

ISO 14001 in India

More Than a Certificate on the Wall?

By

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Abstract

The growth of ISO 14001 certificates worldwide has led to much research on the role of voluntary standards in improving the environmental impacts of industry. Most of this research, however, has focused on industrialized countries, with very little research examining the effects of ISO 14001 and other voluntary initiatives in the developing world. This is especially unfortunate because it is in these very countries that proponents of ISO 14001 claim the largest benefits of the standard will occur, by helping polluting industries improve performance and by assisting environmental regulators in enforcing laws more effectively.

Indian industries have begun adopting ISO 14001 at an accelerating pace, but there is little available information on what this means for the environmental performance of Indian firms. The research described here closes this gap by exploring the reasons for the increasing popularity of ISO 14001 in India, the ways in which firms use the standard and the benefits they obtain from it. Findings suggest that while the process-oriented approach of ISO 14001 does offer important benefits, changing market demands towards cheaper certification and away from rigorous EMS implementation have devalued the standard for those interested in using it as an indicator of a firm's environmental performance.

1. Introduction

The ISO 14001 standard for Environmental Management Systems (EMSs) was released in 1996 by the International Organization for Standardization (ISO) “in response to the complex challenge of ‘sustainable development’ articulated at the 1992 United Nations Conference on Environment and Development in Rio de Janeiro” (ISO 2002). It is a standard to which organizations can be certified once they implement a “Plan-Do-Check-Act” system that involves identifying environmental goals, implementing a plan to meet these goals, and monitoring and reviewing performance (ISO 2004a). Response to the standard has been enthusiastic, with proponents calling it a “Green Stamp of Approval” and “good news for the environment” (Krut and Gleckman 1998). Worldwide, ISO 14001 has been adopted by over 66,000 organizations in 113 countries (ISO 2004b). These numbers do not include those organizations which adopt the standard without seeking third-party certification.

Much research has been done to determine whether ISO 14001 can indeed have positive environmental effects (see, for example, Anton et al 2004, Dasgupta et al 2000, Melnyk et al 2003, Roht-Arriaza 1995, Taylor 1998). However, this research has tended to look at the standard almost exclusively in the context of industrialized countries, with a few notable exceptions (Dasgupta et al 2000, Mikulich 2003). None of the research on ISO 14001 in developing nations has focused on India, however, where ISO 14001 has become increasingly popular over the last decade. The number of ISO 14001 certificates issued in India has already grown from just one in 1995 to 1250 as of October 2004.

Outline of the Issues

The role of the ISO 14001 standard in improving environmental performance of businesses has been contested for almost a decade (see, for example, Krut and Gleckman 1998). Proponents of ISO 14001 claim that adopting the standard will lead to improvements in environmental performance; critics claim that ISO 14001 does not constitute any such guarantee and may, in fact, just be a form of “greenwashing” by businesses. Another area of focus in the debate over ISO 14001 and environmental management systems is the question of whether or not the standard is appropriate for developing nations (see, for example, Clapp 1998). Proponents claim that the standard provides an effective complement, or even substitute, for poorly enforced environmental regulations. Critics counter this claim by saying that ISO 14001 can not encourage businesses to improve performance in the absence of regulation or other forms of external pressure, and may in fact pose an unnecessary burden on resource-strapped firms.

The research presented here attempts to expand our knowledge of ISO 14001 to include the Indian context. It examines the adoption of ISO 14001 in India, the goal being to understand the experiences of businesses and other stakeholders with the standard. Do their experiences suggest that ISO 14001 has the potential to improve the environmental performance of businesses, or is it just a certificate on the wall? If it does indeed have the potential to improve performance, what are the factors that affect the extent of such improvements? The following section begins by exploring some of the benefits that have been ascribed to ISO 14001, as well as some of its criticisms.

Potential Benefits of ISO 14001 and Some Criticisms

Proponents of ISO 14001 point out, first, that an EMS can lead to cost savings and improve environmental performance at the same time by increasing resource use efficiency. Strictly speaking, an EMS does not have to be certified to ISO 14001 for it to provide cost savings, but ISO 14001 can provide a useful guide in this regard. Second, banks, insurance firms and other financial institutions may be willing to reduce interest rates and insurance premiums if a firm can demonstrate that implementing an EMS has reduced its environmental liability. A third potential benefit is an improved relationship with regulators and possible reductions in regulatory oversight. Fourth, firms may also realize cost savings by streamlining internal operations and reducing duplication of efforts. Fifth, ISO 14001 may lead to an improved market image and customer relations, especially if customers are environmentally conscious. Finally, certification to ISO 14001 may help businesses improve relations with environmental groups, local communities and other stakeholders by demonstrating a concern for environmental issues.

Certification to ISO 14001 can also provide some benefits to external stakeholders. Environmental regulators may be able to devote limited resources to more egregious polluters by granting some degree of leniency to certified businesses, thus improving the overall efficiency of environmental regulation. Financial institutions may be able to invest in businesses less likely to become involved in potentially expensive environmental disputes. Therefore, for external stakeholders, ISO 14001 can provide a discriminatory function, separating environmentally proactive firms from those that cause more extensive harm to the environment.

However, all these benefits must be qualified. As a management system standard, ISO 14001 does not prescribe any levels of performance; rather, a firm that adopts ISO 14001 sets goals based on its own priorities, and then follows the process outlined in the standard to achieve those goals. As a result, say critics, there is little incentive for firms to set stringent goals, or goals that impose extra costs. Another criticism focuses on the potential for ISO 14001 to become a de facto requirement for developing country firms wishing to do business in certain parts of the world, such as Europe and Japan. This could impact those firms in developing countries that cannot easily afford certification. On the other hand, some firms in these countries might attempt to secure a certificate without implementing an effective EMS, which could potentially devalue the standard.

Criticism of ISO 14001 also focuses on the process of drafting the standard, which drew little involvement from developing countries or environmental groups. Most of the input was provided by businesses and private organizations from industrialized countries. Finally, the standard does not require certified businesses to disclose any information on environmental performance to stakeholders. This means that certification to ISO 14001 provides no guarantee that stakeholders will be able to access information on firms' environmental performance. This lack of transparency may be especially important in the context of developing countries such as India, where enforcement of environmental regulations is weak.

India's Government, Industry and Environmental Laws

With over a billion people spread over 28 states, India has more than 128,000 factories engaged in manufacturing, processing and natural resource extraction¹ (CSO 2002). In the decades since independence, with a rising population and increasing environmental degradation, protection of the environment has become an important concern. A brief look at India's system of government, environmental laws and administrative structure may help to place it in context, as well as provide a framework within which the effects of ISO 14001 on industrial behavior can be interpreted.

India follows a Parliamentary system of government at two levels – the Center and the State. Both levels of government have a similar structure, consisting of a separate legislature, executive and judiciary. The authority of the Centre and the States to pass legislation on various topics is divided through lists in the Indian Constitution. The Central government has the authority to pass laws on topics listed under the Union List, while State governments can legislate on topics in the State List. There is a third list, known as the Concurrent List, which contains topics on which both the Centre and States may pass laws. Central laws on concurrent topics usually take priority over State laws.

There is no single topic on any of the lists that covers environmental laws comprehensively (Divan and Rosencranz 2001). Some topics, such as forests and wildlife, are on the Concurrent list. Other related topics, such as water supply and public health, are on the State list. An exception is inter-state rivers and waterways, which is on the Union list. In addition to the topics on the Union and Concurrent lists, however, the Central government has the power to pass laws on topics covered under international

¹ These numbers include only factories that have either more than 10 workers and a connection to the electric grid, or more than 20 workers.

treaties. The Central government has used this power in conjunction with agreements signed by India at the United Nations Conference on the Human Environment, held at Stockholm in 1972, to pass the majority of India's environmental laws, including those that deal with industrial pollution.

In 1974, the Central government passed the Water Act, which established Central and State Water Pollution Control Boards (Divan and Rosencranz 2001, PEO n.d.). The State Boards were empowered to establish and enforce pollution standards for factories discharging pollutants into water bodies. The Central Board was authorized to coordinate activities between the various states. In 1981, the Central government passed the Air Act, which expanded the powers of the State Boards (now called Pollution Control Boards) to include air pollution control (PEO n.d.).

The Bhopal disaster of 1984 further crystallized environmental concerns, especially as they related to industrial pollution and hazards, and resulted in the passage of the national Environment Act of 1986 (Divan and Rosencranz 2001, PEO n.d.). The Environment Act of 1986 was an umbrella act meant to provide the Central government authority to coordinate activities performed by the organizations established under previous acts, such as the Air and Water Acts (Divan and Rosencranz 2001). The Act delegates wide powers to the executive branch of the government, enabling it to frame rules and regulations as required.

The Central Pollution Control Board is now the nodal agency that has to "advise the Central Government on matters concerning pollution, plan and execute a nation-wide program for prevention and control of pollution, coordinate and provide technical assistance to the State Boards, organize program for mass awareness, disseminate

pollution- related information, and lay down, modify and annul, in consultation with State Governments, the standards for air and water quality. . .” (PEO n.d.). State Pollution Control Boards (SPCBs) perform the above functions at the State level, in addition to administering and enforcing environmental laws. They control pollution by reviewing and approving, or rejecting, permit applications from industry to discharge pollutants into water, air and land. They also advise State governments on suitable locations for the establishment of new industries. State Boards can directly order an offending factory closed and have its power and water supply withdrawn by administrative order. They do not, however, have the power to impose fines on offending factories; they must either wait for the factory to comply with their directives or initiate litigation (PEO n.d.).

There are serious limitations in the abilities of the State Pollution Control Boards to administer and enforce environmental laws (PEO n.d.). Many of the Boards are seriously understaffed and underfinanced. Most of them do not even have a complete list of all the polluting factories located in their respective States. Compliance with applicable laws is low, and many factories do not have the required pollution control equipment. Since the Boards do not have the authority to impose fines, legal delays often mean that offending units go unpunished for long periods of time. The Boards are authorized to close down violating units, but such action is rarely taken because of political and interest-group pressures. Finally, air and water quality monitoring is infrequent and inconsistent. In the presence of a weak system of environmental monitoring and enforcement, the potential of industry initiatives such as ISO 14001 to improve India’s environment needs to be critically examined.

Until the 1990s, Indian industrial sectors such as steel, oil and gas and coal were deemed to be of national importance, and as such were primarily under the control of the government. However, beginning in the 1990s, many of these undertakings have been sold to private enterprises. Prior to this period, import restrictions also kept the Indian market relatively protected from international competition. Since then, however, successive governments have followed a policy of economic liberalization whereby foreign investment in Indian industry is being actively sought. This has increased environmental awareness as Indian businesses seek foreign partnerships, and has also played an important role in the spread of ISO 14001 in the country.

Research Question, Methodology and Structure of the Paper

The research question addressed by the proposed research is: What are the benefits that industry and other stakeholders can expect from ISO 14001 in India, and what factors might influence the extent of these benefits? There is little existing research on the benefits and limitations of ISO 14001 in the context of developing countries, especially in India. In order to answer the research question, I conducted interviews with various stakeholders in India by phone and email. Interviews were complemented by an analysis of documents such as mission statements and policies. The research was qualitative and exploratory in nature, attempting to identify and describe key patterns.

In chapter 2, I present a history and description of ISO 14001 and the circumstances in which the standard was developed. Chapter 3 describes the issues and controversies surrounding ISO 14001, with emphasis on research (or the lack of it) relevant to developing nations. Chapter 4 describes the methodology used in this study, in particular the organization of the research around different stakeholder groups.

Chapter 5 presents the research findings, highlighting how the Indian context differs from that of industrialized nations. Chapter 6 concludes with an assessment of ISO 14001 and its usefulness for India, and recommendations to increase the value of the standard for various groups. Interview protocols used to collect data are presented in the appendices.

2. What is ISO 14001?

ISO 14001 is an *environmental management system standard* that operationalizes a “Plan-Do-Check-Act” cycle in the area of environmental management (ISO 2004a).

This chapter begins with a general description of environmental management systems and how the ISO came to be involved in the area of environmental management in the first place. The circumstances that led to the creation of ISO 14001 are described, followed by an overview of the ISO as an institution. The process of drafting ISO standards and the ISO 14001 standard itself are then described in greater detail. The chapter then moves on to a discussion of potential benefits and costs of the standard for firms and other stakeholders, and concludes with a brief discussion of the rapid growth in the number of ISO 14001 certificates issued worldwide.

Management Systems, Standards and the ISO

A management system consists of rule and procedures through which “decisions are made and day-to-day activities [of an organization] are directed” (IISD 1996). Any large organization will have a number of management systems to deal with different aspects of its operations. A system to deal with the environmental effects of an organization can be thought of as an environmental management system (EMS). The ISO defines an environmental management system¹ as “part of an organization’s management system used to develop and implement its environmental policy and manage its

¹ The term “environmental management” should not be taken to mean “managing” nature itself (Krut and Gleckman 1998). Rather, it should be understood to mean “the management of institutions and people that impact the environment”. An EMS could then consist of current scientific understanding of natural laws and local ecosystem characteristics, social rules of how to deal with these systems, voluntary industry initiatives to guide corporate relations with the environment, and organizational management systems in general.

environmental aspects” (ISO 2004a). It further says that a management system is a “set of interrelated elements used to establish policy and objectives and to achieve those objectives,” and that a management system “includes organizational structure, planning activities, responsibilities, procedures, processes and resources.”

ISO 14001 is an environmental management system *standard*. There is often confusion, however, as to what exactly is implied by ISO's use of the term “standard.” The term is commonly used in the sense of a “standard of excellence” or a performance standard (Krut and Gleckman 1998). It is this meaning which is implied when we speak of emission standards for industry. An emissions standard defines a minimum level of performance, which the industry is always expected to meet or exceed. Other standards of this kind include labor standards for industry and safety standards for vehicles.

The word “standard” may also be used in a somewhat different sense, to mean a common, acknowledged basis of comparison also known as a standard specification (IISD 1996, Krut and Gleckman 1998). This use of the word is not normative in that one standard is not inherently better than another; selecting one standard value is simply a matter of convenience to ensure that products from different manufacturers are compatible with each other. A standard specification for audio and video outlets, for example, ensures that a TV from one manufacturer can be used with a VCR from any other manufacturer as long as both conform to the same standards.

ISO 14001, however, is quite different from the traditional kind of standard issued by the ISO (IISD 1996, Krut and Gleckman 1998, Mikulich 2003). It is not a product standard or a standard specification because it does not list the detailed technical characteristics of a product, nor does it specify the details of a technical process in the

way that ISO standards for the measurement of air and water quality do. It is also not a performance standard because it states quite clearly that it “does not establish absolute requirements for environmental performance beyond the commitments, in the [firm's] environmental policy. . .” (ISO 2004a). ISO 14001 describes, in general terms, the elements that must be present in an EMS in order for it to conform to the standard. This is quite different from prescribing performance standards for a process that might result in toxic emissions.

Despite confusion about its purpose, the ISO 14001 standard dovetails with recent trends in environmental policy, characterized by a shift towards trying to understand entire systems instead of tackling discrete issues, and by increased reliance on voluntary initiatives by industry (Roht-Arriaza 1995). Indeed, the creation of the standard was a result of several separate threads in business, trade and environmental policy that came together in the 1990s. These developments have placed the ISO centre stage in current environmental policy debates (Krut and Gleckman 1998).

The Run-Up to ISO 14001

The creation of ISO 14001 has been linked to several events that took place in the 1990s (Figure 2.1) (Krut and Gleckman 1998, Mullett 1997, Murray 1997, Roht-Arriaza 1995, Taylor 1998). One factor was the proliferation of national environmental management standards and eco-labels by the early 1990s, which raised fears of trade barriers among industry. A second factor was the Uruguay round of the discussions on the General Agreement on Tariffs and Trade (GATT) held in 1994, where the need for uniform international environmental standards was highlighted. Third, growing awareness among industry of the cost of command-and-control regulation together with a

proliferation of diverse voluntary initiatives led to increased demand for a voluntary but uniform approach to environmental management. Fourth, the United Nations Conference on Environment and Development (also known as the Earth Summit) held in Rio de Janeiro, Brazil, in 1992 crystallized many of the ideas on industry's role in sustainable development. Finally, the success of ISO's earlier ISO 9000 series on quality management systems provided an impetus to the organization to pursue the creation of environmental management system standards along similar lines.

