Environmental indicators measure improvements to the environment, such as cleaner rivers, improved visibility, hazardous waste site closures, cleaner air, and the adoption of environmental policies by a number of companies.

with each other so that they no longer compete and interfere with each other's statutory responsibilities as states become more involved in working with industries to seek environmental improvements, and as businesses self-regulate and report their impacts and environmental accomplishments to these authorities.

Businesses need a practical and effective framework for managing environmental risks and liabilities. ISO 14000's focus on continual improvement of the environmental management system results in companies seeking new and more efficient ways to operate, preventing pollution at its source and moving away from risk financing to comprehensive risk management activities. Businesses learn to adopt a process perspective that systematically evaluates and analyzes short and long-term environmental gains and potential exposures. Environmental decisions are no longer basement level caretaking concerns. Rather, they have become strategic maneuvers in which risks are quantified and reduced, and resource allocations are made to achieve realistic environmental goals and operational priorities.

To assure that environmental decisions will be made by people who have sufficient responsibility within the organization, the standards elevate environmental management to become one of the highest corporate strategic priorities and provide a framework for top management to assess, manage, and reduce the risks associated with the environmental aspects of all operations. A certified company cannot delegate environmental decision-making to low-level management personnel, nor can a system exclude the involvement of line employees. By choosing to implement an ISO 14000 system, senior management ensures that it is managing its environmental risks and limiting the exposures of the entire company. The environmental loss controls inherent in the ISO 14000 management systems also place senior management in a better position to access environmental insurance or other risk-financing methods for an acceptable cost.

ISO 14000 is fulfilling an important gap in a global marketplace where the few existing environmental management standards were considered regional and incomplete.⁵⁴ ISO 14000 provides "a com-

54. ISO 14001 differs from EMAS and BS7750 in its approach to environmental management. The focus of ISO 14001 is primarily on the development of an environmen-

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mon environmental terminology . . . [a] `lingua franca' of environmental management.”⁵⁵ Environmental management “concepts are being defined at the international level, enabling people of all countries to speak to each other about environmental management, to share ideas for improvements, and to get workers to focus on the environmental aspects of their work.”⁵⁶ Two years after they were published, ISO 14000 standards are becoming the framework for environmental decisions made throughout the world.

IV. THE WORLD EMBRACES ISO 14000

A. Europe

A recent survey of 500 businesses in Europe, conducted just after the ISO 14000 standards were approved, demonstrates that companies value environmental management systems for different reasons.⁵⁷ Generally, companies cited improved staff awareness of environmental management responsibility as the clearest advantage, followed by reduced pollution, legislative compliance, reduced risk, less waste, and better working conditions.⁵⁸ Development of an environmental management system caused many of the companies surveyed to redefine their priorities and attain long-term business security.⁵⁹ Eighty-five percent of the participants in the survey considered ISO 14000 to be a cost-effective means to develop an environmental management system, and two-thirds preferred an

tal management system that is indirectly linked to improving the company's environmental performance. *See* CASCIO ET AL., *supra* note 10, at 26. Both BS7750 and EMAS require environmental improvements emerging from the system and policies that require continual improvements of environmental performance. *See id.* Another distinct difference is that ISO 14001 requires only the environmental policy to be made public whereas BS7750 and EMAS require more information to be made public. *See id.* at 27. BS7750 requires other external communications to be made to the public, but it leaves to the discretion of management what information to disclose. *See id.* EMAS requires disclosure of the environmental policy, program and management system as well as an annual environmental statement. *See id.* Over the last several years, ISO 14001 has become the preferred standard for environmental management systems worldwide.

55. *Id.* at 69.

56. *Id.*

57. *See* Cutter Information Corp., *Business and the Environment's ISO 14000 Update* (Dec. 1996) <<http://www.cutter.com/iso14000/isosamp.htm>>.

58. *See id.*

59. *See id.*

integrated approach to management standards combining quality assurance, environmental, health, and safety rules.⁶⁰

In the United Kingdom, over 800 companies became ISO 14000 certified by September 1998.⁶¹ Some companies like Rover cars, Jaguar cars, IBM, Shell Expo, and Daimler-Benz are requiring their suppliers and subcontractors to become certified.⁶² “[T]he Environmental Audit Committee in the House of Commons recommended that all Government departments and agencies adopt ISO 14001 by the end of the [current] Parliament.”⁶³ Approximately thirty local authorities such as one of the London Boroughs, the Hereford City Council, and the Stratford on Avon District Council are implementing environmental management systems while the Nottingham City Council and the Leeds City Council are certified to ISO 14001.⁶⁴

In Germany, 630 companies were certified within the first two years after the standard was approved.⁶⁵ In Denmark, 150 companies have certified to ISO 14000 standards,⁶⁶ and many had already developed environmental management systems in part to comply with a 1991 Danish law which requires polluting companies, established before 1974, to obtain an environmental permit. In Ireland, sixty-five companies have been certified,⁶⁷ and over 300 have environmental management systems with 300 more in progress. By 2003, it is predicted that 2000 environmental management systems will be in place, and 1000 of those will be ISO 14001 certified.⁶⁸ For

60. *See id.*

61. *See ISO 14001 Global Certification Chart — Sept. 1998*, INT'L ENVTL. SYSTEMS UPDATE (CEEM Inc.), Sept. 1998, at CC, EE [hereinafter *Certification Chart*].

62. *See id.* Volvo Motors in Sweden has incorporated ISO 14001 into the design and manufacture of the new Volvo S80. *See Jeff Smoller, EMS Implementation Workshop Becomes Big Hit in San Francisco*, INT'L ENVTL. SYSTEMS UPDATE (CEEM Inc.), July 1998, at 7, 8. According to Volvo Motors, “The certified product declaration is the first of its kind in automotive genre . . . [which] details a wide range of environmental aspects, including solvent emissions, material utilizations, energy used, evaporation of hydrocarbons, carbon dioxide emissions, plastics labeling, and use of recycled materials.” *Id.*

63. *Certification Chart*, *supra* note 61, at EE.

64. *See Public Sector Tests the Use of Environmental Management Systems*, BUS. & THE ENV'T, Sept. 1997, at 1.

65. *See Certification Chart*, *supra* note 61, at CC.

66. *See id.*

67. *See id.* at DD.