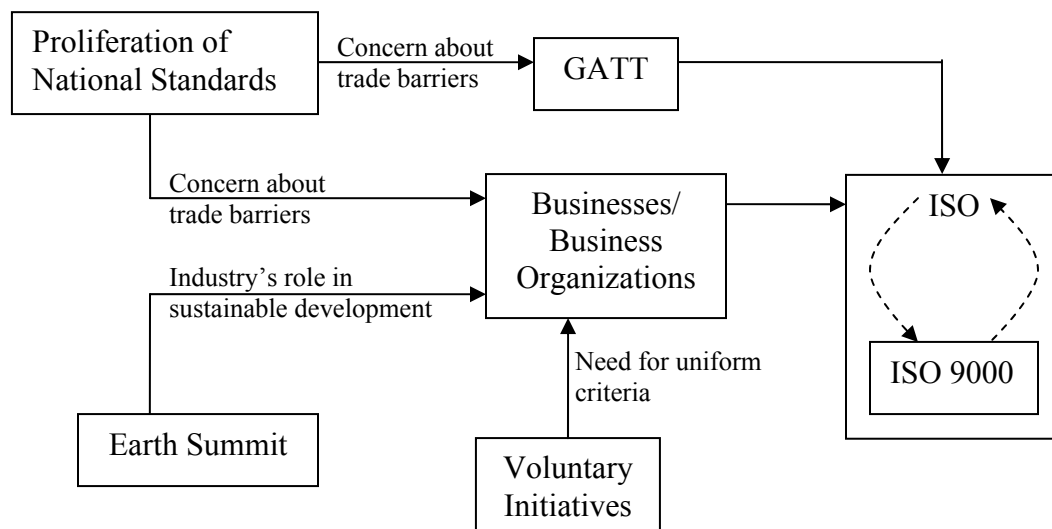


Figure 2.1 The build-up to ISO 14001

Proliferation of Product and Process Certification Programs

Starting in the late 1970s, environmental product labeling programs began to proliferate (Mullett 1997). In 1979, Germany's Blue Angel program became the first national environmental certification program for products. This program uses life-cycle analysis to evaluate product environmental impacts. A similar program, known as Eco-label, was started in Austria in 1991 by the Austrian government. The Japan Environment

Agency initiated its own Eco-Mark program in 1989. Private product certification programs are operating in the United States (US), including the Green Seal program and the Scientific Certification System program, both of which use a life-cycle approach. The Council of the European Communities also established a product certification program in 1992, again based on a life-cycle approach.

At the same time, process certification programs were also becoming popular (Mullett 1997, Roht-Arriaza 1995). The British Standards Institute published the BS 7750 standard for environmental management systems in 1992. Close on its heels came the European Council's Eco-Management and Auditing Scheme (EMAS), established in 1995. All these product and process certification schemes raised fears that they might become trade barriers and encouraged industry to support the development of a uniform, international environmental standard.

International Trade and GATT

A second impetus to the ISO in creating an environmental management system standard came from the run-up to the Uruguay round of GATT discussions held in 1994 (Latimer 1997, Murray 1997, Roht-Arriaza 1995). The GATT treaty signed in 1980 already encouraged nations to use international agreements as the basis for technical regulations. Under the GATT, technical regulations (also known as technical barriers to trade or non-tariff barriers to trade) are regulations that may restrict international trade by imposing requirements based on product or process characteristics that give an advantage to domestic industry. The 1994 GATT treaty further increased the preference for international standards by stating that "where technical regulations are required and

relevant international standards exist or are imminent, Members shall use them, or relevant parts of them, as the basis for technical regulations.”

Industry’s Voluntary Initiatives

Industry had gradually become aware of the difficulties and costs involved in implementing command-and-control regulations and began to request voluntary initiatives (Taylor 1998). In 1991 the Business Council for Sustainable Development approached the ISO and asked it to establish international environmental performance standards that would allow industries to compare their performance against each other (Roht-Arriaza 1995). Also in 1991, the International Chamber of Commerce created the Business Charter for Sustainable Development in response to the 1987 Brundtland Commission Report.

Industry also began to establish voluntary programs following a number of highly-publicized environmental disasters, which forced firms to take measures to preserve their public image (Krut and Gleckman 1998). The Chemical Manufacturers Association created the Responsible Care program following the Bhopal disaster in 1985. In 1989, after the *Exxon Valdez* spilled crude oil in Alaska, a group of investors and firms created the Valdez Principles, later renamed the CERES principles. As these initiatives proliferated, with their own environmental performance criteria and claims, industry and consumer groups began to seek uniform international standards.

The 1992 Earth Summit

Another impetus to ISO for drafting ISO 14001 came from the Earth Summit (Roht-Arriaza 1995, Taylor 1998). This conference brought together industry, policy makers and environmental groups and led participants to declare the need for standards to

encourage sustainable development. Business groups and other participants in the Earth Summit approached ISO during the run-up to the conference, asking for a commitment from the organization to draft a set of international environmental standards.

The ISO 9000 Series on Quality Management Systems

By the time ISO was asked to develop environmental standards, it had already experimented with a new type of “standard.” In 1978, ISO embarked on the development of the ISO 9000 series of standards for Quality Management Systems, a move initiated by the British Standards Institute (Latimer 1997). ISO 9000, released in 1987, met with worldwide success (Murray 1997, Roht-Arriaza 1995). The popularity of ISO 9000 led to confidence that the ISO could create a similar set of standards for environmental management and that it would be accepted enthusiastically by industry (Latimer 1997). Discussion on the ISO’s possible role in creating environmental standards had been going on within the organization for some decades by the 1990s, and the timing seemed especially appropriate to take a step in that direction given the availability of the ISO 9000 series, after which a standard for EMSs could be modeled.

The ISO further argued that drafting environmental management systems standards (as opposed to performance standards) would make the standards applicable globally since the only performance requirement is compliance with local environmental regulations (Clapp 1998). This, according to ISO, would reduce the likelihood of the standard becoming a trade barrier, and would also provide a more effective way of tackling environmental problems compared to “end-of-pipe” approaches.

ISO's Structure and Operation

Having discussed the factors that led up to the ISO being asked to draft the standards, it is important to understand how the structure and history of ISO itself up to that point influenced the final form of the ISO 14001 standard. ISO was established in 1946 to set technical standards for industry, which in turn would facilitate the exchange of goods and services around the globe (Roht-Arriaza 1995, Clapp 1996). It is an international organization whose membership consists of standard-setting bodies from approximately 150 countries. Any organization that is “most representative of standardization in its country” is eligible to become a member of ISO.

Who Makes ISO Standards?

The national standard-setting bodies that make up the membership of ISO may be government organizations, private bodies or a combination of private and government interests (Krut and Gleckman 1998). For example, the French representative to ISO, Association Française de Normalisation (AFNOR) is essentially a government agency, whereas the British Standards Institute (BSI) is a private organization. The American National Standards Institute, which represents the US at ISO, is a private body but with government technical experts participating as members. A member body may nominate as many delegates to ISO as they wish, but each member gets only one vote at ISO meetings.

ISO/TC 207 is the technical committee (TC) responsible for creating the ISO 14001 standard. An analysis of groups attending plenary meetings of the ISO/TC 207 between 1997 and 2003 revealed that on average over 70% of the participants were representatives of industry, consulting firms or national standards organizations

(Morikawa and Morrison 2004). Further, voting rights in the ISO are granted only to full members, who are normally national standards bodies or their nominees (often “experts” from industry) (Krut and Gleckman 1998). NGOs and other interested parties thus have little say in the drafting process even though they may be present as observers. Apart from unequal stakeholder representation, there is under-representation of developing countries as well in the work of ISO/TC 207, with nations from Africa, Latin America and Eastern Europe sending the smallest number of delegates to meetings relative to their membership (Morikawa and Morrison 2004). The cost of attending meetings, which are held all over the world, poses a significant barrier to securing wider participation.

The ISO’s Standard-Setting Process

The main standard-setting work of the ISO is carried on by many discrete technical committees, each consisting of many sub-committees and working groups. There are at present around 2,500 TCs, sub-committees and working groups carrying out this work (ISO 2005). TCs consist of “experts” on loan from business and industry, nominated to the committee by ISO member bodies (ISO 2005). Any ISO member may decide to join a TC if they feel that the work of that TC is relevant to their national interest. Each committee usually works on a well-defined area of standard-setting; within that area, further divisions of work may be made between sub-committees and working groups.

The ISO process may work well for technical standards of interest only to industry. However, it is less suitable for environmental standards that are of interest to a broader range of stakeholders. The process of drafting a standard in a new area of work begins with a proposal by an ISO member, technical committee or sub-committee (Krut

and Gleckman 1998). The proposal is then circulated to all ISO members and voted on. If at least two-thirds of the voting members support the program of work, and at least five members express an interest and willingness to take on the proposed work, the ISO can create a new TC. At this time, a working group is usually established to prepare a working draft of the new standard (ISO 2005). Once the working group is satisfied with the working draft, it is submitted to the entire TC as a committee draft. At this time, the draft is available for comments and voting by all members of the TC. If approved by two-thirds of the voting committee members, it is then circulated to the full membership of the ISO as a Draft International Standard (DIS). A DIS may be circulated for comment to groups outside the ISO, but only if any member feels that such input is required. If approved by a two-thirds majority, the DIS is submitted as a Final Draft International Standard for a final yes/no vote. If approved, it is published by the ISO as an international standard. Comments received prior to the final yes/no vote on the DIS may be incorporated into the standard; any comments received after this time, however, are noted for consideration during future revisions of the standard.

The Creation of ISO/TC 207 and ISO 14001

In response to the demand for international environmental standards, in 1991 the ISO established an ad hoc Strategic Advisory Group on the Environment (SAGE) (Krut and Gleckman 1998). The key objectives of SAGE were to

- Assess the needs for future international standardization work to promote world-wide application of key elements embodied in the concept of sustainable industrial development, and

- Recommend an overall strategic plan for environmental performance and/or management standardization.

SAGE was divided into six sub-groups, with each group looking at a different area of standardization such as management systems, product labels and life-cycle assessment. After a series of meetings, SAGE recommended the creation of a new ISO technical committee, ISO/TC 207, responsible for environmental management standards. This committee was formed in 1993 and would eventually create the ISO 14001 standard. The mandate of the ISO/TC 207 was much reduced compared to the original objectives of the SAGE. First, it did not contain any reference to sustainable development. Secondly, the setting of performance standards, which was a part of the objectives for SAGE, was explicitly excluded from ISO/TC 207's mandate (Krut and Gleckman 1998, Roht-Arriaza 1995).

The ISO/TC 207 divided into six sub-committees after it was formed, along the lines of the working groups in SAGE (Krut and Gleckman 1998). The sub-committees deal with: environmental management systems, environmental auditing, environmental performance evaluation, life cycle analysis, product labeling and terms and definitions. More recently, working groups have been created to work on environmental communication, climate change and verification of greenhouse gases (ISO 2005).

Several controversial debates took place during the work of the ISO/TC 207 as it related to management systems, arising mainly from differences between the European Union (EU) and US delegations (Roht-Arriaza 1995). In general, the US delegation sought less substantive, more procedural and more flexible positions that would preserve management prerogatives and business confidentiality. Whereas the EU sought to include

substantive performance requirements, the US successfully advocated a flexible management-defined approach. The US delegation was successful also in ensuring that the standard made no reference to the adoption of best achievable technology, to public reporting of performance, or to an environmental effects register, all of which were supported by the EU. In its present form, the standard merely requires industry to *consider* implementation of best available technology and public reporting of environmental performance, and makes no reference to an environmental register.

The Standards of the ISO 14000 Series

ISO/TC 207 has produced a number of standards and guides as part of the ISO 14000 series, one of which ISO 14001 (Table 2.1). ISO 14001 is the only standard of the series which is certifiable by a third party, but an organization can also self-declare conformance to ISO 14001, if it so wishes. All the other standards in the ISO 14000 series can be used as guides or the organization can self-declare conformance, but are not certifiable by a third party.

ISO 14001 is probably the best known standard of the series. This standard lays down the requirements that an organization must follow if it wishes to implement (and certify) an environmental management system (EMS). The ISO 14001 standard was first released in 1996, with a revised version released in 2004. The substantive portion of the ISO 14001 standard has five parts (ISO 2004a). Each part deals with one step in establishing an EMS (Figure 2.2).

Table 2.1 Sub-committees of the ISO/TC 207 and their standards

TC 207 Sub-Committee	Standard	Description
SC1 Environmental management systems	ISO 14001	Environmental management systems – Specification with guidance for use
	ISO 14004	Environmental management systems – General guidelines on principles, systems and supporting techniques
SC2 Environmental auditing	ISO 19011	Guidelines for quality and/or environmental management systems auditing
SC3 Environmental labeling	ISO 14020	Environmental labels and declarations – General principles
	ISO 14021	Environmental labels and declarations – Self-declared environmental claims (Type II environmental labeling)
	ISO 14024	Environmental labels and declarations – Type I environmental labeling - Principles and procedures
	ISO 14025	Environmental labels and declarations – Type III environmental declarations
SC4 Environmental performance evaluation	ISO 14031	Environmental management – Environmental performance evaluation – Guidelines
	ISO 14032	Environmental management – Examples of environmental performance evaluation (EPE)
SC5 Life Cycle Assessment	ISO 14040	Environmental management – Life cycle assessment – Principles and framework
	ISO 14041	Environmental management – Life cycle assessment – Goal and scope definition and inventory analysis
	ISO 14042	Environmental management – Life cycle assessment – Life cycle impact assessment
	ISO 14043	Environmental management – Life cycle assessment – Life cycle interpretation
	ISO 14047	Environmental management – Life cycle assessment – Examples of application of ISO 14042
	ISO 14048	Environmental management – Life cycle assessment – Data documentation format
	ISO 14049	Environmental management – Life cycle assessment – Examples of application of ISO 14041 to goal and scope definition and inventory analysis
	ISO 14050	Environmental management – vocabulary

Source: ISO 2005.

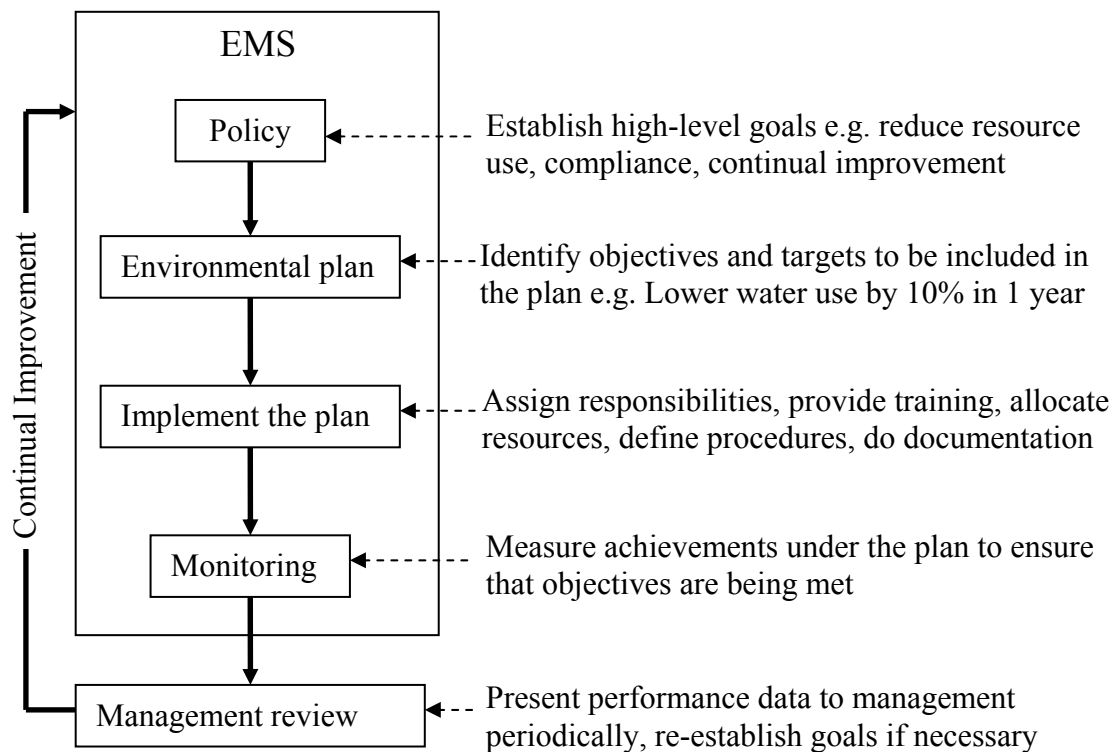


Figure 2.2 Elements of ISO 14001

The first stage in ISO 14001 involves creating an environmental policy that lays down the environmental goals of the organization. This section of ISO 14001 requires a commitment to comply with all applicable legal and other requirements that the organization subscribes to and which relate to its environmental performance. This is the only performance requirement specified in the standard. The policy should also include commitments to "continual improvement" and "prevention of pollution."

Following the creation of its policy goals, the organization must plan and design procedures to identify its environmental effects, and select the ones that it considers significant. It must also identify all applicable legal and other requirements, and should establish objectives and targets consistent with the significant environmental effects.

Programs to achieve these targets should include the means and the time frame for achieving them.

The third stage consists of implementing the environmental management plan (EMP). The first step here is to identify persons who are responsible for implementing the EMP. The organization must ensure that these persons have the necessary skills and training to carry out their work, and should provide them with the resources needed to implement the plan. Operational procedures to deal with routine activities as well as with emergency situations must be defined. ISO 14001 calls for all decisions and procedures to be documented, and systems to be established to ensure that all documents are kept up to date.

Once the EMP is implemented, the organization has to take steps to monitor its environmental effects, in order to measure the performance of the EMP and to take corrective action if necessary. This involves periodic internal audits by trained personnel. The EMP, together with the environmental policy and procedures for implementation and monitoring, makes up the EMS. The final stage consists of a management review, during which the top management of the organization reviews the performance of the EMS and identifies opportunities for improvement, if any, and other changes that might need to be made. The management review must be conducted at planned intervals.

As has been mentioned earlier, ISO chose to create an environmental management system standard in part because such a system is (at least in theory) equally applicable to organizations of all types, irrespective of geographic location, size, products or ownership (Clapp 1998, ISO 2005). ISO describes this characteristic of the ISO 14000 series by calling them *generic* standards.

The Process of Third-Party Certification

Once an organization has implemented an EMS, it may decide to seek third-party certification. The ISO itself does not offer certification services, nor does it oversee them (ISO 2005). There are private as well as government organizations known as registrars that offer certification services for ISO 14001 worldwide. For example, in India several private agencies and one government agency, the Bureau of Indian Standards, certify organizations to ISO 14001. The certification process usually begins with the client organization (which is seeking certification) submitting an application to the registrar, along with a copy of its documentation and manuals for the EMS (NAPA 2001). After surveying the documents, the registrar determines whether or not the client's EMS qualifies for a full audit. This stage may be combined with an initial site visit, which is used to determine the firm's readiness for a full certification audit. At this time, the registrar and the client may also agree on the scope of certification and the focus of the audit.

Following the initial document review and site visit, the registrar appoints an audit team and conducts an audit of the site. A certification audit usually involves document review, interviews with site personnel, and a site tour and inspection of facilities. The aim is once again to assess whether or not the EMS qualifies for a certificate. If the EMS is deemed worthy of certification, periodic surveillance audits are conducted to ensure that the system is being properly maintained. These audits are usually conducted at least once a year. The certificate is usually valid for a period of no more than three years, after which the client must apply for re-certification.

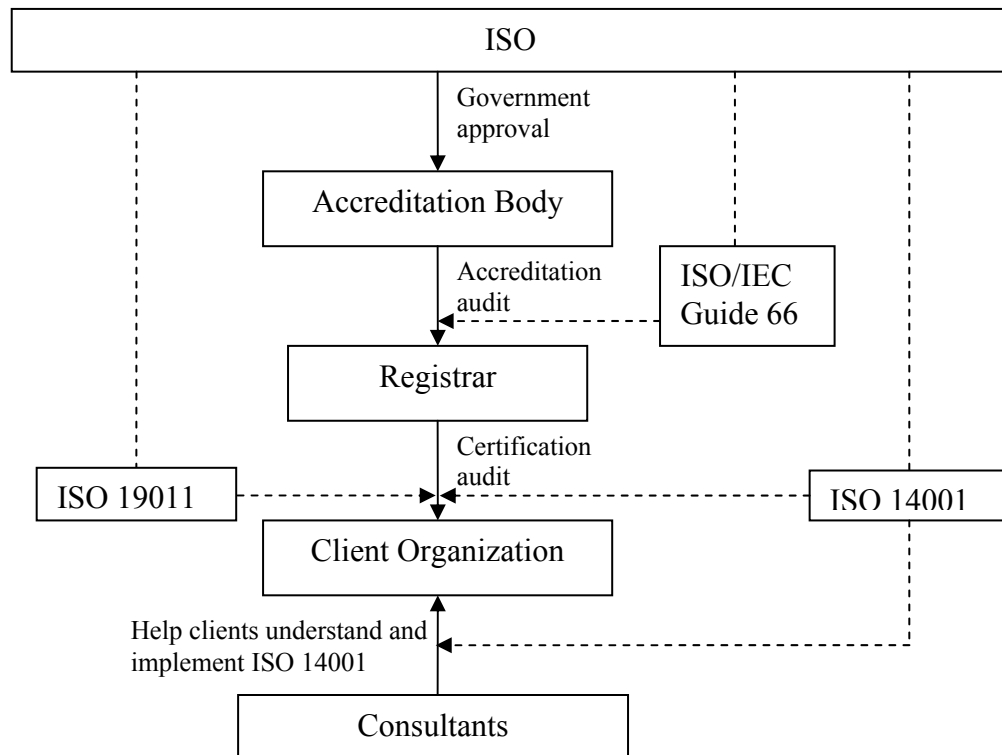


Figure 2.3 The system of ISO 14001 certification (Dashed lines indicate where ISO documents are used as guides)

There are several organizations and people involved in the process that ultimately leads to a credible certification of an EMS, and registrars form just one link in the chain (Figure 2.3). In order to be able to grant credible certifications of conformity to ISO 14001, a registrar may itself choose to be audited to obtain accreditation from a national accrediting board (NAPA 2001). Each ISO member country can establish a national accreditation body, which may or may not be linked to the government of that country. For example, in the US the accreditation agency is a joint operation of the American National Standards Institute and the Registrar Accreditation Board, and is recognized by the Department of Commerce as the sole accreditation body. The Quality Council of India is a government body that offers accreditation services for registrars in India. It is

worth noting that registrars operating in a particular country do not have to be accredited by that country's accrediting body.

ISO also develops guides for registrars, in coordination with the International Electrotechnical Commission (ISO 2005). For example, the ISO/IEC Guide 66 contains requirements for bodies offering certification to environmental management systems, and ISO 19011 describes procedures to be followed during an EMS audit. These guides are voluntary, and are supposed to represent international consensus on what constitutes best practice in the area of conformity assessment. Registrars determine the conformance of an EMS against the requirements of ISO 14001; accreditation bodies may use Guide 66 in a similar manner while auditing registrars.

Consultants often have a much earlier and stronger influence on an EMS than registrars (NAPA 2001). These are experts responsible for helping a firm to understand the requirements of ISO 14001 and implement an EMS. They play an important role by providing knowledge and expertise through helping, for example, to identify important environmental issues, design an appropriate management plan and implement indicators and monitoring systems.

The Spread of ISO 14001 around the Globe

The number of ISO 14001 certificates issued worldwide increased from 257 at the end of December 1995² to over 66,000 by the end of December 2003 (Table 2.2, Figure 2.4). This represents more than a 250-fold increase in the number of certificates over a period of nine years. Although the number of ISO 14001 certificates

² Even though the final version ISO 14001 standard was not released until 1996, some organizations had already begun preparing for certification to draft versions of the standard.

issued in India is not very high compared to some other countries, there has certainly been a sharp increase in ISO 14001 certification activity in the last decade.

Table 2.2 Worldwide and Indian certifications to ISO 14001, and the number of countries where ISO 14001 certificates have been issued

Year	ISO 14001 certificates worldwide	Number of countries worldwide	ISO 14001 certificates in India
1995	257	19	1
1996	1,491	45	2
1997	4,433	55	28
1998	7,887	72	40
1999	14,106	84	111
2000	22,897	98	257
2001	36,765	112	400
2002	49,449	117	605
2003	66,070	113	879
2004*	74,004	-	1,250

Source: ISO n.d., ISO 2004c; * <http://www.ecology.or.jp/isoworld/english/analy14k.htm>

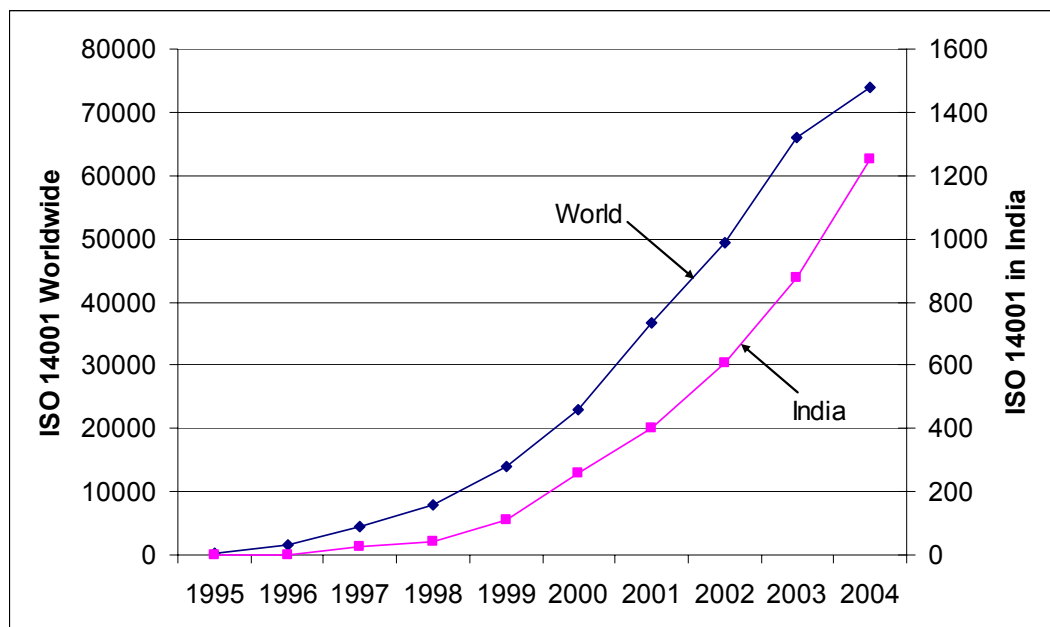


Figure 2.4 Growth in number of ISO 14001 certificates worldwide and in India

Source: ISO n.d., ISO 2004c.

The growth of ISO 14001, however, has not been uniform worldwide (Table 2.3).

Europe and South-East Asia account for the majority of certifications. Research looking at the geographic variability of ISO 14001 take-up suggests that the number of ISO 14001 certificates issued in a country is positively associated with income per capita, amount of foreign direct investment and the quantity of exports to Europe and Japan. Whereas the growth of certificates worldwide appears to have slowed down slightly, certification continues to expand in India, suggesting that the standard will exert an increasing influence on environmental performance of businesses in the years to come.

Table 2.3 Growth in ISO 14001 certificates by region

Year	S. Asia	S.E. Asia	W. Asia	Africa	Europe	S./Cen. America	N. America	Australia/ NZ
1995	1	25	0	0	226	3	1	1
1996	4	419	5	1	948	15	43	56
1997	31	1356	14	28	2626	98	117	163
1998	44	2532	48	46	4254	144	434	385
1999	116	4350	95	126	7365	309	975	770
2000	267	7881	160	224	11021	556	1676	1112
2001	419	12796	198	306	18243	681	2700	1422
2002	639	17744	303	413	23316	1418	4053	1563
2003	921	23747	450	626	31997	1691	5233	1405

Source: ISO n.d., ISO 2004c.

3. Previous Research on ISO 14001: What are the Issues?

Considerable controversy surrounds the role of ISO 14001 in improving industrial environmental performance, and just as much variation exists in the approaches taken by researchers to understand this role. While some scholars see it as a tool to be used by businesses for improving internal management practices and structures and analyze it as such (see, for example, Boiral 1998, Johnson and Walck 2004, Jorgensen 2000, von Malmborg 2002), others place ISO 14001 firmly in the arena of environmental policy instruments (see, for example, Clapp 1998, Mikulich 2003, Murray 1999, Roht-Arriaza 1995, Stenzel 2000). Still others have tried to assess the actual impact of EMSs and ISO 14001 certification on business environmental performance (see, for example, Anton et al 2004, Dasgupta et al 2000, Khanna and Anton 2002, Melnyk et al 2003, Solomon and Mihelcic 2003, Sroufe 2003).

Differences in approach notwithstanding, all three streams of research have identified important issues that must be understood and addressed if ISO 14001 is indeed to result in performance improvements, whether as a business tool or as a policy instrument. This is especially important given the rapid growth of ISO 14001 certification worldwide. This chapter summarizes the findings of previous research on ISO 14001. Special emphasis is given to conditions in developing countries, especially India. The chapter is organized around the stakeholders involved (Figure 3.1). First, I discuss the ways in which ISO 14001 could influence environmental performance. The following sections then discuss benefits of certification for a firm and its stakeholders. The chapter concludes with a description of problems with EMS certification practices.

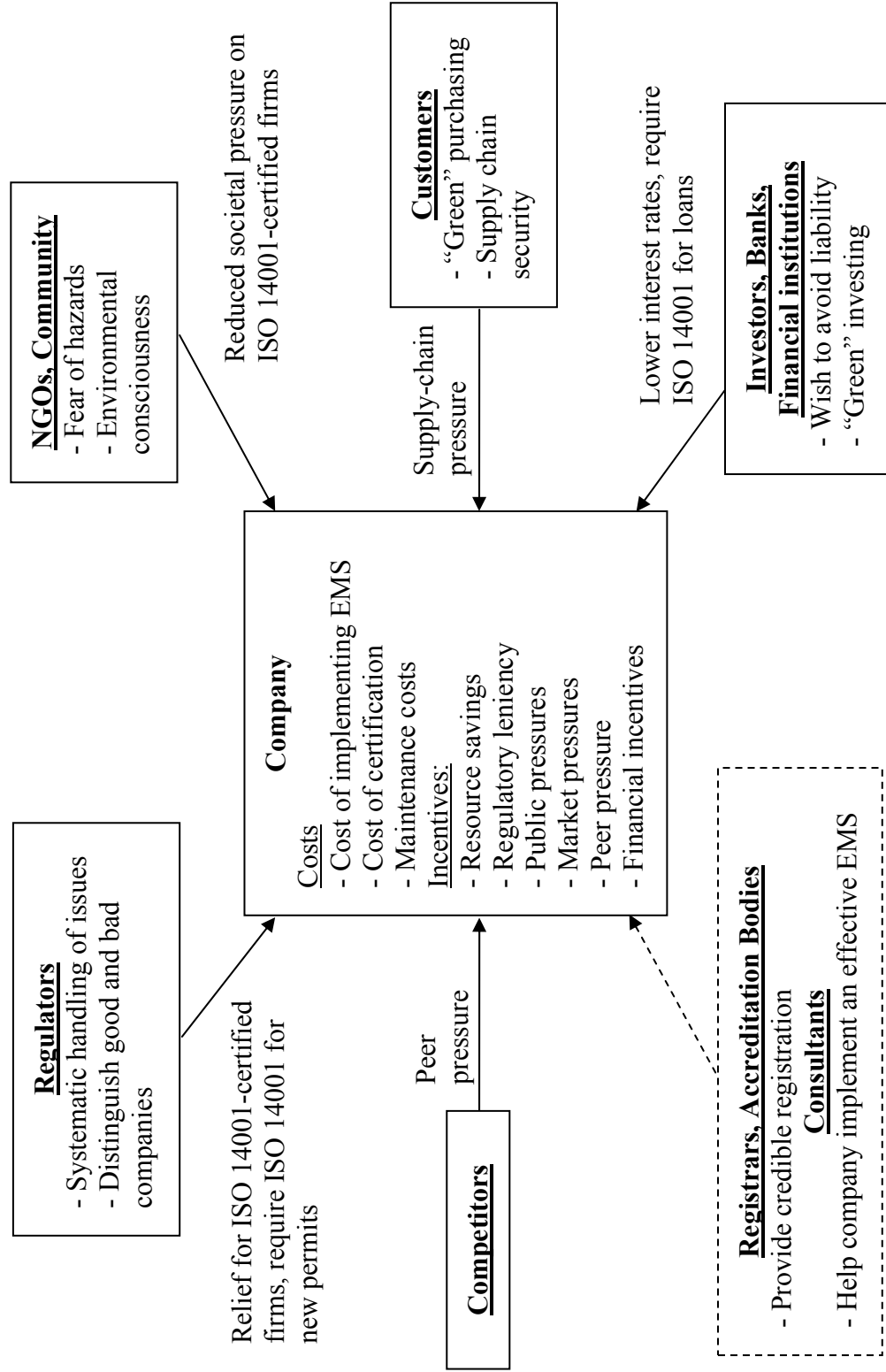


Figure 3.1 Issues related to ISO 14001 and the stakeholders involved

ISO 14001 and Environmental Performance Improvements

ISO 14001 has often been criticized for being a process standard that sets no required level of environmental performance (Krut and Gleckman 1998, Murray 1997, Roht-Arriaza 1995). To quote from ISO 14001, “This... Standard does not establish absolute requirements for environmental performance beyond the commitments, in the environmental policy, to comply with applicable legal requirements and with other requirements to which the organization subscribes, to prevention of pollution¹ and to continual improvement” (ISO 2004a, pp. vi). Therefore, a firm that is certified to ISO 14001 will not necessarily set more stringent goals or achieve better performance than one which is not certified. Since ISO 14001 does not itself specify any goals for environmental performance, it is important to understand the factors that might possibly lead to improvement in a firm’s environmental performance.