68. *See Tadhg Coakly, Implementation of ISO 14001 in Ireland: Success and Failings*, Presentation at ISO/TC 207 Workshop: Implementation of ISO 14001 and the Use of ISO 14004 by SMES 1 (June 18, 1998).

the following reasons, Ireland has a relatively high rate of implementation of ISO 14001: (1) many of the 1700 ISO 9000 companies are adding on ISO 14001 certification (the “piggy-back factor”); (2) the Irish economy is growing at an unprecedented rate of ten percent per annum; (3) the acceptance of ISO 14001 by the European Union has reduced fears that the standard would not be widely known or accepted in European markets; (4) there has been a reduction in the use of competing international environmental standards, leading to ISO 14000 becoming the predominant standard; (5) many of the companies certifying to ISO 14000 are multinationals, doing so to promote international corporate policy; and (6) certification may be required under licensing requirements.⁶⁹ In Switzerland, home of ISO, 251 companies have certified to the standard.⁷⁰ Switzerland's Sustainable Performance Group (SPG) was formed in 1997 to invest exclusively in “sustainability leaders” and “sustainability pioneers.”⁷¹ SPG raised \$59 million to invest in companies that have environmental management systems.⁷²

In Poland, nicknamed the “Green Tiger” of Europe by the environmental activist group Greenpeace in 1996, the Polish government and its citizens have become increasingly concerned about water quality, industrialized waste, and left-over contamination from the Cold War. As of March 1998, only eight companies had become ISO 14001 certified,⁷³ yet two certified companies produced some outstanding results. ABB Elta Sp. z.o.o. in Lodz reduced its water use in one of its galvanizing plants, minimized its use of wood for packaging of paints and lacquers, renegotiated its insurance rates, significantly reduced its waste disposal costs and use of energy and raw materials, and obtained easier access to preferential rates for investment funds.⁷⁴ Amica Wronk S.A., a large manufacturer of cooking stoves and refrigerators, also cut water use by one-half, reduced its sulfur dioxide emissions by ninety percent and the discharge of pro-

69. *See id.* at 1–2.

70. *See Certification Chart, supra* note 61, at EE.

71. *See New Swiss Investment Fund Uses Eco-Efficiency Criteria*, BUS. & ENV'T, Aug. 1997, at 6.

72. *See id.*

73. *See ISO 14001 in Poland: Facilities Benefit from Certification*, BUS. & ENV'T, Mar. 1998, at 1.

74. *See id.*

cess effluent waste by one-third.⁷⁵ The certification increased the confidence of its customers and shareholders, improved its market image, and increased its competition in the European market.⁷⁶

B. Asia

Asia is the most active continent seeking ISO 14001 certifications. By the end of this year, it is predicted that over 10,000 companies will have achieved certification.⁷⁷ Japan is currently the world leader in ISO 14001 certifications with 1091 companies receiving certification in the first two years of the standard.⁷⁸ Three Japanese municipalities have also been certified and thirty others are in the process of becoming ISO 14001 certified.⁷⁹ The government's goal is to have fifty percent of all companies certified by 2000.⁸⁰ The Japanese environmental protection agency is even going through the certification process.⁸¹ Through a survey, Japan discovered that the main reasons that companies were seeking ISO certification were social responsibility, to improve environmental protection through company activities, to motivate employees to become more environmentally conscious, to reduce the costs of energy, and to conserve national resources.⁸²

In China, four companies received ISO 14001 certification by January 1997.⁸³ The director of China's State Technical Supervision Bureau, Li Chuanqing, has announced that China welcomes the standards as "an important measure in China's strategy for sustainable development," and "implementing ISO 14000 can help the Chinese government to use the latest international achievements in standardization and adopt more effective measures to strengthen

75. *See id.*

76. *See id.*

77. *See* Dylan Tanner, *Updates and Trends on ISO 1400 Implementation in Asia*, CORP. ENVTL. STRATEGY, Spring 1998, at 71.

78. *See Certification Chart*, *supra* note 61, at DD.

79. *See id.*

80. *See* Robert A. Woellner, *Malaysia Pollution Prevention Technology and Policy Exchange Program 4* (Oct. 1998) (on file with the author).

81. *See Certification Chart*, *supra* note 61, at DD.

82. *See id.*

83. *See* Calkins, *supra* note 10, at 615; Liu Yinglang, *Four Firms Reach ISO Environment Standards*, CHINA DAILY, Jan. 23, 1997, at 22.

environmental protection and pollution prevention.”⁸⁴

In Singapore, the major industrial sectors that are implementing ISO 14000 are chemical and electronics companies.⁸⁵ While it is difficult to track trends following the financial crisis of the Summer of 1998, one survey found that the primary reasons that fifty companies certified are customer demand, cost savings, and internal improvement of operations.⁸⁶

In Malaysia, the government adopted ISO 14000 as the standard that companies must achieve for locally manufactured products.⁸⁷ The government created Vision 2020 to ensure that Malaysia's extraordinary economic growth, which has averaged 6.9% per annum for twenty years, is balanced with and protects the environment.⁸⁸ Thirty-one companies joined a pilot program created by the Standards and Industrial Research Institute of Malaysia (SIRIM) to share with each other the various ways to implement ISO 14000.⁸⁹ Forty-six companies have been certified so far.⁹⁰ In Thailand, fifty-seven companies have been certified based in part on apprehension of potential trade barriers and increasingly stringent environmental regulations, market and investor demand for cleaner and “green” products, minimization of environmental risks, and reduced insurance costs.⁹¹ Thailand developed a National Accreditation Council within the Ministry of Industry, and in 1996 formed a National Technical Committee to help companies achieve ISO 14000 certification. Three pilot programs were set up in 1996 to provide consumers with objective information related to products and their impact on the environment, to urge manufacturers to use less harmful products in techniques and processes, and to create a “green label” scheme.⁹²

84. Calkins, *supra* note 10, at 610 (quoting *Immediate Evaluation of the Environmental Management System (ISO/14000) in China*, CHINA CHEM. REP. at 3, Aug. 6, 1996).

85. See *Certification Chart*, *supra* note 61, at EE.

86. See *id.*

87. See *id.* at DD.

88. See Dato' Dr. Ahniad Tajuddin Ali, *National Implementation of ISO 14000 Environmental Management: The Malaysia Experience* (visited Feb. 2, 1999) <<http://www.ansi.org/iso14000/MALAYSIA.html>>.

89. See *id.*

90. See *Certification Chart*, *supra* note 61, at DD.

91. See *id.* at EE.

92. See *Adopting ISO 14000 Environmental Management Certification Systems in*

In South Korea, 247 companies have certified to ISO 14000.⁹³ In the Republic of North Korea, the Korean National Institute of Technology and Quality (KNITQ) developed a 1995 pilot project to help companies create their own environmental management systems and participate in professional certification.⁹⁴ Fifty-three companies in various industry sectors, including chemical manufacturing, construction, and electronics, signed up for the program run by the Korean Industrial Advanced Administration (KIAA).⁹⁵ Provisional auditors assisted each of these companies establish environmental management systems.⁹⁶

C. India

Within a few years, India will become one of the five largest manufacturing countries in the world. India's population will reach one billion within thirty years, and it is expected that "the burden on the basic resources of air, water and land is likely to reach intolerable limits."⁹⁷ India's Confederation of Indian Industry (CII) has encouraged all businesses to adhere to environmental standards and has urged its members to use BS7750 and ISO 14001 as tools to achieve environmental goals. Approximately sixty companies in India have certified to ISO 14001.⁹⁸ Meanwhile, India's environmental technology market is "expected to grow by twenty-five percent per annum to the end of the decade."⁹⁹ It appears likely that India will be a fertile market for ISO 14000 certifications in the future.

D. Australia and New Zealand

the Republic of Korea (visited Feb. 15, 1999) <<http://www.ansi.org/docs/iso14000/KOREA.html>>.