How can ISO 14001 Improve Environmental Performance?

Businesses face several pressures to become more environment-friendly, from government regulation and public pressure to changing consumer preferences. Businesses are not “black boxes,” however, which react to external stimuli in predictable ways. They have their own internal goals and structures that can either support or resist change. For example, new environmental regulations may be resisted if these are viewed as conflicting with the drive to increase profits. Institutionalized ways of doing things and existing power structures could also prove resistant to change. Tension between external

¹ It is worth noting that the definition of “prevention of pollution” in ISO 14001 is not limited to options such as source-reduction, reuse and recycling. It includes options such as treatment of wastes and control of pollution. Therefore, any process that reduces waste discharge, including end-of-pipe strategies, could be classified as “prevention of pollution” (see Roht-Arriaza 1995).

change forces and internal drivers of firm behavior can be reduced, however, through appropriate change in organizational culture (Kotter 1996).

Organizational culture may be defined as consisting of an organization's beliefs, values, norms, attitudes and customs (Babbie 1994). It in turns affects and guides individual behavior to produce organizational behavior. Therefore, it seems logical to suppose that any radical change in an organization's practices requires change in the underlying culture. Can ISO 14001 change, or help to change, an organization's culture and behavior?

John Kotter (see Kotter 1996) has described an eight-point framework for implementing major organizational change. His framework does not make a distinction between organizational culture and behavior, but instead takes a more pragmatic approach to change both at the same time. A comparison of his framework with the steps outlined in ISO 14001 may help to clarify the nature of, and requirements for, organizational change and the role that ISO 14001 can play in creating such change (Table 3.1).

Such a comparison suggests that the utility of ISO 14001 lies in standardizing procedures within a firm, and not necessarily in implementing new and creative ways of approaching challenges or modifying existing beliefs and structures. The original question therefore becomes – can a procedural approach such as that of ISO 14001 help to change an organization's culture and behavior? Several authors suggest that ISO 14001 may have a significant but limited role to play. However, this depends on whether ISO 14001 and EMSs are ascribed a traditional, technically-oriented role of improving procedures and

processes, or a more expanded role that considers the EMS as a way to encourage communication and learning within and outside the firm (Von Malmborg 2002).

Table 3.1 Kotter's organizational change framework and ISO 14001

Kotter (1996)	ISO 14001
1. Establish a sense of urgency	Precedes the standard
2. Create a guiding coalition with the power to lead change	Top management support a prerequisite
3. Develop a vision and strategy to direct change	[4.2] ¹ Define the organization's environmental policy
4. Communicate the change vision to employees and model expected behavior	[4.2] Ensure that environmental policy is communicated to all persons working for or on behalf of the organization [4.4.3] Establish procedures for internal communication
5. Empower broad-based action by getting rid of obstacles and encouraging risk-taking	[4.4.2] Identify training needs associated with EMS, and establish procedures to make persons aware of the importance of conformance with the environmental policy, and of their own role in this [4.4.1] Ensure the availability of resources essential to implement and improve the EMS
6. Generate short-term wins through planning, and publicly reward the people who make them possible	[4.3.1] Establish procedure to identify the environmental aspects of its activities [4.3.3] Establish environmental objectives and targets and a program for achieving them [4.5.1] Establish procedures to monitor and measure aspects
7. Consolidate gains, change structures and policies that do not fit the change vision, promote people who can implement it, and bring in new projects and themes	[4.5.3] Establish procedures for dealing with actual and potential nonconformities and avoid their occurrence [4.6] Top management shall review the organization's environmental management system and shall take decisions and actions to change the EMS consistent with the commitment to continual improvement
8. Anchor new approaches in the culture by articulating connections between new behaviors and organizational success, and ensure leadership development and succession	None

Sources: Kotter 1996, ISO 2004a.

¹ Numbers in brackets [] indicate the relevant article number in ISO 14001.

An EMS could promote dialogue between internal and external stakeholders and decentralize decision-making power based on increased information availability, thus encouraging organizational learning and gradual culture change (Von Malmborg 2002, Jorgensen 2000). As it stands, however, ISO 14001 does not explicitly encourage

communication to external stakeholders, but only asks management to consider the need for such communication. Greater emphasis is placed on establishing a system for communication within the organization, but the need for such a system is not clearly explained, nor does the standard explain what such a system might consist of.

ISO 14001 places considerable emphasis, however, on communicating the environmental policy and associated roles clearly to the organization's employees. This can have a beneficial effect on environmental decision-making within the firm if employees perceive that the top management is concerned about environmental issues and is willing to support action to address such issues. Empirical evidence supports the importance of upper management decisions on firm's environmental performance (Raines 2002). However, in order for such effects to be far-reaching, an organization must also recognize and reward behavior consistent with its environmental values (Johnson and Walck 2004, Kotter 1996). This again is something that is not addressed by ISO 14001.

Using ISO 14001 as a technical tool can provide some benefits. Organizations, especially those with little experience in dealing with environmental issues, could benefit from a systematic approach such as that of ISO 14001, which requires firms to establish procedures to identify and manage their environmental impacts (Roht-Arriaza 1995). Such requirements can force managers to take notice of problems that were earlier hidden or ignored, and to consider options for eliminating or mitigating these problems. Further, ISO 14001 places strong emphasis on "prevention of pollution."² By requiring a commitment to prevention of pollution in the organization's policy, ISO 14001 may encourage firms to reduce waste generation by experimenting with raw materials and

² There are problems, however, with ISO's definition of "prevention of pollution", as discussed earlier.

production processes, instead of implementing end-of-pipe treatment. Such changes can also result in increased efficiency and productivity and reduced costs, and may provide managers with additional incentives to reduce pollution.

However, such a “technically oriented” approach by itself is unlikely to lead to culture change within the organization (Von Malmborg 2000). By stressing the importance of strictly following procedure, ISO 14001 may in fact suppress innovation and intelligent risk-taking behavior within organizations, which is critical for organizational change (Von Malmborg 2000). Since new environmental problems are always emerging, environmental management over the long-term must be adaptive rather than bureaucratic (Von Malmborg 2000, Boiral 1998). Formal structures such as EMSs often make people focus on how to act in specified situations, rather than on what is to be achieved. As a result, new problems, which would require new procedures, may be ignored.

Improvements in Environmental Performance: Empirical Evidence

In spite of the concerns listed above, is there evidence to show that ISO 14001 has led to positive culture change or “technical” improvements in environmental performance? Evidence for the former is limited, but suggests that positive changes such as decentralization of power and better relations with stakeholders have occurred following implementation of an EMS (Jorgensen 2000). The extent of such change, however, varies considerably from organization to organization. Two small business enterprises in Denmark were included in Jorgensen’s (2000) study. EMSs increased bureaucracy in both organizations, but also made explicit decision-making procedures that were earlier taken for granted. The extent of other changes such as increased

stakeholder consultation, increased environmental awareness and decentralization of power was more variable and depended strongly on the organization's internal culture, management attitudes and historical interactions with stakeholders.

Evidence to support the idea that ISO 14001 has a positive influence on environmental performance through technical innovation is more widespread. Research on US firms supports the first assertion, that ISO 14001 encourages managers to assess their firm's environmental effects more comprehensively. ISO 14001-certified firms in the US reported that certification has resulted in setting goals that cover a broader range of environmental aspects (Switzer et al 1999). Such firms were also likely to have greater senior management commitment to the environment, a key requirement for improving performance. Finally, there was broader participation in goal-setting from within the firm. However, the same firms also reported that their goals did not increase in stringency following certification, and there was no increase in transparency towards external stakeholders.

Current research also supports the assertion that firms with EMSs are able to manage their environmental issues better by utilizing a wider range of options. A survey of 1500 managers in the US found that firms with an EMS (whether certified or not) were much more likely to utilize a diverse set of options (e.g. recycling, product redesign, internal reuse) in dealing with environmental issues, as compared to firms without an EMS (Melnik et al 2003). The study also found that ISO 14001-certified firms used a slightly more diverse set of options (e.g. creating markets for wastes and remanufacturing waste products) than uncertified firms. This suggests that certification to ISO 14001

makes managers more aware of waste streams and of opportunities to handle them more effectively.

Firms with EMSs also appear to have lower toxic releases and better compliance than those that do not. An analysis of 146 US firms found that a more comprehensive EMS was positively correlated to reductions in on-site releases and off-site transfers as reported under the Toxics Release Inventory (Anton et al 2004). A survey of Mexican firms also found a positive correlation between the presence of a formal ISO 14001-type EMS and improved environmental compliance (Dasgupta et al 2000). These studies complement the findings discussed earlier, in that firms with EMSs not only consider a broader range of impacts and a more diverse set of solutions in their plan, but are also able to successfully reduce the impacts that they choose to manage.

The success of an EMS, in turn, has been found to depend on several factors including education of the workforce. First, firms with more educated workers have been found to have more environmental management efforts in place, along with better compliance records (Dasgupta et al 2000). Second, distributing environmental roles widely throughout the firm instead of creating a specialized cadre can have a positive effect on environmental performance. ISO 14001 does not specify that firms distribute environmental responsibilities broadly, but they must assign various tasks to specific people, which encourages broader involvement. Finally, gaining experience with an EMS can have a positive effect on performance, because with time firms become more confident in employing a variety of options to mitigate impacts (Melnyk et al 2003).

Benefits of Adopting ISO 14001

A firm must balance the costs of adopting ISO 14001 with the potential benefits. Literature on ISO 14001 identifies several firm-level benefits of implementing an EMS that do not depend on a firm seeking certification to the standard. However, getting certified may increase the likelihood or magnitude of such benefits since the EMS conforms to a standard that external stakeholders recognize. Further, regular surveillance and re-certification audits as well as regular internal audits may help to sustain the interest of management and employees, and focus attention on continual performance improvement. In addition, firms face external pressures that may encourage them to seek certification to ISO 14001. These pressures are directly related to the benefits that the standard appears to offer to a firm's stakeholders.

The initial costs of implementing ISO 14001 include the cost of setting up an EMS with the help of external consultants, and also the cost of third-party certification if the organization decides to seek external verification of its EMS. Maintenance costs include the expenses of running the EMS as well as those of periodic re-certification. These costs are likely to vary with factors such as size of the firm and whether or not it has any prior experience with management systems. The cost of certification for US firms has been reported to range from US \$100,000 to US \$1,000,000 for a large firm and from US \$10,000 to US \$100,000 for a small firm, depending on the extent of prior experience with management systems (Krut and Gleckman 1998, Mullet 1997).

Costs may be lower for firms located in developing countries because of lower personnel expenses, but may place a greater burden on the firm if it has fewer resources. The cost for developing-country firms seeking certification for the first time has been

reported to range from \$5,000 to \$20,000, and re-certification cost ranges from \$4,000 to \$5,000 (Krut and Gleckman 1998, Clapp 1998). These estimates are based on the assumption that ISO 14001 certification is carried out by international registrars. The Malaysian government, on the other hand, has invested in training local providers of certification services, which reportedly helped to lower the certification cost to around US \$3,500 for a small firm and US \$5,500 for a large firm.

What are the benefits of adopting ISO 14001 that might justify this expenditure? This section will discuss the incentives for a firm to seek certification in terms of these benefits. The section is organized by stakeholder groups, as shown in Figure 3.1.

ISO 14001 and Environmental Regulation

Several scholars describe the declining role of states in regulation, especially environmental regulation, and point to the emergence of “voluntary” agreements and industry-led programs as proof of the increasing role that private entities have come to play in environmental governance (Clapp 1998, Murray 1999, Roht-Arriaza 1995, Stenzel 2000). ISO 14001 is one such voluntary initiative; others include the EU’s Eco-Management and Audit Scheme (EMAS), the chemical industry’s Responsible Care initiative, and the CERES Principles. One of the reasons often cited for increasing reliance on voluntary initiatives by industries is the increasing cost of conventional command-and-control regulation, both for industries and regulatory agencies. As the numbers of regulations increase and environmental issues become more complex, government agencies find themselves lacking the resources to design and implement effective regulations. In such a situation, it is argued, the only entities with the resources

and knowledge to take on environmental problems are the regulated entities, i.e. the businesses themselves.

Following this line of reasoning, some scholars argue that ISO 14001 should be used as a regulatory tool (Murray 1997, Murray 1999, Stenzel 2000). ISO 14001 can not be used as a substitute for regulation, since it emphasizes a commitment to regulatory compliance as a pre-condition for certification and sets no other performance goals. It may, however, offer benefits for both firms and regulators. Firms could use ISO 14001 to improve compliance and identify potential problems before they turn into regulatory violations. Potential savings from avoided penalties could be significant. Firms could also integrate EMSs into existing public disclosure requirements, such as the Toxics Release Inventory program. For regulators, ISO 14001-type EMSs could provide a guide as to which firms are likely to be in compliance and which are not, and therefore help them to focus their resources and efforts. They could further relieve the burden on regulators by improving a firm's compliance.

The use of EMSs and ISO 14001 as regulatory tools has not succeeded in the US, however, because of the fear of third-party audit information being used in legal proceedings against firms (Kollman and Prakash 2001, Murray 1999, Stenzel 2000, Steger 2000). Firms want immunity from prosecution and imposition of penalties for non-compliances discovered during EMS audits, if it can be proved that the firm was following "due diligence" procedures. The Environmental Protection Agency (EPA) and the law courts have been unwilling, however, to grant such immunity. Part of the reason is EPA's distrust of ISO 14001, since the standard does not guarantee compliance. Even

in Europe, firms were promised regulatory leniency if they certified to EMAS, but afterwards regulators were generally unwilling to relinquish their authority (Steger 2000).

The challenge is to find a combination of policies that provides regulatory incentives for firms to seek ISO 14001 certification or at least implement an effective EMS, while using regulatory oversight as an overall driver of performance. In one such move, the EPA in 1995 issued a self-disclosure policy that provides for reduction in fines if a firm reports self-discovered violations promptly and takes immediate corrective action (Stenzel 2000). Reductions are even greater if the firm has an ISO 14001-type EMS in place and discovers the violation through a routine audit. Several states have also passed similar laws, as well as laws that guarantee some degree of privilege to information discovered during third-party audits, and/or immunity from prosecution to such firms.

Environmental regulators in developing countries are looking to ISO 14001 to help in their work as well (Krut and Gleckman 1998, Mikulich 2003). For example, the Philippine Department of Energy and Natural Resources is considering using ISO 14001 as a means for firms to demonstrate compliance following closure orders, and is also considering the usefulness of the standard in replacing inspections. Indonesian officials are also considering the use of ISO 14001 but remain cautious because they fear that requiring ISO 14001 will simply mean an increased demand for “quick and dirty” certification. Regulators in other countries have expressed similar opinions, but it remains unclear exactly how ISO 14001 is to be incorporated into the regulatory framework and what benefits firms can expect in return.

A worldwide survey of firms with EMSs found that managers from developing countries report cost savings from avoided regulatory violations more often than those from industrialized countries (Raines 2002). Potential benefits of ISO 14001 for environmental improvement are significant in developing countries, given the weak enforcement of environmental regulation. Exactly how these benefits will be realized, if at all, remains to be seen. It will almost certainly require that firms be willing to share their EMS-related information with regulators openly and transparently in order to develop a relationship based on trust to a greater degree than is presently the case.