93. *See Certification Chart*, *supra* note 61, at DD.

94. *Adopting ISO 14000 Environmental Management Certification Systems in the Republic of Korea* (visited Feb. 15, 1999) <<http://www.ansi.org/docs/iso14000/KOREA.html>>.

95. *See id.*

96. *See id.* Based on their state of preparedness at the time of their application, only 39 companies were selected. *See id.*

97. LINDA S. SPEDDING, *TRADE & INVESTMENT IN INDIA* 38 (1997).

98. *See Certification Chart*, *supra* note 61, at DD.

99. SPEDDING, *supra* note 97, at 125.

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Both Australia and New Zealand are members of the Asian-Pacific Economic Cooperation (APEC), which was “established to promote free trade, technology transfer, and the use of ISO 14000 as part of a green movement.”¹⁰⁰ Australia is performing a joint accreditation pilot study with New Zealand and together approximately 100 companies have achieved an ISO 14000 certification.¹⁰¹

E. Africa and South America

South Africa is leading the rest of the countries in Africa with twenty-five certifications.¹⁰² Egypt follows with fifteen.¹⁰³ Two large forestry companies in South Africa, with a large number of wage earning employees who are not functionally literate, are in the process of implementing ISO 14000. The most important factor is the training of employees involved in the harvesting and growing of trees to reduce their impact on the environment.¹⁰⁴ With the South African economy emerging from isolation and sanctions, and constrained by outdated technology and equipment, the Department of Environmental Affairs has formalized a procedure to help companies deal with requirements imposed by the South African government.¹⁰⁵ The government has developed the Integrated Environmental Management (IEM) system to facilitate the collection and distribution of information prior to decision-making on environmental issues.¹⁰⁶ The process contains built-in steps demanding compliance and enforcement action.¹⁰⁷ ISO 14000 is viewed in that country by

100. *Certification Chart*, *supra* note 61, at CC. APEC recently created the APEC Cleaner Production Strategy which was endorsed by 18 APEC member economies and involves the “promotion of cleaner production policies, practices, and technologies in various industry sectors throughout the Asia-Pacific region.” Carol M. Browner, *Managing International Environmental Risk: The Role of Private Parties in Resolving Public Problems: Foreword*, 18 U. PA. J. INT’L ECON. L. 447, 450 (1997).

101. *See Certification Chart*, *supra* note 61, at CC–EE.

102. *See id.* at EE.

103. *See id.* at CC.

104. *See* Di Soutter, ISO 14001 Implementation Issues in South Africa, Presentation at the ISO/TC207 Workshop (June 17, 1998) (slide show copies on file with the *Stetson Law Review*).

105. *See Current Status of the ISO 14000 Certification Schemes in South Africa* (visited Feb. 25, 1999) <<http://www.ansi.org/ISO1400/SAFRICA.html>>.

106. *See id.*

107. *See id.*

government officials as the next step in the process.¹⁰⁸ The IEM philosophy “prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development process in order to achieve a desirable balance between conservation and development.”¹⁰⁹

A survey of businesses in Zimbabwe has found that while no business has actually certified to ISO 14000, ninety percent of the respondents indicated that they intended to set up systems in accordance with ISO 14001, and thirty-six of those implementing ISO 14000 have already registered to ISO 9000.¹¹⁰

In South America, Argentina and Brazil account for sixty-nine of the certified companies.¹¹¹ Brazil has thirty-eight ISO 14001 certifications, mainly in the electronics, petrochemical, auto, and pulp and paper industries.¹¹² In Argentina, the first oil fields and pipeline in the world were recently certified to ISO 14000 along with twenty-nine other companies.¹¹³

F. Canada, Mexico, and the United States

On June 12, 1997, the Commission for Environmental Cooperation (CEC) Council, comprised of the environmental ministers for Canada, Mexico, and the United States, issued the following statement:

Governments must retain the primary role in establishing environmental standards and verifying and enforcing compliance with laws and regulations. . . . Private voluntary efforts, such as adoption of Environmental Management Systems (EMSs) such as those based on ISO 14001, may also foster improved environmental compliance and sound environmental management and performance. ISO 14001 is not, however, a performance standard. Adoption of an EMS pursuant to ISO 14001 does not constitute or guarantee compliance with legal requirements and will not in any way pre-

108. *See id.*

109. *Id.*

110. *See* Maureen P. Mutasa & Paul S. Kupakuwana, Implementation of ISO 14001 and the Use of ISO 14004 in Zimbabwe, Presentation at the ISO/TC207 Workshop (June 18, 1998) (transcript on file with the *Stetson Law Review*).

111. *See Certification Chart, supra* note 61, at CC.

112. *See Smoller, supra* note 62, at 8.

113. *See id.*

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vent the governments from taking enforcement actions where appropriate.¹¹⁴

The position of the CEC on environmental management systems and ISO 14001 reflects uncertainty regarding how voluntary environmental management systems interface with extensive environmental regulations that are so much a part of doing business in North America. A 1994 Ernst & Young survey of major Canadian companies in eight different sectors found that environmental management was an important business objective.¹¹⁵ Approximately seventy-six percent of the surveyed companies incorporated environmental objectives into their business plans, and an additional fifteen percent intended to do so.¹¹⁶ Currently there is substantial interest in ISO 14000 in Canada and Mexico which have sixty and thirty companies, respectively, certified to ISO 14000.¹¹⁷

The reaction of companies in the United States to ISO 14000 is somewhat more reserved, based upon years of heavy environmental regulation with punitive consequences such as those referred to in the CEC Council's statement.¹¹⁸ To understand the reluctance of many companies in the United States to adopt ISO 14000, it is necessary to briefly review the impact of environmental regulation on American companies, and the change that is occurring in the manner in which companies are viewing their environmental responsibilities and opportunities, as a result of the heightened awareness of the public regarding industrial impacts on the environment.

In the last three decades, the U.S. Congress passed a host of environmental laws designed to control emissions and discharges, clean up past disposal, and ensure the proper future treatment, storage, and disposal of pollutants and other hazardous and solid wastes.¹¹⁹ Many companies reacted to these new laws by creating a

114. WAYNE S. ROSENBAUM, *ISO 14000 AND THE LAW: LEGAL GUIDE FOR THE IMPLEMENTATION OF THE ENVIRONMENTAL MANAGEMENT STANDARDS* 165-66 (1998).

115. *See* SPEDDING, *supra* note 97, at 307.

116. *See id.*

117. *See Certification Chart, supra* note 61, at CC, DD.

118. Among the 188 companies that are certified in 37 states, Lucent Technologies is the leader, certifying facilities in 10 worldwide locations and its national headquarters. *See id.* at FF-HH.

119. Congress has delegated to EPA the responsibility to promulgate regulations to achieve the broad legislative objectives of the Clean Water Act, the Clean Air Act, the

separate division under an environmental manager to comply with command and control directives from environmental authorities. Businesses became fixated on complying with volumes of complex environmental regulations, rather than on solving their own environmental problems. Environmental managers were routinely assigned the responsibility of assuring that their businesses simultaneously complied with all these new laws. A typical environmental manager spent over eighty percent of his or her time on achieving and keeping compliance, fifteen percent recognizing business opportunity, and less than five percent for all the rest of the job's obligations, including developing public trust and involvement with stakeholders.¹²⁰ Many senior managers were insulated from the details of highly technical environmental compliance and did not participate in environmental decision-making with the exception of approving capital improvements to achieve compliance and being apprised of the developments regarding actual and threatened environmental litigation. Many environmental managers attempted to achieve rigorous compliance with environmental regulations using end-of-pipe solutions. The end result for most businesses was that environmental risks were generally overlooked until they approached extreme levels, at which point senior management reluctantly became involved. For many businesses, however, this was too late and their operational and financial performances suffered as they tried to discover quick fixes for problems that evolved over many years.

In the late 1980s, the Justice Department under the Bush Administration compounded these business problems by beginning a major initiative to prosecute environmental crime using the Environmental Crimes Unit to spearhead this effort. These prosecutions focused on "responsible corporate officers," whose employees were responsible for the violations.¹²¹ The government made a deliberate attempt to move up the chain of command to force senior manage-

Safe Drinking Water Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, and many other statutes.

120. See Kevin A. Fletcher & Bruce W. Piasecki, *The Emerging Role of the Chief Environmental Officer*, CORP. ENVTL. STRATEGY, Autumn 1998, at 23.

121. SUSAN F. MANDIBERG & SUSAN L. SMITH, CRIMES AGAINST THE ENVIRONMENT § 802(b) (1997). Some courts have used the "responsible corporate officers" doctrine as part of their analysis. See, e.g., *United States v. MacDonald & Watson Waste Oil Co.*, 933 F.2d 35, 50 (1st Cir. 1991).

ment to take more responsibility for achieving compliance with environmental laws. In 1991, the U.S. Sentencing Commission promulgated sentencing guidelines for organizations that increased exposure of the corporations and senior level managers for white-collar criminal offenses which now included environmental noncompliance.¹²² All of this resulted in a growing awareness and deep apprehension by many business leaders that they had to pay far greater attention to the environmental consequences of business activities and move environmental decision-making further up the corporate ladder.

With increased prosecutions for environmental crimes and threatened civil liability, many businesses were initially reluctant to create environmental management systems. They feared that self-audits conducted pursuant to those systems would uncover evidence of noncompliance that would be subpoenaed by the government and used to prosecute the company for either criminal or civil environmental violations. In 1995, this concern was partially alleviated by EPA's audit policy,¹²³ which allows companies to avoid "punitive penalties if they voluntarily identify, disclose and correct [environmental noncompliance] violations in a manner that meets nine conditions outlined in the policy."¹²⁴ As of March 1, 1998, 247 companies voluntarily disclosed environmental violations at approximately 760 facilities in the United States, and the EPA settled with eighty-nine of these companies at 433 facilities, waiving penalties in most cases.¹²⁵ Many states have enacted immunity and amnesty laws that protect companies that conduct audits, discover environmental violations, and disclose and correct the problem. These laws and EPA's audit policy have encouraged businesses to be more proactive in managing their environmental risks. When companies began to examine their internal environmental management practices, they became interested in acquiring useful environmental information

122. U.S. SENTENCING COMM'N, FEDERAL SENTENCING GUIDELINES MANUAL § 8 (1998-1999 ed. 1998).

123. *See generally Incentives for Self-Policing: Discovery, Disclosure, Correction, and Prevention of Violations*, Env'tl. L. Rep. (Env'tl. L. Inst.) 35,639 (1995) (analyzing the policy).

124. *Audit Policy Exposes Some Facilities to Scrutiny; Provides Benefits to Others*, ENVTL. COMPLIANCE TOOL KIT (Thompson Publ'g Group), Nov. 1998, at 1.

125. *See id.*

and using it to prevent pollution. Environmental management systems suddenly became the right mechanism to track environmental indicators to assist companies eliminate waste, reduce energy usage, prevent pollution at the source, and avoid the serious penal and civil consequence of noncompliance.

With environmental management systems producing new data regarding the eco-efficiency of industrial operations, there began the evolution of a new concept of a "chief environmental officer."¹²⁶ This individual is a senior level officer whose corporate duty goes beyond environmental health and safety and extends into the business as a whole. The chief environmental officer's responsibility is "[t]he company's overall environmental policy, and public affairs, government relations, external relations, and product stewardship in new product development as it relates to the issue of sus-tainability."¹²⁷ These senior executives are now no longer merely responsible for the company's legal requirements, e.g., containment and compliance, as "[m]ore and more, executives charged with the management of environmental issues are learning to include stakeholder management, tying their company's products or services to potential environmental impacts. [Environmental health and safety] functions can no longer be isolated from core business decision-making."¹²⁸

As additional business leaders become convinced that reducing environmental impacts and producing revenue are not mutually exclusive goals, the federal and state governments in the United States have become interested in exploring how voluntary environmental management systems may further their own regulatory interests. On March 12, 1998, the EPA stated that implementation of an environmental management system

has the potential to improve an organization's environmental performance and compliance with regulatory requirements. The EPA supports and will help promote the development and use of [environmental management systems], including those based on the ISO 14001 standard, that help an organization achieve its environmental obligations and broader environmental performance goals.¹²⁹

126. Fletcher & Piasecki, *supra* note 120, at 17.

127. *Id.* at 17.

128. *Id.* at 18.

129. ROSENBAUM, *supra* note 114, at 165.

The EPA has created an ISO 14000 Policy Group to determine what regulatory benefits, among other things, may be bestowed on companies that become ISO 14000 certified. It has also developed an inter-agency working group that is intended to develop a uniform ISO 14000 policy for all federal agencies. The Multi-State Working Group on Environmental Management Systems, made up of representatives from ten state governments, has been formed to determine the benefits to states and their regulated business communities for adopting ISO 14000 certified environmental management systems. On September 22, 1997, the Working Group and the EPA agreed to develop and maintain a common national database of information on environmental management systems pilot projects. On February 13, 1998, they produced an Environmental Management Systems Voluntary Project Evaluation Guidance to stimulate additional interest in the development of management systems.¹³⁰ Many states like Colorado, Massachusetts, and Pennsylvania have “re-invented” their regulatory programs to provide greater incentives to businesses to conduct voluntary cleanups and self-police their environmental performance. Environmental management systems are becoming an integral part of these programs. In 1998, Colorado enacted an “Environmental Leadership” bill that provides incentives to businesses that develop environmental management systems and take other steps to improve their environmental performance. The leadership legislation and other state programs are intended to make businesses more conscious of their potential to raise public awareness of their role in producing a healthier environment for everyone.

The EPA has also begun a project to determine whether ISO 14000 could be utilized by the public sector in successfully managing environmental impacts. The EPA enlisted seven municipalities, and a county and state prison to develop and implement individual environmental systems to reduce their environmental impacts.¹³¹

130. See NAT'L INST. OF STANDARDS & TECH., U.S. DEPT OF COMMERCE, ENVIRONMENTAL MANAGEMENT SYSTEMS VOLUNTARY PROJECT EVALUATION GUIDANCE iii (1998).