ISO 14001 and Public Pressure

Public pressure from groups such as customers, shareholders, regulators and community groups plays an important role in a firm's environmental decision-making (Henriques and Sadorsky 1996). Firms facing intense public pressure may therefore tackle environmental problems more aggressively. Two studies on US firms reported a significant correlation between the comprehensiveness of a firm's EMS and public pressure, especially for firms with high volumes of publicly-reported toxic releases (Anton et al 2004, Khanna and Anton 2002). These studies also found that firms that manufactured final goods (for sale to individual consumers) were more likely to adopt a comprehensive EMS, suggesting that such firms are more sensitive to their environmental image.

Can ISO 14001 also play a role in improving a firm's public image? An ISO 14001 certificate verifies to external stakeholders that a firm has implemented an environmental management system and is working to reduce its environmental effects. This could be used as the basis for communications between the firm and its

stakeholders, wherein the firm discloses information in order to address environmental concerns and demonstrate environmental responsibility. An ISO 14001 certificate alone, however, may not be sufficient to convince external stakeholders of a firm's environmental friendliness. The only performance requirement in ISO 14001 is a commitment to regulatory compliance, and therefore it provides no guarantee that a certified firm has attained a specific level of performance, or even that a firm is in compliance (Krut and Gleckman 1998, Roht-Arriaza 1995). An ISO 14001 certificate may provide some assurance to stakeholders if the firm has a history of environmental responsibility or openness to the community. On the other hand, if a firm sends out conflicting signals such as causing visible environmental harm, or has a history of poor environmental performance or conflict with the community, it is unlikely that stakeholders will take its claims seriously if it simply displays an ISO 14001 certificate as proof of its commitment to the environment.

A firm that is certified to ISO 14001 must set performance goals and make plans to achieve these goals (Roht-Arriaza 1995, Krut and Gleckman 1998). The firm's progress towards meeting these goals as well as its management plans could possibly be used as an indicator of performance along with its regulatory compliance record, if it forms part of an overall strategy of information disclosure. ISO 14001, however, does not require any form of public disclosure or reporting on environmental performance, beyond making the environmental policy publicly available. The standard requires firms to consider making performance-related information publicly available but does not encourage such disclosure in any way, requiring only that the firm formally record its decision in this regard.

Market Incentives for Certification

While the value of an ISO 14001 certificate in dealing with stakeholders such as the local community or environmental groups is uncertain, there seems to be greater reason to believe that ISO 14001 is increasingly becoming a requirement to do business with firms located in Europe and Japan (Clapp 1998, Mikulich 2003, Neumayer 2004). Customers in industrialized countries may seek to do business with ISO 14001-certified customers for several reasons. First, their own customers may demand that they deal only with environmentally responsible suppliers. Second, they may wish to avoid embarrassing and potentially sales-threatening disclosure of their supplier's environmentally unsound practices, especially in developing countries. Third, they may seek some supply chain security, to ensure that production does not get disrupted if their suppliers get embroiled in environmental disputes. Although ISO 14001 is not a guarantee against any of these events, it is at present the only internationally certifiable environmental standard and may provide some measure of assurance. This demand from customers is seen as an important factor driving ISO 14001 certification efforts in many developing countries.

Even if ISO 14001 is not required by a majority of customers in industrialized countries, the belief that it might be required in the near future is enough incentive for suppliers to seek certification to ensure that they do not lose any competitive advantage. There is a feeling among governments and businesses that ISO 14001 may become a requirement for firms that want to do business internationally, especially in Europe and Japan (Mikulich 2003). In part, this fear may be due to similar experiences with ISO 9001, the quality management system standard which became a requirement for many firms worldwide to do business with Europe (Krut and Gleckman 1998,

Mikulich 2003). Some scholars, however, refute the possibility of ISO 14001 becoming a trade barrier (Krut and Gleckman 1998, Steger 2000). Whereas ISO 9001 specifically requires certified firms to do business with suppliers who were also certified, there is no such strict requirement in ISO 14001. Firms are asked to consider environmental aspects related to the goods and services that they use, but they are not required to include such aspects in their management plan.

There is significant evidence, however, to support the view that even if ISO 14001 is not an actual trade requirement for exporting to industrialized nations, it is being increasingly viewed as such (Mikulich 2003). Some governments, especially in developing countries such as China, are concerned that their firms might be at a disadvantage in the international market if they are not certified to ISO 14001 (Mikulich 2003, Calkins 1997). They are therefore encouraging firms in their jurisdiction to become certified to ISO 14001. Research comparing rates of ISO 14001 certification with national income from exports in several countries found that the number of ISO 14001 certificates was positively correlated to exports (Corbett and Kirsch 2003). More recent research shows that exports to Japan appear to be correlated most strongly to certification efforts in developing countries, with European customers exerting a lesser influence (Neumayer 2004).

It is ironic that the ISO 14001 standard is now being seen as a potential trade barrier for two reasons. First, the stated goal of the ISO, the organization that created ISO 14000, is to facilitate international trade through standardization (Roht-Arriaza 1995). Second, incentive for creating the ISO 14001 standard came to a large degree from the 1994 GATT conference, which was concerned about trade barriers arising from national

and regional environmental regulations. In spite of the desire to create an international standard and remove trade barriers, it appears ISO 14001 is itself being seen as a *de facto* trade barrier by governments and businesses alike, especially in developing countries (Mikulich 2003).

Peer Pressure

Peer pressure may result if a firm's competitors begin to adopt ISO 14001. This could be related to the perception of ISO 14001 as the "right" tool for businesses to adopt, especially because it provides a rational and systematic method for addressing environmental issues (Meyer and Rowan 1977). This could in turn create a pressure on businesses to adopt such tools in order to conform to societal expectations of rational and scientific behavior. Further, in an environment of insufficient information, some managers may be tempted to adopt what they see as a potentially useful tool, especially if their competitors are interested in it too. It is uncertain, however, whether this form of peer pressure leads to a comprehensive EMS or just a certificate on the wall.

Financial Institutions and Incentives for Certification

Other than customers and peers, financial institutions such as banks, insurance firms and investment firms may also place pressure on firms to seek certification to ISO 14001. These institutions are sensitive to environmental risks, and may prefer to loan money to firms considered environmentally responsible and therefore less likely to get involved in potentially expensive disputes and clean-ups (Stenzel 2000). Some financial institutions have recognized the value of EMSs in helping firms prevent environmental accidents, and are requiring firms to be certified to an EMS standard before extending loans. Available evidence suggests that such practices are currently underway in Europe,

and show signs of spreading to the US. Even in India, NGOs interested in public disclosure are considering promoting the use of environmental information by financial institutions.

Another economic incentive comes from the risk of becoming liable for potentially expensive environmental clean-ups in the future. For example, the extent of a firm's liability under Superfund laws was found to have a significant effect on the comprehensiveness of the EMS, for firms in the US (Anton et al 2004, Khanna and Anton 2002). This suggests that environmental regulations have an important role to play in forcing businesses to improve environmental performance. However, since regulatory pressures on firms are generally weak in developing countries such as India, these mechanisms may not be as significant for firms in these countries.

Efficiency-related Incentives

Economic incentives for ISO 14001 may also arise within the firm through improvements in resource use efficiency, which can result in significant cost savings for firms (Roht-Arriaza 1995, IISD 1996, Murray 1997, Taylor 1998). Firms may be able to identify opportunities for resource conservation, thus lowering their operating costs and improving environmental performance at the same time. However, such opportunities are likely to decrease over time as the "low-hanging fruit" are gradually collected. In one survey, managers in developing country firms reported energy and resource savings more frequently than those from industrialized countries, which may reflect greater opportunities in developing country firms to implement "prevention of pollution" measures that simultaneously result in cost savings (Raines 2002). Industrialized country

firms have generally had longer experience with source reduction, and may have exhausted many of the opportunities for such improvements.

Firms may also be able to lower the cost of monitoring and pollution prevention and control efforts by using a systematic approach and by identifying and eliminating unnecessary or redundant activities (Taylor 1998). Whether or not this results in environmental performance improvements, cost savings are certainly an incentive for firms. For example, some US firms report that after getting certified to ISO 14001, they were able to “reduce environmental overspending” and obtain “more consistent, lower-cost regulatory compliance” (Switzer, Ehrenfeld and Milledge 1999).

ISO 14001 Certification and Accreditation Practices

The external incentives for a firm to seek certification to ISO 14001, discussed earlier, hinge critically on the value of the certificate to the firm’s stakeholders. Does an ISO 14001 certificate provide reasonable assurance to interested parties that the certified firm has in fact diligently and honestly implemented the requirements of the standard? The practices that are followed in certifying an EMS to ISO 14001, and indeed in accrediting the certifying bodies themselves, therefore should be of interest to anyone thinking of using the standard as an indicator of a firm’s environmental responsibility (NAPA 2001, Burdick 2001, Switzer and Ehrenfeld 1999).

There are a few concerns that one could have regarding the value of an organization’s ISO 14001 certificate (Switzer and Ehrenfeld 1999). First, how thoroughly have the firm’s management practices and performance records been examined? In other words, what is the standard to which the certification process holds the firm accountable? This is not as simple as saying that a certified firm follows the ISO 14001 standard, since

the requirements of the standard are fairly general; to a large extent the registrar has discretion in determining whether an EMS fulfils the requirements of ISO 14001.

Another concern is that since many different registrars certify EMSs to ISO 14001 in different parts of the world, an EMS certified by one registrar may not have been held to the same standards as that certified by another registrar. This section presents some findings from the literature on the ISO 14001 certification process, highlighting specific areas in the certification process where it is likely that registrars may not apply the strictest standards, or that different registrars may be using different standards to judge EMSs.

Registrar Independence

One area of concern in the process of certification to ISO 14001 is how to ensure that a registrar remains objective in its decisions and is not biased by business concerns (Burdick 2001, NAPA 2001, Switzer and Ehrenfeld 1999). The ISO 14001 certification industry is highly competitive, and there is therefore considerable pressure for registrars to attract clients by offering “easier” certifications, or “adding value” by offering advice on improving the EMS. Some accreditation bodies have tried to address this issue through guidelines on determining the number of person-days a certification audit should require (Burdick 2001, NAPA 2001). This could help to ensure that registrars do not reduce audit stringency in order to lower their fees. Additional guidelines could address audit planning, audit team selection and budgeting (NAPA 2001).

Another possible approach could be to require more extensive and diverse stakeholder representation on a registrar’s advisory committee (Burdick 2001). The Dutch accreditation body, RvA, has introduced such guidelines, and consequently

registrars accredited by it have a greater diversity of viewpoints represented on their advisory boards compared to registrars accredited by ANSI-RAB, the US accreditation body. Higher representation of government or environmental groups on registrar advisory committees could help ensure fair, objective certification decisions. Further, this appears to have a trickle-down effect, as even the EMSs certified by RvA-accredited registrars tend to be more sensitive to stakeholder concerns in assessing environmental aspects and impacts.

A third solution to the problem of maintaining registrar independence could be to require peer review of registrars (NAPA 2001). The Securities and Exchange Commission requires that financial accounting firms audit one another in order to ensure independence. Similar requirements could help ensure that registrars do not get swayed by business concerns during auditing.

Audit Scope

The audit scope defines the activities and aspects at the firm's site that are to be included in assessing the EMS (Burdick 2001). This is important, because if a firm has complete discretion over which aspects to include in its management plan, it may tend to ignore aspects that are difficult to manage even if they have significant impacts. RvA has issued guidelines that contain extensive requirements to determine the appropriate scope for an audit with reference to the firm's operations and boundaries. The guidelines issued by ANSI-RAB, on the other hand, only require that the audit scope be appropriate and consequently give the firm considerable freedom in determining the scope in consultation with the registrar. This may lead to audits that do not include all the environmental aspects that a firm could "reasonably be expected to control or influence." Further

guidelines on this topic could help to ensure that audits consider all significant impacts. Another area that RvA has addressed, but ANSI-RAB has not, is the verification of procedures for assessing aspects and impacts to ensure that all important environmental aspects have been taken into account.

Assessing Continual Improvement and Prevention of Pollution

Other issues regarding certification involve the evaluation of continual improvement and prevention of pollution. Registrars have considerable freedom to determine the extent of substantial performance improvements that fulfill the criteria of “continual improvement” and “prevention of pollution” under ISO 14001 (NAPA 2001, Burdick 2001). Guidance is required to ensure that registrars are able to take a stand on EMSs that do not show sufficient evidence of continual improvement, as measured by objective and measurable criteria. Further improvement might be possible if auditors encourage prevention of pollution using the EPA’s hierarchy of “reduce/reuse/recycle,” instead of using the ISO’s rather broad definition that includes end-of-pipe strategies (Burdick 2001). Currently, some auditors appear to be requiring only that an EMS meet the firm’s stated goals instead of holding it accountable to external standards.

Assessing Legal Compliance

An EMS audit is not a legal compliance audit in that auditors typically do not examine every single aspect of the firm’s compliance record (NAPA 2001). They do, however, look for evidence to show whether a firm has systems and procedures in place to effectively address any legal violations in a timely manner. This is usually done through interviews with firm personnel to determine their familiarity with applicable regulations and their competence to deal with possible non-compliances. The firm’s

compliance records and other documentation provide further evidence. Some auditors, however, appear to accept affirmative statements from their clients instead of asking to examine detailed compliance records (Burdick 2001). This issue has been addressed by ANSI-RAB, which specifically prohibits such practices. No guidelines on this issue have been set by European accreditation bodies, however, perhaps because disclosure of non-compliance is not as contentious an issue in Europe. This has significant implications for acceptance of ISO 14001 by regulators, not only in the US but in other parts of the world where European-accredited registrars are operating.

Firm's Selection of Registrars and Consultants

One final concern in the process of implementing and certifying an EMS is the selection of registrars and consultants by a firm (NAPA 2001). Businesses that seek to implement an EMS and have it certified to ISO 14001 should be able to hire competent consultants and registrars who have sufficient experience in that specific industry.

Currently, no guidelines exist in the US to help firms in the selection of qualified and competent personnel. The selection of consultants may be even more important because they have an earlier and more significant influence on the EMS of a firm, than do registrars. Encouraging consultant accreditation in a manner similar to registrar accreditation may help to ensure that more firms are able to hire competent individuals, and implement EMSs that are able to achieve significant performance improvements.

Once more, it is important to mention that these findings are based on studies carried out in Europe and the US. To the extent that these concerns regarding EMS certification are valid for any registrar and any firm seeking certification, they may reflect concerns that Indian stakeholders may have regarding ISO 14001. However, concerns or

issues specific to the Indian context are unlikely to be addressed in the foregoing discussion.

4. Research Question and Methodology

The goal of this research is to assess the benefits and limitations of ISO 14001 as a tool for improving the environmental performance of firms in India. What are the implications of the rapid proliferation of ISO 14001 in India for environmental performance of businesses and for the interactions between business and other stakeholders? As noted in previous chapters, the published literature is ambiguous in answering this question, and largely silent in the case of India. The research described here, therefore, is exploratory and descriptive in nature and aims to highlight what appear to be key issues related to ISO 14001 in India. The methodology used is similar to that used by Zutshi and Sohal (2003) in studying stakeholder involvement in EMS implementation in Australia. Findings from this research could form the basis of further research probing more specific questions in greater depth.

The first section of this chapter describes the design of the research presented in the following chapters. In particular, it gives an overview of the different stakeholder groups that were included in the research, and describes the reasons for including them and their perspectives on ISO 14001. The following section then describes the sampling scheme and the data collection methods used in the present study.

Research Design

The primary source of data is the perception of the following stakeholder groups as obtained through telephone interviews:

1. Industries with ISO 14001-certified environmental management systems

2. Regulatory agencies responsible for ensuring industry's compliance with environmental regulations
3. The Indian accreditation body, ISO 14001 registrars, and environmental consultants
4. Environmental non-governmental organizations (NGOs) with an interest in the environmental performance of industrial firms

Each of the groups has an interest in ISO 14001 and knowledge of how it affects environmental performance of industries in India. Industries have practical experience with implementing ISO 14001. Regulators can shed light on the issue of how, and indeed if at all, ISO 14001 could be expected to complement environmental regulation and/or assist regulators in their work. The accreditation body and registrars and consultants know how the certification and accreditation process works, and whether there are possible weaknesses in the system. Further, since consultants and registrars have been involved in implementing or certifying EMSs at a large number of organizations, they can offer insights on the benefits of ISO 14001 for Indian society based on a broader sample than industry managers, whose knowledge, though valuable, may be limited to their own firm's experiences. Environmental NGOs, as watchdog organizations, are expected to provide a view of ISO 14001 without bias either for or against the standard that could possibly be expected from industries, registrars and consultants.