131. See *MSWG Research Team Meets with Prestigious Academics*, INT'L ENVTL. SYSTEMS UPDATE (CEEM Inc.), Sept. 1998, at 13. The participants in the two-year project include the town of Londonderry, New Hampshire public works; the City of Lowell, Massachusetts, waste water treatment; the City of Indianapolis, Indiana, public works;

The EPA will be studying the results to determine if the public entities can create and sustain a successful environmental management system. The EPA has also launched a program for the public to monitor information about environmental quality. The EPA has awarded five Environmental Monitoring for Public Access and Community Tracking grants that will allow citizens to obtain information pertaining to daily air quality issues, such as ozone and water quality degradation affecting rivers, lakes, and beaches.¹³² It is likely that in the next century citizens will be able to monitor individual businesses' environmental impacts on a "real-time" basis using the Internet. As access to formerly private information regarding environmental impacts increases, there becomes a greater need to manage those impacts and reduce risks using the systems approach.

By comparison to the rest of the world, the rate of progress within the United States of adopting environmental management systems is still too slow. The trend is unmistakable, however, that environmental management systems, whether they are certified to ISO 14000 standards or not, will benefit businesses and other entities in understanding and dealing with their environmental impacts.

V. ENVIRONMENTAL MANAGEMENT SYSTEMS: BENEFITS AND COSTS

A. Economic Benefits

Many companies and most people still need some prodding, or, at a minimum, some essential instruction and continuing education on how their individual conduct impacts the environment.¹³³ Busi

Wayne County, Michigan, waste water treatment facilities; Massachusetts Department of Correction; City of Gaithersburg, Maryland, public works; Lansing, Michigan Board of Water and Light: electric generating facility; City of Scottsdale, Arizona, municipal government; and New York City's transit authority. See Pam Parry, *EPA Project Explores Public Sector Viability of ISO 14001*, INT'L ENVTL. SYSTEMS UPDATE (CEEM Inc.), Sept. 1998, at 5.

132. See *Gore Announces EPA Grants to Help Communities Access Environmental Information*, ENVTL. COMPLIANCE TOOL KIT (Thompson Publ'g Group), Dec. 1998, at 3.

133. Recycling is a substantial step toward reducing waste impacts and raising the public's consciousness regarding human impacts on the environment. Most cities and towns in the United States have recycling programs and many companies have also launched recycling efforts. While recycling is a good start, reducing the use of natural resources, cutting back on energy consumption and vehicle-miles traveled in privately owned automobiles are longer lasting, and perhaps more effective means to improve

ness entities need to be shown how revenue gains can occur and then be rewarded for proactive environmental management. Positive economic incentives, as well as clear direction from business and government leaders are crucial to the attainment of these environmental goals. Revenue growth is an acceptable and appropriate outcome for improvement of environmental operations. A network of companies who have created well-managed environmental systems is a key component to changing global habits that effect the environment.

Adopting an ISO 14001 environmental management system brings with it recognition as an environmental leader. Market share is controlled by many factors. As natural resources diminish and access to multi-media communications increases, consumers will become more educated and responsive to the environmental track records of competing corporations. In the long term, "green" businesses, like Tom's of Maine and Ben & Jerry's Ice Cream, will be replaced by industrial giants that will reap the benefits of setting environmental benchmarks for the Twenty-first Century. In the short term, businesses that elect to become certified will increase their customer base, because many companies are requiring their suppliers to become ISO 14000 certified, and European and Asian markets are becoming dominated by ISO 14000 players.

Convincing U.S. businesses to catch up with the rest of the industrialized world's environmental initiatives involves demonstrating how internal operating efficiencies and cost reductions can be derived from ISO 14000 certification. By performing a process analysis and defining what waste streams and other operating processes impact the environment, management has the opportunity to cut down on the use and disposal of noxious chemicals, upgrade systems, and eliminate redundant and wasteful practices.¹³⁴ An ISO 14000 system is intended to motivate business people to analyze their internal processes that have developed over time, but that can be replaced by more effective systems. When an environmental management system becomes integrated into the total management system, employees and customers are better educated on environmental risks and impacts, and reliability is achieved through contin-

environmental conditions.

134. See VOORHEES & WOELLNER, *supra* note 12, at 46.

ual awareness and competence of all employees rather than through a few specialists.¹³⁵

With rising litigation costs coupled with society's zero tolerance for environmental risk, senior management must decrease liability exposures from toxic releases and emissions and environmental accidents. By identifying high-risk processes, liability creating conduct, and improper or costly waste disposal practices, and by working with government and interested parties to reduce environmental impacts, management can ensure that risks are systematically reduced or even eliminated. The ISO 14000 standard for environmental management provides a practical and effective framework for identifying and reducing those risks so that employees are made aware of how they can avoid being adversely impacted by faulty system operations and failures. When companies commit to continual improvement of their environmental management system, pollution prevention is the direct outcome. Companies wisely move beyond reactive risk management and risk financing into comprehensive risk-control activities. Certified businesses can assure their employees, shareholders, stakeholders, and financial partners that they are identifying, prioritizing, and actively managing environmental exposures to lessen the likelihood of industrial accidents, civil and criminal claims, and economic loss. Financial stability and a healthy risk-profile are two important by-products of a well-managed environmental system.

A business policy that actively results in risk elimination allows a business to obtain cost savings through reduced insurance rates and access to capital at lower-than-market rates. Companies that are certified to ISO 14001 may qualify for lower interest rates, and certified-municipalities should see their bond rating improved. Financial institutions impose fewer restrictions on projects once they are assured that managers have given sufficient attention to assessing and scaling down environmental impacts.¹³⁶ Financial organizations regularly utilize information derived from environmental management programs for use in establishing criteria to make loans as well as developing a clearinghouse of information concerning environmental practices and procedures for use by the lending in-

135. See CASCIO ET AL., *supra* note 10, at 70.

136. See *id.* at 73.

dustry. As a company's operating risks and attendant liabilities are reduced, it will be able to take advantage of lower insurance rates and more attractive borrowing opportunities.¹³⁷ By implementing an ISO 14000 environmental management system, a business can demonstrate to lenders that it meets or exceeds accepted lending standards in all respects, thus ensuring continued access to capital and maintaining positive relations with the financial community.

As more companies adopt environmental management systems, courts may consider such systems as a standard measure of commercial practice or even reasonable care.¹³⁸ Corporate compliance systems encompassing all aspects of legal duty are now commonplace in sophisticated companies' systems of operations. In a few years it is likely that courts will find ways to reward proactive businesses that have made responsible efforts to mitigate environmental impacts. These same courts may penalize lagging businesses who get caught violating environmental regulations without comprehensive environmental management systems. Fines imposed on a business can now be adjusted within a wide range according to the Federal Sentencing Guidelines for Organizations. The guidelines allow for either the reduction of penalties for a business with an active compliance system or an increase in penalties for a business that does not demonstrate responsible management. No business is likely to implement an ISO 14000 environmental management system merely for purposes of reducing future fines, but in the litigious atmosphere of the modern global economy, an effective management system can serve as a device to demonstrate good corporate citizenship when the company is accused of environmental malfeasance.

Many large businesses who operate internationally are frequently confronted with multiple inspections, registrar audits, certifications, and product registrations in order to demonstrate conformance with a wide array of regulations, requirements, and other technical specifications.¹³⁹ Information derived from an environmental management system produces consistent performance data that allows management to reduce the number of audits, certifications,

137. See Tibor & Feldman, *supra* note 14, at 9.

138. See CASCIO ET AL., *supra* note 10, at 76.

139. See VOORHEES & WOELLNER, *supra* note 12, at 47.

and inspections.¹⁴⁰ This reduction translates directly into cost savings for the business. Also, having a record of environmental management system audits shows that the company has identified and managed past liabilities, thus, increasing the company's ability to buy, sell, or borrow against the property.¹⁴¹

In sum, the most common economic benefits of effective environmental management are recognition as an environmental leader; increased consumer and shareholder confidence; reduction of the costs of doing business; improved relationships with investment bankers, commercial lenders, and the stock and bond brokerage community; educated management and employee personnel; increased sales; and decreased legal and operational costs. These benefits can have a substantial and long-lasting effect on the financial viability of a business.¹⁴²

B. Technological Benefits

As a management system, ISO 14000 is a technology. Although the focus of the standard is on the development and implementation of a sound management system, the goal is to improve environmental performance by preventing pollution and removing systemic or random causes of energy inefficiency, waste, and noncompliance. The systems approach will identify the interrelationships of many internal operational activities, and how they interact with each other. By analyzing processes to quantify environmental impacts, management obtains a composite sketch of how its business impacts the environment. With this information, management theoretically can then make better judgments of how to allocate scarce resources to minimize or eliminate negative impacts.

When a company implements an ISO 14001 environmental management system, performance gaps and improvement opportunities in environmental technologies may be revealed. Process redesign, which identifies and isolates polluting processes, can assist management in reducing waste and energy consumption.¹⁴³ Pollution prevention can reduce a company's taxes and surcharges, de-

140. *See id.*

141. *See* ROSENBAUM, *supra* note 114, at 22.

142. *See* VOORHEES & WOELLNER, *supra* note 12, at 51.

143. *See id.* at 46.

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crease health risks to employees and the public, minimize disposal costs, and eliminate expensive end-of-pipe solutions. Waste minimization, substitution of less harmful materials, and design of products for the environment are also effective techniques management can use to re-engineer existing processes to reduce or eliminate waste and polluting by-products. By incorporating life-cycle product perspectives, management can extend its control over environmental impacts beyond the facility, and address issues such as the types of raw material streams used, transportation of raw and processed materials, inventory control, and product disposal. By adopting a life-cycle perspective, companies can recover manufacturing costs through recycling of packaging and reduction of manufacturing wastes. A fully implemented ISO 14000 system leads to “the development of economics-driven reverse distribution systems that reclaim recyclable components at the end of a product's service life.”¹⁴⁴

C. Political Benefits and Consequences

International consensus standards like ISO 14000 have the tendency of unifying countries by establishing a common approach to environmental management, eco-labeling, and life cycle assessment.¹⁴⁵ Prior to the ISO 14000 process, many countries began formulating their own standards for environmental management, which would have complicated world trade and raised costs.¹⁴⁶ ISO 14000 was written to create uniformity in global environmental practice. Since its inception in 1996, the standard has been “used as a means to create the first step to a transboundary environmental regulatory system that will strengthen environmental protection with minimal interference to global trade.”¹⁴⁷

An ISO 14000 environmental management system can provide a common systematic approach for multi-national businesses working in countries with different or even non-existent regulatory frameworks. In the industrialized nations, ISO 14000 is a useful means to proactively manage complex regulatory compliance, regardless of

144. Murray, *supra* note 8, at 583 n.23.

145. See CASCIO ET AL., *supra* note 10, at 67.

146. See Tibor & Feldman, *supra* note 14, at 10.

147. Murray, *supra* note 8, at 608.

the content of those regulations. "In countries where enforcement is either lacking or ineffectual, ISO 14001 will provide the needed (and in some cases the only) impetus to develop processes to reach and maintain compliance. In effect, the standard encourages compliance processes, even in countries where compliance and enforcement have not traditionally been strong."¹⁴⁸ Implementation of an ISO 14000 system with its requirement that the company be aware of all relevant environmental laws and regulations forces organizations to pay attention to the existing laws and create a system that encourages proactive environmental performance that provides better compliance records. By adopting a simple, pragmatic method of accessing regulatory requirements and ensuring compliance with these requirements, the ISO 14000 framework encourages effective environmental management within a wide range of regulations and laws.¹⁴⁹

The number of companies that are certified to ISO 14000 within a country can be a reliable indicator of the desire and commitment of that country "to foster environmental protection through better environmental management in its organizations and enterprises."¹⁵⁰ The more companies that adopt ISO 14000, the greater the impact on the practice of environmental management on a worldwide basis. "Over time, ISO 14001 will be a force for equalization of environmental regulations between countries . . . [which] will ultimately pressure countries to harmonize their environmental laws."¹⁵¹

Collateral political benefits arise from the self-assessment and self-management of the technical issues associated with environmental operations. Frequently, a business expends resources to comply with environmental regulations, but no significant environmental benefit is realized.¹⁵² In some cases, the technical approach fostered by the regulations causes the business to address areas of operations that have minimal environmental impact, while other areas with severe impacts are left relatively uncontrolled.¹⁵³ One

148. CASCIO ET AL., *supra* note 10, at 74.

149. *See* VOORHEES & WOELLNER, *supra* note 12, at 49.

150. CASCIO ET AL., *supra* note 10, at 68.

151. *Id.* at 76.

152. *See* VOORHEES & WOELLNER, *supra* note 12, at 49.

153. *See id.*

example was Amoco Oil Corporation's Yorktown, Virginia refinery where well-intentioned environmental regulations proved ineffective in reducing the actual pollution at the facility. The EPA has recently acknowledged that compliance with regulations does not necessarily equate to improved environmental performance. One-size-fits-all regulations can actually impede technical innovation that would otherwise lead to improving the environment.

Through both the enhanced communication and increased reporting integrity fostered by an ISO 14000 environmental management system, a business can address the technical management of processes unique to its industry and work with regulators to develop "smart" regulations. These regulations provide incentives to businesses to improve their environmental performance by inventing technologies to become more energy efficient, and preventing ineffective and costly regulations that serve as disincentives to environmental progress.¹⁵⁴ This can be achieved by moving the regulators away from a micro-management approach, which is best controlled by the people closest to the processes, to a macro-management approach.¹⁵⁵ Industry must be prodded to create innovative solutions to environmental problems while continuing to meet specific performance levels required by law.¹⁵⁶ Universally accepted management system protocols that result in cost savings and improvements to the environment are more readily accepted by business leaders and can lead to more socially acceptable business behavior.