Investors and financial institutions, however, have not been included in the present research even though they may have an incentive to encourage adoption of ISO 14001 (Figure 3.1). These stakeholders were not included because of difficulties in identifying individuals or institutions in India that are considering environmental

issues and ISO 14001 while taking business decisions. Further, the amount of time available to complete the research precluded identifying and including additional interviewees.

Research Methods

Selection of Interviewees

The selection of individuals to interview was based primarily on an opportunistic sampling method (Table 4.1). For industry, a list of firms certified to ISO 14001 was obtained from the New Delhi-based NGO, Centre for Science and Environment (CSE). CSE has been running a voluntary environmental disclosure program with several large industries in India for the last eight years, and provided a list of approximately 30 ISO 14001-certified organizations from the pulp and paper, automobile and caustic soda-chlorine manufacturing sectors. All the organizations in this list were contacted with a request to participate in the research. Eventually, six individuals representing five corporate entities agreed to participate.

Table 4.1 Stakeholders included in the study

Stakeholder group	Number of Interviewees
Industry	6
Regulators	1
Certifiers	3
Consultants	4
Accreditation Body	1
Environmental NGOs	3
Total number of interviewees	18

Several difficulties were encountered while attempting to identify a population of ISO 14001-certified firms from which to select interviewees for the study. First, no organization could be identified that maintains a comprehensive list of ISO 14001-

certified firms in India. The Quality Council of India, the Indian accreditation body, maintains only a partial list of registrars limited to those organizations that have contacted it for accreditation or other services. It has no information on which firms have been certified by these registrars. Two trade organizations were also contacted but neither was able to provide a comprehensive list of ISO 14001-certified firms. Finally, a number of registrars were requested to provide a list of their clients but only one eventually complied with this request. Even in this case, the information was unusable for practical reasons because it included only postal addresses, with no telephone or email contacts. This suggests that there is little transparency in the ISO 14001 certification process even to the extent of providing information on which industries are certified and which are not. This may be a significant barrier to further research on the use of ISO 14001 in India.

A list of ISO 14001 registrars operating in India was obtained from the website of the ISO, which maintains comprehensive lists of ISO 14001 registrars and accreditation bodies worldwide. All the ISO 14001 registrars listed on the website and operating in India were contacted and eventually three of them agreed to participate in the research. Four environmental consultants were identified through contacts with environmental organizations in India and all four agreed to participate in the study. Three environmental NGOs involved with industrial environmental issues were identified using prior contacts with environmental groups in India and also through the Internet by examining the websites of several large NGOs in India. All three NGOs agreed to participate in the research. Apart from these groups, four environmental regulators were contacted, of whom one agreed to participate in the study. Another regulator indicated that he had no

information to provide regarding ISO 14001 because his agency was not involved with the standard in any way. Finally, one official from the Indian accreditation body, the Quality Council of India, was also interviewed for the study.

Data Collection

Data collection was carried out through phone interviews as well as through questionnaires sent out through email (see Appendices). The questionnaire contained approximately 25 questions for industry participants, and 10-15 questions for each of the remaining participants. The interviews were open-ended and semi-structured. This format was used because the interviews were intended to be exploratory in nature, allowing interviewees to identify issues that were important to them, within a broad overall frame defined by the questions. A closed-ended or multiple-choice format would have been too limiting in the responses it elicited for a study like this, since no earlier research could be identified that examined the implementation of the ISO 14001 standard in India. A few Likert scale-type questions were included in the questionnaire for industry, but these responses were not used because in some cases the questions appeared to have been misunderstood, or their responses contradicted responses to other questions.

First, each of the potential interviewees was contacted with an email introducing the research and requesting their participation. If no response was obtained, follow-up emails were sent. If there was still no response, a phone call was made. Once the interviewee agreed to participate, they were sent a questionnaire by email (see appendices for the questionnaires used). The interviewee was encouraged to participate in a phone interview based on the questionnaire, but if they were reluctant to do so, they could complete the questionnaire and return it by email.

Whereas four out of the six industry representatives contacted preferred to respond by email, all other interviewees agreed to participate in telephone interviews. Phone interviews were conducted over the months of February 2005 to May 2005. Email questionnaires were sent out over the same period. Most telephone interviews took from 30 minutes to one hour to complete. Follow-up was conducted through phone or email to clarify information or fill in gaps, wherever necessary. The responses obtained through telephone interviews were more detailed than the responses obtained through email, since the medium of the telephone interview offers ample opportunity to follow up on interesting points and probe for details.

A major obstacle in this research was the unwillingness of several interviewees to provide information to an unknown “voice on the telephone.” This was especially common in case of industry and government organizations. Several individuals in these groups initially agreed to provide information but later withdrew from the study on being reminded that the interviews would be over the phone, rather than face-to-face. In fact, one manager who appeared enthusiastic about a site visit later refused to provide any information via telephone, possibly because the former would have provided greater opportunity to showcase the firm’s efforts at improving their environmental performance. Other managers also proposed site visits, but eventually did provide information via telephone. This may have implications for further research, especially if the motive is to examine the effects of EMS on environmental performance.

Data Analysis

Analysis of the data obtained from the interviews consisted of a qualitative review of the responses to determine the key issues that were being highlighted by the

interviewees. The primary aim of this analysis was to determine the extent to which these issues were reflected in the existing literature on EMSs and ISO 14001, most of which is based on research done in industrialized countries. Interviewee responses were grouped under several broad headings that corresponded to the issues discussed in earlier chapters, and around which the research was organized. These broad headings consisted of topics such as “Reasons for Certification,” “Organizational Change,” “Firm-level Environmental Improvements,” and “Regulator Friendliness.”

Under each of these broad heads, interviewee responses were arranged in a table consisting of several columns, with each column reflecting a distinct category that explained some aspect of ISO 14001 in India. For example, under the topic head “Reasons for Certification,” column headings included “Environmental/Economic Benefits,” “Image Building/Communication,” “Competition/Trade” and “Other Benefits.” These tabulated responses helped to identify significant patterns associated with the use of ISO 14001 on environmental performance in India, as well as factors that could play a role in the success or failure of ISO 14001. The number of responses under each column provided a rough indication of the perceived importance of that factor. However, because of uncertainty about the extent to which the sample represents the overall population of ISO 14001-certified organizations, registrars and consultants, quantitative assessments of this data have not been included in the study.

5. Analysis and Results

This chapter discusses findings from interviews with 18 stakeholders about the role that ISO 14001 is playing in improving industrial environmental performance in the Indian context. Are there benefits that it can offer to industry, as well as other stakeholders? What concerns and issues do stakeholders raise? Findings suggest that while the process-oriented approach of ISO 14001 does offer important benefits, changing market demands towards cheaper certification and away from rigorous EMS implementation have devalued the standard for those interested in using it as an indicator of a firm's environmental performance.

Description of Interviewees

The purpose of the interviews, the results of which are described below, was to identify potential areas of concern and topics for further research. Therefore, responses from non-industry interviewees with a broad range of experience are especially useful in identifying such patterns. The sample of industry interviewees, while not meant to be representative of the population of industries in India, does provide information that fits patterns highlighted by non-industry interviewees and is used to illustrate such trends where possible.

Six managers from industry were interviewed, representing five firms (Table 5.1). Interviewees were mostly middle and senior middle managers, but included one executive engineer. The firms are from the pulp-and-paper and chemical sectors, both of which are listed as highly polluting by the Central Pollution Control Board (CPCB).

Table 5.1 Description of interviewees from industry

No.	Industry Type	Number of Employees	Annual Sales ¹ (Million \$)	% Sales from Exports	Firm age (years)	Year of certification		Job Description of Interviewee
						ISO 9001	ISO 14001	
1	Chemicals	750	45.4	0	30	1996	2001	Retired – former head of R&D, pollution control, MR ³ for ISO 14001
2	Rayon-grade pulp mill	1500	39.8	0	34	1994	1998	Assistant GM ⁴ – Quality Systems, assists MR in maintaining and improving EMS
3	Pulp and paper mill	2121	59.5	5-10	40	Not certified	2001	GM (Projects) and MR for ISO 14001
4	Pulp and paper mill	600	34.1	<5	41	Not certified	2000	Deputy GM (R&D), involved in EMS
5	Paper mill	1058	124.3	10-20	8	2000	2001	Exec. environmental engineer, lead auditor for EMS and overall co-ordinator of EMS
6	Pulp and paper (corporate R&D)	-	546.4 ²	10	-	-	-	Corporate coordinator for environmental management

¹ Sales have been converted from Indian Rupees (INR) to US Dollars (USD) using an exchange rate of 44 INR per USD.

² Combined sales figure for all group companies

³ Management Representative, a designated official responsible under ISO 14001 for overall coordination of EMS and reporting to top management.

⁴ General Manager, a senior middle-management position in most Indian firms

Table 5.2 Description of non-industry interviewees

No.	Category	Experience related to ISO 14001, EMS and/or industrial environmental issues
1	Consultant	Worked as a consultant on ISO 14001 and EMS since 1997, starting with an industry association that first introduced ISO 14001 in India. Has worked with about 60 Indian firms, 12 of them being turnkey projects.
2	Consultant	Working since 1998 with an industry association that conducts training courses for companies and auditors, consults with firms in setting up EMS and publishes manuals and guides for EMS. So far, 60-70 training courses have been conducted and around 250 client organizations helped to implement EMS.
3	Consultant	Working for 7 years as a consultant for implementing EMS, as well as solid and hazardous waste management.
4	Consultant	Worked as environmental manager for a large aluminum manufacturing facility for 5 years, since then has 3 year's experience as an EMS consultant.
5	Registrar	Has worked for over 5 years with an international registrar that has certified around 500 organizations in India. Has personally conducted around 200-250 audits for ISO 14001 certification and surveillance. Also provides training for other EMS auditors.
6	Registrar	Director of operations since 1998 for an international registrar that has issued ISO 14001 certificates to over 50 organizations. Has personally audited around 20 firms. Registrar also offers training courses for auditors.
7	Registrar	Offers training services for ISO 14001 auditors as well as client firms, but does not conduct audits. Also offers management system (both quality and environment) consultancy for Austrian firm, for over 35 clients in India.
8	NGO	Has worked for over 6 years with an NGO involved in an environmental assessment and disclosure program with several large Indian industries.
9	NGO	Worked with 2 organizations as internal facilitator to help them set up an EMS. Has worked on environmental assessments of 3 industrial facilities and a nationwide survey of environmental management practices.
10	NGO	Has undergone auditor training for ISO 14001, and helped 6 organizations implement EMS and seek ISO 14001 certification.
11	Regulator	Works with a state regulatory agency which is taking the lead among Indian environmental regulators in using ISO 14001 as a regulatory tool. Has been trained as an EMS auditor, worked in an EMS training institute for 9 years and helped about 5 organizations implement an EMS.
12	Accreditation body	Responsible for managing the accreditation system. Provides training to registrars to ensure a credible certification process.

Interviewees were selected based on information provided by the Center for Science and Environment (CSE), an NGO in India. CSE has been engaged with Indian firms in a voluntary disclosure program for several years, and it is possible that firms participating in this program may in general be more pro-active than the larger population. Further, all firms are large manufacturing facilities, so that the results may not adequately reflect concerns specific to small and medium industries. Further, five of the six interviewees belong to the pulp and paper sector since industries from this sector have the longest experience of working with CSE.

In addition to the six interviewees from industry, three registrars and four environmental consultants were interviewed (Table 5.2). Of the three registrars, one is involved in auditing and auditor training for ISO 14001, the second is involved in auditing and coordination of the registrar's overall activities, while the third is primarily involved in ISO 14001 training for auditors and clients. All three consultants are involved in designing and implementing EMSs for firms that are interested in seeking ISO 14001 certification. Since these interviewees have an experience of EMS implementation in several firms, their responses are taken to be more indicative of broader trends than those of industry managers.

Three individuals from three non-governmental organizations involved in environmental activities were interviewed as well (Table 5.2). All three organizations are based in New Delhi, and have been involved in activities related to industrial pollution assessment, management and control. Two of the interviewees have personally been involved in ISO 14001-related activities, and have advised a few client organizations on how to successfully implement an EMS. The third has not directly been involved with

implementation of ISO 14001, but has worked on assessing industrial environmental performance and is familiar with the standard through interaction with industry.

Finally, one official from a State Pollution Control Board (SPCB) and one official from the Indian accreditation body, the Quality Council of India, were also interviewed for the study (Table 5.2). The SPCB in question has been among the foremost in the country in trying to use ISO 14001 and EMSs as tool to assist in environmental regulation. The Quality Council of India is responsible for providing accreditation services for EMS registrars through a division called the National Accreditation Board for Certification Bodies, and is also involved in training and awareness-building programs for registrars.

The rest of this chapter presents results obtained from an analysis of the interviews. The following section examines the motivations for Indian firms to seek certification to ISO 14001. This section has been placed in the beginning because of the effect a firm's reasons for seeking certification can have on the extent of other benefits that it obtains from the EMS, as will become evident during the course of the analysis. The next section then discusses firm-level benefits of ISO 14001 certification, followed by a discussion of the benefits of ISO 14001 to other stakeholders in India.

Motivations for Certification

Interviewees' responses to the question of motivation varied widely, but certain patterns emerge quite clearly. The most often expressed reason was export requirements, followed by image building and environmental / economic benefits. Export requirements were indicated as a reason by nearly all interviewees who were asked this question.

Image building was indicated as a reason about equally by industry and non-industry

interviewees. Environmental and economic benefits were cited by almost all industry managers but by only three non-industry interviewees. It appears that industry tends to downplay the importance of market pressures as a driver of ISO 14001, while emphasizing benefits such as environmental improvements and cost savings. Responses are discussed in greater detail below.

Export or Market Requirements

A concern regarding ISO 14001, especially for developing countries, has been that the standard could develop into a requirement for trading with European and other industrialized economies, and thus become a potential barrier for developing economies. This concern is borne out to some extent by the present research. Firms, especially those exporting their products, reported that customers are certainly interested in buying preferentially from ISO 14001-certified suppliers. However, because all the firms in the sample *did* have ISO 14001 certification, it is not possible to judge the extent to which the standard acts as a trade barrier for uncertified firms.

All interviewees outside industry claimed that market requirements, including supply-chain pressure and competition, were driving ISO 14001 certification; most respondents within industry, however, indicated that certification to ISO 14001 was motivated by potential cost savings and environmental improvements. All non-industry interviewees who were asked about motivations mentioned export requirements as the main reason.

Industry responses to this question reveal another interesting pattern. All the four industry managers working for exporting firms preferred to send a formal reply to the questionnaire via email, and most of them indicated that the reply was to be routed

through formal channels. Of the four, only one indicated that export requirements were a reason for seeking certification. Later, however, two managers were contacted for a more informal follow-up interview by phone and email. In the course of this interview, both managers expressed the opinion that there was a definite advantage in being certified to ISO 14001 if exports were important to the firm. Both also mentioned that their firms had often received queries from overseas customers regarding ISO 14001 certification.

One industry manager stated that while customers had made enquiries about ISO 14001 certification, the firm had never been faced with a situation where an order had been cancelled because of lack of certification. He said that his firm had opted to seek certification to ISO 14001 as a precautionary measure in order to prevent any such loss of revenue. As another manager explained it,

“It is an advantage to have both EMS and QMS in place from export view point. Our customers in India or outside do ask for a photocopy of ISO certificate. To possess both EMS and QMS certificates always is an advantage if the product has export potential.”

It is also clear, as the above quote illustrates, that international firms are not the only ones requiring their suppliers to be ISO 14001 certified.

Non-industry interviewees also mentioned that ISO 14001 as a supply-chain requirement is slowly spreading to domestic markets as well, although at the moment only a few of the largest firms have started encouraging supplier certification. A few of the interviewees gave the names of three Indian automobile manufacturers as examples of firms that require supplier certification, General Motors (GM) – India being one of them. Several US automobile firms have requested suppliers to become ISO 14001-certified

GM among them (NAPA 2001). Such requirements appear to be spreading to their operations in other countries as well, and may well be influencing the behavior of Indian firms.