Municipalities can also benefit from ISO 14000 certification. In the United Kingdom, Japan, and the United States, municipalities have become certified to the standard in order to restore their public lands, reduce their impacts, and protect the environment. Every municipality has some abandoned or under-utilized industrial property that is polluted. An integrated ISO 14000 system can identify those properties and create innovative techniques to restore industrialized lands for future productive uses. Businesses can assist in this process. With historic information derived from business sources, municipalities can catalogue and analyze their multiple impacts,

154. See Michael E. Porter & Claas van der Linde, *Green and Competitive: Ending the Stalemate*, HARV. BUS. REV., Sept.-Oct. 1995, at 124.

155. See VOORHEES & WOELLNER, *supra* note 12, at 49.

156. See *id.*

and inventory the abandoned industrialized properties (brownfields) and other environmentally impaired properties to determine the nature and scope of the problem. Utilization of brownfields within city limits decreases the development of greenfields, preserves open space, and diminishes the traffic congestion, air pollution, and negative visual impacts associated with urban sprawl.

Land use and city planning are not the only municipal activities that benefit from an ISO 14000 management system. Landfills, water and sewage systems, parks and recreation, transportation, public works, police and fire, and other government agencies have lasting and negative environmental impacts. Each of these agencies can develop individual programs to eliminate waste and conserve energy. For example, a bus system with on-board computers with email access can result in an individualized mass transit system. Small buses can circulate in neighborhoods where they are electronically summoned on demand to get commuters to transit systems and students to schools. Bus drivers are paid on the basis of the number of people they move rather than on an hourly salary. Commuters and students get eco-passes to ride the transit system at reduced rates. An ISO 14000 environmental management system can run the entire operation and reduce vehicle miles travelled, air pollution and traffic congestion.

In planning an integrated systems approach to environmental management, municipalities can concentrate on programmatic decisions that impact the environment within one office in the government. Land use, city planning, historical preservation, transportation, public works, recreation, and environmental services, including water, sewage, and waste disposal, can all have a complimentary and integrated management system whose goal is continuous improvement of citizens' lives. Individual success stories together with government funded pilot projects need to be well-publicized as examples of proactive and effective municipal environmental management. Preventive measures need to be undertaken to restore citizens' confidence in the ability of the municipality to manage city programs, and create sustainable growth without causing urban unrest and unnecessary development of greenfields. Municipalities, once they are able to achieve a sufficient comfort level dealing with their impacts, can network with other similarly situated cities and towns and open up new opportunities for creative solutions to urban

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decay and sprawl. The systems approach will eliminate wasteful practices that are commonplace in managing any municipal government and may even lead to further efficiencies in operations.

Opportunities for public-private partnerships to improve the environment are occurring within the United States, where a number of initiatives between private industry and the EPA are in progress. Partnerships, such as Project XL, the Common Sense Initiative, and the Merit Partnership for Pollution Prevention, are exploring alternative regulatory approaches based on the use of voluntary consensus standards, such as ISO 14000.¹⁵⁷ Although the EPA is presently struggling with its conflicting roles of enforcement and technical assistance, industry-wide implementation of ISO 14000 could reframe the future regulatory context by including voluntary consensus standards as an integral part of the EPA's programs.¹⁵⁸

D. Social Benefits

Beginning with the first Earth Day in 1970, the Rio Conference in 1992, and more recently, the Kyoto Conference in 1997, an emerging awareness of environmental responsibility has been taking hold in the industrialized and developing nations of the world. Sustainable development, ecological integration, inter-generational responsibility, and natural resource stewardship are a few of the common environmental concepts that are changing the way people view their world. Scientists, government leaders, environmental activists, consultants, and many others are searching for better solutions to environmental problems. The throw-away consumer mentality of the Twentieth Century has been replaced by a universal environmental reform movement that demonstrates that we can use new systems to solve ecological problems throughout the world.

ISO 14000 transforms these ideas and concepts into a mecha-

157. *See id.* Project XL is an EPA program to accommodate companies that invent methods to achieve superior regulatory programs; the Common Sense Initiative is an effort by the EPA to bring "together a diverse set of interests, to reach consensus-based decisions, emphasizing pollution prevention rather than cleanup, tailored to a specific industry rather than one-size-fits all." Browner, *supra* note 100, at 449-50. The Merit Partnership for Pollution Prevention is an EPA program that is investigating how ISO 14000 can be used by businesses to reduce the cost of capital. *See VOORHEES & WOELLNER, supra* note 12, at 49.

158. *See VOORHEES & WOELLNER, supra* note 12, at 49.

nism that can be used in a variety of different contexts to achieve this result. Environmental management systems can provide a bridge between the heavily polluting, resource-intensive industries, which characterized the early phases of the Industrial Revolution, and the new, cleaner technologies of the Information Revolution that are propelling us to Y2K and the 21st Century.¹⁵⁹ Businesses that are able to integrate the concepts of sustainable development, ecological integration, inter-generational responsibility, and stewardship into their day-to-day operations will find ISO 14000 to be an indispensable means to achieve these noteworthy goals.¹⁶⁰ Future wealth is far more likely to be derived from managed information, as opposed to the depletion of natural resources or manufacturing products.¹⁶¹

Over the past twenty years, the growing awareness of the environment as an important factor in the quality of our lives has ironically led to an emergence of new opportunities for businesses with environmental impacts. A company can project a socially responsible image by integrating an environmental management system into its daily operations. In a survey on reasons for seeking ISO 14000 certification in Japan, the top two reasons were "improved company image," and "social responsibility."¹⁶² In Zimbabwe, eighty-four percent of the organizations cited social responsibility as the main reason for setting up systems in accordance with ISO 14001.¹⁶³ The use of international standards can lend much credibility to a business's environmental claims and rebut false accusations of greenwashing. Adoption of standards, such as ISO 14000, enables a business to demonstrate a sincere and credible commitment to the environment, and to base its claims on a system that represents the state-of-the-art worldwide.¹⁶⁴

When business leaders broaden their perspectives, they soon

159. *See id.* at 51.

160. *See id.*

161. *See* FRANCIS McINERNEY & SEAN WHITE, *THE TOTAL QUALITY CORPORATION: HOW 10 MAJOR COMPANIES ADDED TO PROFITS AND CLEANED UP THE ENVIRONMENT IN THE 1990S* at 19 (1995).

162. Susumu Nakamaru, *Implementation of ISO 14001 Japanese Experience and Expectation*, Presentation at ISO/TC 207 Workshop 14 (June 17, 1998) (transcript on file with the *Stetson Law Review*).

163. *See* Mutasa & Kupakuwana, *supra* note 110, at 53.