Another variation on the market-driven incentive for certification was competition or peer pressure. According to some of the consultants and registrars, firms who see their competitors getting certified often themselves decide to go for certification even though they may not be certain of its benefits. They do this in the hope that it may provide some form of competitive advantage either through internal cost savings or through better access to customers. As one consultant mentioned, Indian firms just “follow the herd.” This may be explained at least in part by the idea that ISO 14001 is increasingly being promoted as the right tool for businesses to adopt, especially because it provides a rational and systematic method. This could create a pressure on businesses to adopt such tools in order to conform to societal expectations of rational behavior (Meyer and Rowan 1977). Further, in an environment of insufficient information, some managers may be tempted to adopt what they see as a possibly useful tool, especially if competitors are interested in it too.

ISO 14001 and Supply Chains

It appears that greening of supply-chains, while still a distant goal for most Indian manufacturers, is firmly on the agenda of environmental managers. Although none of the firms in the sample have taken concrete steps in this direction, almost all of them reported encouraging suppliers to get certified. One manager claimed that it was the policy of his organization to promote environmental management systems among suppliers and gradually work to the point where an EMS would become mandatory for doing business

with them. As another explained it, “Environmental management is a linking process. We need to see that our suppliers should be making environment friendly products.”

Interviews with other stakeholders also revealed, as has already been mentioned, that some of the largest automobile manufacturers operating in India are requiring suppliers to get certified.

Economic and Environmental Improvements

Environmental and economic benefits were less often cited by the interviewees as a whole, but were cited most often by industry managers as a reason for certification. Most industry managers cited reasons that included some form of environmental performance improvement and economic gains. Specific responses that fall into these categories include “Cost reduction from energy and water savings,” “Commitment towards sustainable development” and “Improving the working environment.” Fewer non-industry interviewees mentioned economic benefits among incentives for a firm to seek certification to ISO 14001.

It is unlikely that industry managers cite environmental and economic improvements as a motivation more frequently simply because of greater familiarity with ISO 14001’s benefits, because registrars and consultants are likely to be just as familiar with these benefits as industry, if not more. In fact, it may be that industry managers prefer to under-emphasize market pressures to seek ISO 14001 in favor of internal benefits such as resource savings and environmental improvements. This could possibly be because seeking ISO 14001 for market reasons is seen as less legitimate than seeking it for its environmental benefits, especially in the face of increasing pressure on industries to be more “environment-friendly” and “sustainable”. The variation in industry’s responses regarding the

importance of market pressures between initial and follow-up interviews also lends some credence to this theory.

Communication and Image Building

Other reasons given by managers include improved relations with external stakeholders and better information sharing. Responses in this category include “. . . sharing environmental solutions” and “. . . image building in stakeholder’s perceptions.” Clearly, firms view the certificate as a way to demonstrate to external stakeholders that they are sensitive to environmental concerns and are taking steps to address them. These stakeholders could include, along with customers, groups as diverse as local communities, NGOs, regulators and even the firm’s shareholders.

Image building does appear to play a role in driving the demand for certification, even though on its own it may not be a sufficient reason. As one of the consultants explained, “Managers and chairmen like to talk about it.” Another interviewee, an industry manager, explained that image building was an important reason for the firm to get certified, and went on to say, “Ours is one of the best and modern effluent treatment plant in [our state].” In other words, industry may feel that ISO 14001 can act as a credible public statement of their environmental improvement efforts. According to one consultant, for firms which have implemented a comprehensive EMS from the point of view of obtaining resource savings, “The incremental cost of certification is so low that [they] like to get it.”

Other Motivations

Two industry managers cited ISO 14001’s systematic approach among the incentives for certification. Responses included “Installing a scientific and advanced

[EMS]” and “. . . ISO 14001 is based on sound principles of [Plan-Do-Check-Act] and is systematic in its approach.” As discussed earlier, one benefit of an ISO 14001-type EMS is that it provides a firm with a systematic and routine procedure to control its environmental impacts. The managers who cited “systematic approach” as an incentive for certification also cited cost savings and/or environmental improvement as another incentive. In addition to the industry managers, one NGO cited the creation of a system to measure and monitor as a (secondary) incentive for certification.

One manager cited “creating a sense of achievement among employees” as an incentive for ISO 14001 certification. The same manager had cited “improving the working environment” as the primary incentive. He went on to explain that workers in his firm were interested in working towards getting certified to ISO 14001, because of improvements in their working conditions following earlier environmental efforts. This may be an important lesson for Indian industries, especially those with unsatisfactory working conditions. Worker involvement could be increased and resistance to ISO 14001 greatly reduced if its implementation is linked to visible improvements in occupational health.

Firm-level Benefits of ISO 14001

This section analyzes interview findings to determine whether firms are able to realize the environmental and organizational benefits that were discussed in chapter 3. Firm-level benefits commonly cited by managers included improved environmental performance, cost/resource savings, better image with external stakeholders such as regulators and NGOs, better information availability, more widespread environmental roles, and increased employee awareness and involvement. Non-industry interviewees

also cited similar benefits. Understanding the extent to which firms are able to realize such benefits will help to provide some insight into the question of whether or not ISO 14001 has the potential to improve industrial environmental performance in the Indian context. However, since many benefits of EMSs (such as avoided penalties due to better compliance) are difficult to quantify, the discussion remains qualitative for the most part and does not attempt a comparison of costs and benefits.

Organizational Change

The literature on EMSs and organizational change suggests that ISO 14001 could play a role in changing organizational culture and behavior by improving access to information and promoting decentralized decision making. Interviewees both inside and outside industry stated that greater exchange of information is indeed taking place but cautioned that improvements are still possible. Decentralized decision-making may be occurring to some extent since more departments and individuals have environmental roles under an EMS. It is unclear, however, whether they are given real decision-making power, or merely asked to perform routine tasks but with a greater focus on environmental issues. Most importantly, perceptions about the attitude of employees towards ISO 14001 suggest the presence of obstacles that will have to be overcome if far-reaching change is to occur.

Improved Access to Information

Certification to ISO 14001 appears to result in improved access to information and increased awareness through a variety of mechanisms. Regular worker training appears to be an important mechanism, which was mentioned by several interviewees. ISO 14001 requires regular training for all employees who have defined roles in the

management plan, in order to ensure that they are competent to carry out their responsibilities. This clearly plays an important role in increasing environmental awareness throughout the organization.

However, one consultant cautioned that even though training was extremely important, its benefits were not being fully realized because the need for training was not being communicated effectively to workers, which sometimes leads to disinterest. To quote, “Industries will give overtime to workers because they don’t come otherwise, but . . . [training] is compulsory so [the industry] can get certified.” Another important issue is the need to identify the specific training requirements of employees in accordance with their duties, which is not always done effectively.

Regular updates of legal information and increased interaction between firms and between firms and consultants appear to be other mechanisms for increasing access to information. For example, an industry manager stated that “sharing environmental solutions” was one of the reasons for his firm to seek certification. Another cited “Regular legal news updates for changes. . . in. . . environmental rules and regulations” as one of the benefits of certification.

Consultants appear to have an important role to play in disseminating information about environmental best practices. One NGO explained the role of consultants in increasing awareness as follows:

“A [consultant] can guide [industry] and inform them about their problems and how other facilities have dealt with similar problems. . . [and] provide information about solutions, about economics. . . It’s all about awareness and about understanding what is happening at [the

industry], what is happening around them, what their problems are and how to address them.”

However, consultants do not always fulfill this function as information providers.

According to several interviewees, some consultants attract clients by lowering their fees but then “nothing fruitful happens on the ground.” To some degree the firm seeking to implement ISO 14001 has a choice, to select either a reputable consultant known to provide good services but at higher cost, or a consultant who may be willing to scale back the level of service and reduce fees. However, this information may not always be easy to come by. Possible solutions could include voluntary accreditation for consultants, or at least requiring that they provide sufficient information to firms seeking to hire them (NAPA 2001).

EMSs and Internal Communication

ISO 14001 can help in organizational learning by facilitating communication between formerly isolated sections of the department (Von Malmborg 2002); however, it is not clear whether this is happening in Indian businesses. This “elaborated” view of ISO 14001 suggests that the standard may have a more important role to play in changing organizational culture if it is used to encourage free and open interaction between different parts of an organization, rather than if it is implemented as a hierarchical and controlled set of technical procedures. From the responses obtained from the industry it appears that Indian managers tend to the latter view rather than the former.

Even though different departments have identified their own environmental responsibilities, they only coordinate with a central authority, which may or may not encourage cross-departmental communication. Further, learning in this model appears to

be top-down, with the management deciding on priorities and procedures and communicating them to employees. Only one manager out of the six who were interviewed suggested that ISO 14001 could better address internal communications and suggestion schemes, and increase accountability at the higher levels of the organization. Such measures could be the beginning of a more open system of communication where information does not flow only from the top-down.

“Mainstreaming” Environmental Roles

An important issue identified in the research literature on EMSs is the importance of “mainstreaming” environmental roles i.e. distributing such roles widely across the firm. Firms that “mainstream” environmental issues may be better equipped to handle such problems as compared to firms that concentrate environmental knowledge in a specialized section (Dasgupta et al 2003). ISO 14001 may represent a positive step in this direction, since ISO 14001-certified firms in India do appear to have distributed environmental responsibilities across several departments, instead of concentrating them in one central environmental department.

All the industry managers who were interviewed claimed that responsibility for meeting environmental objectives is distributed across all departments, with each department having its own operating procedures. While some managers stated that their firms had an EMS in place even before their decision to seek ISO 14001 certification, others said that either there had been no EMS or that it had been very limited, applying only to a few areas of their facility. For example, “Earlier, [EMS] was limited to power plant and environment and pollution control department.” Another manager stated, “The

[EMS] has surely taken better roots after certification, on the virtue of some binding on the people concerned.”

Care should be taken not to assume, however, that the fact that each department has had responsibilities assigned to it on paper means that it is actively involved in carrying out those responsibilities. One of the industry interviewees mentioned that often departments do not like to get involved in an EMS, which they see as peripheral to their central role. Further, people often are too busy to devote much time to an additional responsibility which in many businesses (and India is no exception) is seen as someone else's job.

Employee Involvement and Attitudes

Cynicism among workers and lower management could be an important reason affecting the performance of EMSs in Indian businesses. As one consultant pointed out, “. . . because employees are not made to feel [involved], most will say that [the registrar] just takes money and hands out a certificate. Not a single industry you will find where they will say no we have done it [well].” Such attitudes, even if not as widespread as indicated by this interviewee, could negatively affect the environmental improvements that an EMS might have to offer. It is possible that such attitudes might arise from the knowledge that certification to ISO 14001 is being sought for market-driven reasons, rather than to improve environmental performance.

One industry manager was skeptical that the reasons for promoting ISO 14001 as an international standard were purely related to environmental concerns. As he explained, “The [ISO 14001] standard itself is very nice but the idea of making it a global standard is a reason of business.” He went on to explain that in his view, ISO 14001 was being

propagated as a global standard because eventually developing country firms would be required to upgrade their technology to maintain continual improvement, which would then provide a business opportunity for firms in industrialized countries. Whether true or not, such feelings can certainly affect the spirit with which the standard is implemented.

Most industry managers, however, responded positively when asked about employee attitudes towards ISO 14001. According to them, since implementing an EMS and getting certified to ISO 14001 had led to visible improvements in environmental performance, along with resource and cost savings. These changes, according to them, have begun to gradually convince employees that ISO 14001 is a useful system for their business. As one manager stated, “Ice has started melting, and attitude [of employees] is positive. They think it is helpful in conserving resources as well as environmental performance, and ultimately it gives returns.”

Previous experience with management systems may influence employee attitudes. If a firm has successfully implemented a management system and obtained benefits as a result, employees are more likely to be receptive to expanding the system or implementing a new one. An industry manager corroborated this point, saying that in his firm employee attitudes towards ISO 14001 had been positive and employee involvement in the EMS high because of their earlier positive experience with quality management.

It is possible that the managers who were interviewed generally held positive views about ISO 14001 because all of them work for large firms, and are more likely to have access to the resources needed to implement the standard. Some of the interviewees from outside industry expressed the view that managers tend to be disinterested in the EMS if the cost of addressing the problems identified is high. In other words, firms with

severe environmental impacts or those with inadequate resources (such as small or medium-sized enterprises) may be less interested in addressing their environmental issues than in simply obtaining a certificate. This may have a negative influence on employee attitudes regarding ISO 14001.

Non-industry interviewees in general were more cautious about employee attitudes towards EMS and ISO 14001 as compared to interviewees from industry. Several interviewees from outside industry expressed the opinion that because certification to ISO 14001 is usually a decision made by the top management of a firm, middle managers and workers often resist the change. According to a consultant, senior managers from a non-environmental area are often made responsible for the EMS because environmental managers are usually junior personnel. The responsible manager then may not be interested in or committed to maintaining the EMS.

Another reason for employee dissatisfaction with ISO 14001 is the increase in documentation, which sometimes leads to the standard being referred to as “just paperwork.” As one NGO interviewee stated, “ISO 14001 should be made less administrative. . . less implementation of documents and manuals.” Interviewees also mentioned lack of training, poor quality of consulting and poor identification of training needs as other reasons explaining employee’s lack of involvement in the EMS.

Even if attitudes towards ISO 14001 are positive to begin with, it may be difficult to sustain employee enthusiasm over time. One manager cautioned that because maintaining continual improvement is harder than demonstrating initial compliance to environmental laws, employees often lose interest in the EMS once the initial drive for certification is over and the organization has been certified. A consultant expressed

similar views, stating that “In some firms a sense of complacency does creep in. . .,” but went on to say that such cases were generally rare in his experience. According to him, having set their own goals under the EMS, firms are generally quite committed to meeting these goals.

Performance Improvements and Cost Savings

Most managers reported some form of environmental improvement and savings in resource use. Managers from three of the five facilities specifically mentioned reduced resource use as a benefit of ISO 14001 certification. Among the resources saved were energy, water and chemicals. While all five managers indicated that cost savings had occurred as a result of implementing the EMS, only one manager was able to provide an estimate of the amount of money saved, which was equal to approximately \$68,000 spread over a period of eight years.

Goals set under the EMS encompass a wide range of activities, not all of which appear to be driven purely by either regulatory requirements or economic benefits. Information provided by managers on performance improvements varied greatly, in areas other than cost savings and reduced resource use. One manager simply stated that pollution discharge from his facility had been decreased as a result of ISO 14001 certification, using a combination of end-of-pipe treatment and process modifications. Another firm mentioned that although performance improvements had occurred, ISO 14001 could not be isolated as the sole reason. Only one firm provided specific examples of performance improvements other than improved resource use efficiency. These ranged from better waste management (“separate shed for hazardous waste storage”) and reuse

of wastes (“100% disposal of fly ash to board/cement manufacturers”) to tree plantation programs and phasing-out CFCs from air conditioners.

Systematic Approach to Environmental Improvement

From responses across the board it is clear that firms appreciate the systematic procedures laid down in ISO 14001. All the industry managers who were interviewed mentioned that ISO 14001’s “systematic approach” had proved helpful to them. Responses that exemplify this include “Procedures have been set up to address environmental issues one by one” and “[ISO 14001 is] an advanced and scientific management system.” Some also described the “Plan-Do-Check-Act” cycle of ISO 14001 as being useful to them. Industry managers seem to appreciate the fact that ISO 14001 provides them with a routine they are comfortable with. Clearly, ISO 14001 is viewed as being grounded in rational principles of management. This belief might help to explain manager’s acceptance of the procedures imposed by the standard on their work.

Potential Limits on Performance Improvements through ISO 14001

According to several interviewees, the extent of benefits a firm derives from ISO 14001 is directly related to the reason behind the firm’s decision to seek ISO 14001 certification. “Low-hanging fruit,” or easily achievable gains in environmental performance and cost savings, have been cited in the literature on ISO 14001 as a possible reason why industries in developing countries have expressed greater satisfaction with the standard (Raines 2002). Several interviewees also mentioned that contrary to expectations, firms with poor environmental performance often do not take the EMS very seriously because of the extra effort required to improve their performance. In other words, firms are willing to implement an EMS as long as it does not impose high

costs. However, the cost of poor environmental performance would be higher if the risk of regulatory penalties were greater, and consequently firms would have a greater incentive to balance these costs with the costs of environmental improvements.