164. *See* VOORHEES & WOELLNER, *supra* note 12, at 47.

realize there is a much wider array of stakeholders and interested parties that are affected by and concerned with their operations.¹⁶⁵ Companies need to be aware of the growing trends of environmental activism, which include elements of “eco-terrorism.” Businesses need to satisfy stakeholder interests for corporate accountability.¹⁶⁶ Businesses can learn to promote environmental awareness and ecological responsibility by the development and implementation of a good corporate citizen policy as a cornerstone of these environmental management systems.¹⁶⁷ By implementing a communications-based component into the management systems, a business can demonstrate its commitment to these principles, and management can use formal and informal reports, town meetings, and product and services descriptions to emphasize a clear message of environmental excellence.¹⁶⁸

To be successful, an ISO 14000 environmental management system must integrate environmental issues into strategic decisions.¹⁶⁹ By identifying existing trends and addressing emerging societal issues, a business can determine whether stakeholder perceptions of the risks posed by the business are accurate.¹⁷⁰ By monitoring issues and trends, management is holding itself accountable to the wide variety of stakeholder interests and concerns.¹⁷¹

Anytime there is an industrial accident or pollution event, customer and stakeholder perception of a business may be seriously impacted.¹⁷² Senior management needs to take advantage of the opportunity to build customer satisfaction by addressing crisis management concerns and its ability to prevent unnecessary exposure.¹⁷³ An ISO 14000 management system can assist in this procedure by identifying the environmental consequences of product labeling, product redesign, the elimination of toxic materials and packaging, and the development of infrastructure for product reuse and recy-

165. *See id.*

166. *See id.*

167. *See id.* at 47–48.

168. *See id.* at 48.

169. *See id.*

170. *See* VOORHEES & WOELLNER, *supra* note 12, at 48.

171. *See id.*

172. *See id.*

173. *See id.*

cling.¹⁷⁴ Innovations are an inevitable result of top management's commitment to environmental concerns which can save scarce resources and create sustainability.¹⁷⁵

E. Costs of Implementation

Before agreeing to adopt an ISO 14000 environmental management system, a company or municipality must analyze various environmental costs, including hidden expenses, in reaching better decisions regarding systems operations. The key to evaluating the investment in an ISO 14000 system is to derive a set of costs that accurately reflect current processes and match them with a set of benefits incurred as a result of implementing the system. To do this, management should attempt to match the temporal, quantitative, and qualitative characteristics of costs and benefits to more clearly understand their relationships. One problem with attempting to evaluate benefits is that even though the costs incurred will be substantial and immediate, many of the benefits will be long-term and not completely quantifiable. Direct costs, such as waste disposal, energy usage, and material usage, can be more easily quantified than some benefits which fall under the category of intangible risk prevention.

The first major category of implementation costs is internal resources.¹⁷⁶ These costs usually represent the majority of the expenditures, and include personnel time, training, and information technology to support the new flow of environmental information.¹⁷⁷ Personnel will be involved in developing documentation, defining process and information needs, and managing the project and its many activities.¹⁷⁸ Many, but not all, businesses find that they do not possess the required expertise to fully develop the required systems. An exception, Formosa Plastics, a \$1.6 billion corporation, needed no specialized consultants to assist in the review or evaluation of the company's programs.¹⁷⁹ Thus, it set up its own

174. *See id.*

175. *See id.*

176. *See* VOORHEES & WOELLNER, *supra* note 12, at 52.

177. *See id.*

178. *See id.*

179. *See* John Pastuck, *The Business Value of ISO 14002 Certification*, CORP. ENVTL. STRATEGY, Autumn 1998, at 62.

environmental management system that was certified sixteen months after the project began.¹⁸⁰ Businesses may decide to use external consultants and purchase commercially-available training programs for their employees if doing so will effectively implement the system and save time and money. Investments in outside expertise sometimes can reduce implementation time by providing critical assistance to employees who will be responsible for developing the environmental management system and ensuring that it works.

The initial development of an environmental management system need not be time-consuming or expensive. Implementation costs a fraction of potential litigation avoided in addition to transactional and clean-up costs. When an environmental management system is properly implemented, the investment will result in impressive annual savings derived from improved management efficiencies.¹⁸¹ For municipalities, this means that measurable pollution prevention gains might be noticed in six months to one year. Separate branches of government may undertake periodic reviews of their individual systems, and the implementation thereof might be used to monitor and assess results. From reducing the use of paper, electricity, or gas, to holding more organized and efficient public meetings, an ISO 14000 system allows municipal governments the opportunity to partake in the same benefits being experienced by multi-national corporations that are striving successfully to achieve environmental excellence. For either municipalities or businesses, a properly implemented environmental system will have a pay-back time of between ten and eighteen months.

The initial costs of implementation can be off-set by reduced costs of insurance, financing, and materials expenditures. Businesses that demonstrate, through ISO 14000 conformance, that they are environmentally proactive should receive favorable underwriting consideration and should qualify for a decrease in premium levels.¹⁸² Many businesses have used environmental management systems as the first step in redesigning their processes to eliminate toxic chemical use, thus, avoiding the direct costs of disposal and pollution control equipment altogether. While production and operation costs

180. *See id.*

181. *See* VOORHEES & WOELLNER, *supra* note 12, at 53.

182. *See id.*

may be measurable in the short-term, more difficult to estimate is the amount of fines, penalties, legal fees, clean-up expenses, and revenue loss, resulting from negative public relations, that the business would have incurred had it continued to operate by utilizing the traditional reactive approach. Finally, costs of implementing a better environmental management system are off-set as soon as the results of its environmental activities are communicated to stakeholders, producing better relationships, more customer acceptance and loyalty, and a more favorable corporate image.

VI. CONCLUSION

A new era of environmental reason has begun where incentives are being created for companies to be innovative and improve product performance, quality, and management. Innovation can reduce the use of power, natural resources, and production materials.¹⁸³ Businesses and municipalities that take a hard look at their internal operations will notice opportunities for the development of effective environmental management systems. Those systems not only reduce liabilities and risks, because less pollution is produced, but they also increase profits and consumer-stakeholder confidence, because human and natural resources are used more efficiently and effectively.

The arena of risk management has traditionally been characterized by two types of efforts, those performed to control existing risks, and those performed to reduce future risks. Managing environmental risks effectively requires a comprehensive systems approach that combines both skills. The ISO 14000 series of standards serves organizations as a model for an integrated series of management systems that identify, control, and monitor environmental risks. Additional risk management strategies include the use of information technology, risk-based approaches to internal and external environmental communication, and risk-transfer methodologies.

Reducing future risks has as its central focus, the identification of the causes of potential regulatory, public, and employee conflicts coupled with the elimination of adverse environmental impacts. ISO

183. See generally MCINERNEY & WHITE, *supra* note 161 (discussing the reinvention of such companies as Nissan, Hitachi, Lufthansa, and Black Photo).

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14000 environmental management systems need to be augmented with auditing, litigation avoidance, collaborative decision-making, alternative dispute resolution, involvement with proactive government sponsored environmental programs, and other innovative risk reduction techniques. Each area needs to be considered when implementing a comprehensive environmental risk management system.

Ultimately, the systems approach creates opportunities for innovations and solutions to environmental problems which will make the world a healthier, safer, and more prosperous place in which to live. It employs methods to avoid repeating mistakes while at the same time encourages future sustainable growth. It provides strategies for corporate managers to follow when developing environmental risk management systems together with specific examples of techniques to eliminate risk. It contains guidelines for implementing environmental management systems and using daily experience with the system to enhance its effectiveness. Most importantly, its use demonstrates to the public that businesses are consciously and proactively managing their environmental concerns, and are genuinely committed to safeguarding the environment.