It seems that firms which seek certification to meet market demands or fulfill customer expectations are less likely to be interested in the internal benefits of the standard, such as cost savings and environmental improvements, which provide benefits in the medium-term but require extra effort and investment in the short-term. This may be a limiting factor for the benefits that can be expected from ISO 14001, given that market forces certainly seem to be the predominant driver of certification activities in India. One consultant expressed his views on this as follows:

“In the past there were significant environmental improvements but in more recent times it has become more of a documentation exercise . . . [It’s] very rare now for firms to gather large benefits from ISO 14001 and EMSs. It’s. . . not really related to environmental performance [now].”

Several non-industry interviewees, however, also expressed the view that as an environmental standard ISO 14001 represents only a starting point for firms. More than providing immediate benefits in terms of improved environmental performance, an EMS lays the foundations for a firm to begin a broad examination of its environmental issues. With an EMS in place, firms can begin to use other more advanced tools such as life cycle analyses, environmental reporting and targeted training within the context of the overall structure provided by the EMS. This is in agreement with some of the literature on organizational change where an EMS is viewed as initiating broad change, rather than providing immediate “technical” improvements (Von Malmborg 2002).

Benefits to Other Stakeholders

What are the benefits that ISO 14001 offers to Indian stakeholders? Some proponents of ISO 14001 have claimed that it can help stakeholders distinguish responsible firms from the poor performers. In particular, the benefits of ISO 14001 to regulators have been the subject of much scholarly research (see, for example, Murray 1997, Murray 1999, Stenzel 2000). Scholars have raised the hope that ISO 14001-type programs could help industries move beyond compliance. The following sections discuss whether ISO 14001 is actually providing these benefits to regulators and other stakeholders in India.

ISO 14001 and Environmental Regulation

While some state regulators in India have begun using ISO 14001 as a tool to assist in their work, the CPCB has not taken any concrete decisions in this regard, and appears to be adopting a wait-and-watch approach. The website of the CPCB has two web pages dedicated to explaining its policy with regards to ISO 14001.¹ These pages, while acknowledging that ISO 14001 can be a potentially useful tool, caution that conformance to the standard does not guarantee compliance. It encourages adoption of an “ISO 14001 PLUS” approach which combines ISO 14001 with public reporting and legal compliance. However, the website goes on to say that the details of this approach still need to be worked out in the Indian context. Other interviews, including one with a CPCB official, revealed that so far the CPCB has not come out with a policy statement on ISO 14001.

¹ See <http://cpcb.nic.in/feb2000iso149.htm> and <http://cpcb.nic.in/feb2000bb.htm>.

An “ISO 14001 PLUS” approach could be useful in turning the ISO 14001 standard from an industry-oriented tool to a more broadly useful environmental policy instrument. In its current form, the standard does not require any kind of disclosure and therefore provides no information that might inform stakeholders, including regulators, of a firm’s environmental efforts and help to begin a dialogue between the firm and its stakeholders. Such an approach would help to address what has been among the most persistent criticisms of ISO 14001 since its creation. However, the CPCB does not appear to be taking any action on this front. Officials at the CPCB, when contacted for interviews, did not appear to be very interested in ISO 14001.

The lack of action at the CPCB notwithstanding, some state regulators have begun to encourage adoption of ISO 14001 in their respective states as a means to facilitate compliance. Currently, this appears to be limited to two states. An SPCB official from one of these states was contacted and agreed to participate in the study. The SPCB official mentioned that permits issued by his agency mention ISO 14001, and often require an organization to commit to implementing a certified EMS within a certain time-frame. However, the use of ISO 14001 by regulators is so far limited to a very few states. According to a consultant, regulators often criticize the fact that certified firms do not perform any better than those that are not certified, or that non-compliant firms with poor quality EMSs get certified. Further, firms with ISO 14001 want the regulators to trust the information they provide – in other words, they want regulatory relief. There appears to be a lack of consensus between regulators and firms as to how they can use EMSs and ISO 14001 to mutual benefit.

According to the SPCB official, an EMS can be an extremely useful tool for regulators in that it allows them to understand the issues at a firm, and the tools that the firm is using to address those issues. The same idea was also expressed by an industry manager who says that the regulators should understand the EMS and use it to develop an overall understanding of the firm's environmental impacts and efforts. However, the regulator was concerned that firms, once certified to ISO 14001, did not maintain the same level of commitment as they had initially, and that surveillance and re-certification audits were less stringent than the initial audit. As a result, he believed that EMSs were not providing the level of benefits that they potentially could. Speaking on the subject of environmental improvement following ISO 14001 certification, he said, "[Some firms] have still not completed compliance improvements."

A firm with a comprehensive EMS may find it easier to remain in compliance with environmental regulations. An industry manager stated that ISO 14001 was useful in driving industry from a reactive "command-and-control" strategy to an active "step-by-step improvement" approach. In other words, a firm with an EMS should be better able to maintain a level of environmental performance that is driven by its own internal goals (which include a commitment to compliance), rather than passively responding to commands issued by an external agency. Another manager stated that since everything is documented, replying to the regulators and providing information has become very easy. While this is good news, regulators are still cautious about their use of EMS and ISO 14001, since they perceive that the potential benefits of ISO 14001 have not yet been realized.

Two of the managers reported that having implemented a certified EMS has helped their relationship with the regulatory agencies to some extent. One said, “We are very comfortable with the SPCB, and the SPCB is very happy with our EMS. . .” Another stated:

“[When we adopted ISO 14001, it] was not a requirement in [the SPCB’s permits]. Our only objective was to adopt an internationally recognized system and continual improvement of our environmental performance. . . This approach has earned our organization respect [at the SPCB]. They heed to our points in the annual process of obtaining permits.”

This suggests that implementing an EMS can have intangible benefits, including an improved and less adversarial relationship with regulators, even if it does not result in benefits such as reduced penalties or other forms of regulatory relief. Even an NGO mentioned that getting ISO 14001 could lead to “regulators bothering [firms] less if they have a good EMS and a good public image.” More tangible benefits such as reduced fines or immunity from prosecution were not mentioned by any interviewee. It may be that such benefits will materialize in time after both firms and the SPCBs become comfortable with the idea of EMS and what its benefits and limitations are.

Not all interviewees, however, thought that having regulators require ISO 14001 certification would be a positive development. Some consultants and NGOs expressed the opinion that if it became a regulatory requirement, firms would have an incentive to seek certification without implementing a comprehensive system. As one NGO expressed it, “The spirit [of ISO 14001] will be lost.” One consultant also expressed the view that even

though ideally voluntary tools should retain their “voluntariness” and not become combined with regulatory tools, some state regulators in India have begun requiring firms to seek ISO 14001 and the trend cannot be reversed.

It appears that in India’s regulatory climate, expecting ISO 14001 to provide beyond compliance benefits may be premature. A somewhat unexpected twist on the “improved relationship with regulators” benefit of ISO seems to be that by requiring legal compliance, it actually makes firms get in touch with their local regulators for the first time. This may be important especially, given the limited resources that regulators can devote to identify and track down individual firms, and the fact that some SPCBs do not even know about all the polluting industries in their states (PEO n.d.). According to one registrar, firms tend to avoid regulators because of red-tape and corruption, and therefore may not even know about the rules that apply to them. In seeking certification, they are forced to interact with regulators and begin to understand the laws that apply to them. However, according to this registrar the prospect of having to meet regulatory officials also appears to be acting as a deterrent to ISO 14001 certification, at least in some cases.

ISO 14001 and External Communication

A common criticism of ISO 14001, especially by environmental groups, has been that it does not require any public reporting or form of disclosure, and does not encourage dialogue with stakeholders. This was certainly borne out to some extent through the interviews with managers. None of the firms reported involving any external groups (besides consultants) in the design of their EMS. One consultant reported having worked with some firms who had consulted with the local community on environmental issues when designing their EMS; however, he went on to say that this is extremely rare.

Another consultant expressed the opinion that this might happen for other reasons, such as the firm's philanthropic or social commitments, but ISO 14001 does not require anything beyond disclosure of the policy.

NGOs agreed that the lack of reporting was a weakness, but some argued that ISO 14001 represented a starting point, when a firm begins to examine its environmental issues and interact with the local community and other stakeholders. ISO 14001 does require firms to consider the possibility of involving external stakeholders in their planning, and also communicating to stakeholders on issues related to the EMS. One NGO viewed this as a positive first step, saying that

“With ISO 14001, businesses share at least a part of their environmental information [with stakeholders]. They come out with a newsletter, or include articles on the environment. . . In time we can expect more good things to happen.”

If ISO 14001 can indeed encourage a move towards greater transparency on the part of industry, that will be a tremendously positive development. However, in order for this to happen, industries may have to move beyond publishing environmental articles in their newsletters and engage in more open, two-way communication with the stakeholders. Several industry and non-industry interviewees mentioned “image-building” for communities, environmental groups and other stakeholders as a reason for certification, but in the absence of public disclosure initiatives it is unclear whether ISO 14001 actually provides any benefits in this regard.

It appears that ISO 14001 certification does allow firms to provide better, more consistent information to external stakeholders, at least when they choose to disclose

such information. An NGO interviewee mentioned that firms with ISO 14001 certificates have better records and are able to provide more complete information to external groups. She went on to say that since her organization is actively involved in collecting environmental information from industries, she has observed that firms with ISO 14001 generally maintain better records than firms that are not certified. Another NGO interviewee expressed the view that ISO 14001 could be improved by combining its use with the use of standards for reporting on sustainability issues, such as the Global Reporting Initiative.

The Certification Process: Pitfalls and Possible Solutions

A key area of concern highlighted by interviewees was the lack of faith in the certification process. One issue that was brought up was the lack of verification of an industry's procedure to assess significance of "aspects." According to the procedure described in ISO 14001, a firm must identify all possible environmental aspects, but it need not take action against all of them. Rather, it should identify its priorities and accordingly select a limited number of aspects to manage. Three interviewees (two consultants and one NGO) mentioned that firms assess significance of aspects based on convenience rather than on their actual environmental impacts. As one consultant explained:

"We identify all the aspects and show them to the firm, but then it has to choose the significant ones on its own. . . [It] will ignore the real problem areas and select some easy ones to include in the plan. . . Certification bodies only audit against those aspects, they don't question the selection procedure."

Another consultant described his experiences as follows:

“Once I had helped [a firm] set up an EMS but we missed one of the major aspects for inclusion in the plan. The auditor raised a major [non-conformance]. We pointed out that ISO 14001 asks the firm to identify and prioritize aspects. He said, ‘That is true but if you have missed such a major aspect your prioritization procedure is wrong.’ This was a very good point, but in my experience no one [raises such objections] today.”

Similar concerns were voiced by some of the NGOs. This clearly points to a need to maintain some form of oversight of the certification process if ISO 14001 is to create a substantial improvement in environmental performance. According to the QCI, there are ISO guidelines for stakeholder representation on the boards of certification bodies to ensure a balance of interests, but the effectiveness of this method appears to be open to question, especially since the guidelines are non-binding.

A second area of concern relates to the proliferation of registrars and consultants in the market, coupled with demands from industries for easy certification to fulfill market requirements. According to several interviewees, firms who want certification only to meet customer requirements often seek out registrars that are willing to relax their standards. These firms are not willing to pay the full price of a thorough audit and certification, and the registrars accept the reduced price for delivering a scaled-back service. Consultants also offer to reduce their fees but in the process, “the message doesn’t get delivered,” according to an NGO. According to one consultant,

“Consulting fees would a good indicator [of quality of EMS]. I have stopped offering my services because the money I got was too low. . . . To some extent the markets are to blame. . . . Earlier if consultants needed 30 days to go through a firm and provide inputs on the EMS, now the firm will offer the job to be done in 10 days. . . . This is a result of [ISO 14001] being a market-based instrument. Markets have moved in the direction of lowering costs and providing cheap certificates.”

The registrars who were interviewed also agreed that low pricing by some organizations had lured firms into getting certified for a poor quality EMS. Some interviewees expressed the opinion that greater oversight by accreditation bodies might help to solve this problem. As one NGO explained, “International accreditation is there but something should be done within India. Sometimes we see that both consulting and certification are done by people who. . . . we know have agreements.” International accreditation bodies are seen as not devoting enough resources to maintain a high standard of certification in a country as big as India. Another interviewee mentioned the lack of transparency in the certification process, and said, “The public can not easily find out who has been certified. Some awareness is needed among the public.”

Guidelines on pricing and audit-days have been mentioned in the literature on ISO 14001 as possible solutions to the problem of variation between the services offered by different registrars. According to the QCI, guidelines on determining audit-days have been issued by the International Accreditation Forum, which is an international organization seeking to harmonize accreditation practices worldwide. However, there is no method of ensuring that these guidelines are followed in a purely “voluntary” process.

ISO 14001 as a Global Environmental Standard

One of the original motivations for promoting ISO 14001 as a global environmental standard was to develop a standard that would not be a barrier to trade. However, the notion of what constitutes a “trade barrier” is not absolute, and varies depending on whose opinion is being sought. Much of the literature on ISO 14001 has pointed out the potential for the standard to become a *de facto* trade barrier for developing country firms (Clapp 1998, Mikulich 2003, Neumayer 2004). This has been borne out at least in part by the findings of the present research. ISO 14001 is unlikely, however, to become a trade barrier as defined by GATT/WTO because of the reference made to international environmental standards in the 1994 GATT agreement (Murray 1997, Roht-Arriaza 1995). Even if a government were to make ISO 14001 a requirement for international firms, it is unlikely that the WTO would find such action to be a barrier to trade. Since no such case has actually been reported thus far, however, there is no way to determine the outcome of these debates. However, at least one of the interviewees, an NGO, expressed the opinion that in the future ISO 14001 could be used by European governments as a trade barrier to keep out firms from developing countries.

At present, firms in developing countries are faced with the prospect of losing business if they are unable to fulfill requirements imposed by their customers. If ISO 14001 becomes a widespread requirement for trading with European firms, even governments may become concerned at the potential loss of revenue. This raises the political question of whether firms that are not able to demonstrate environmental performance (to the extent that ISO 14001 allows them to do so) have a right to trade in nations where environmental standards are strictly enforced. Certainly, customers have

the prerogative of specifying the requirements that their suppliers are expected to meet, and suppliers unable to meet these requirements will be pushed out of the “market”.

However, this does not appear to be the case for suppliers based in India. Rather, the demand for certification without accompanying incentives for setting ambitious goals has encouraged some consultants and registrars to begin offering what can best be described as cheap “certificates on the wall.” Therefore, while the trade barrier concerns about ISO 14001 may not be significant except for very small firms who are unable to afford even the cheapest certification, the value of ISO 14001 certificate itself is now being eroded. Several interviewees expressed the view that while ISO 14001 certainly offers many performance-related benefits to firms that adopt it with that intent, it is easy for a firm to get certified just for the value the certificate adds to their products in the market, especially overseas.

6. Conclusion

In the nine years since its release, the ISO 14001 standard for Environmental Management Systems has been adopted by over 1,250 organizations in India. The rapid spread of the standard has raised questions about what its adoption actually means for a company's environmental performance. This research attempted to answer these questions in the context of India, where little research on ISO 14001 has been carried out so far. This chapter highlights the key issues that appear to affect the adoption and impact of ISO 14001 in India.

First, the chapter discusses some differences between industrialized countries and developing countries such as India in order to understand why ISO 14001 may not be as effective in the context of India. This is followed by a summary of the key patterns and trends regarding ISO 14001 that appear to be emerging in India. Some recommendations are made for different stakeholders on how best to tap the full potential of the standard. The chapter then concludes with some suggestions regarding possible areas for future research.

ISO 14001 in Developing Nations

In order to understand the impacts of ISO 14001 in India, it is important to understand how the Indian context is different from that of industrialized nations. Most of the literature on ISO 14001 examines its effects within industrialized countries. The challenge is to modify these assumptions to reflect the realities of developing countries more accurately. Since most of the input in creating ISO 14001 was provided by industrialized countries, such an exercise is helpful in identifying the extent to which ISO

14001 could be useful in developing countries, and may also provide useful lessons for the development of future environmental standards.

Firms in industrialized countries interact with many different groups, including customers, regulators, financial institutions, communities and environmental organizations (Figure 6.1). In most industrialized countries, these groups have access to information on the environmental performance of firms, at least when the firms are required to make the relevant information available as is the case with data in the US Toxics Release Inventory¹. Regulators are also usually well-informed about a firm's environmental performance and issues, and firms may face considerable penalties if they violate regulations. These stakeholder groups therefore put pressure on firms to improve environmental performance. They also create incentives for them to adopt ISO 14001, with markets being the most important factor here.

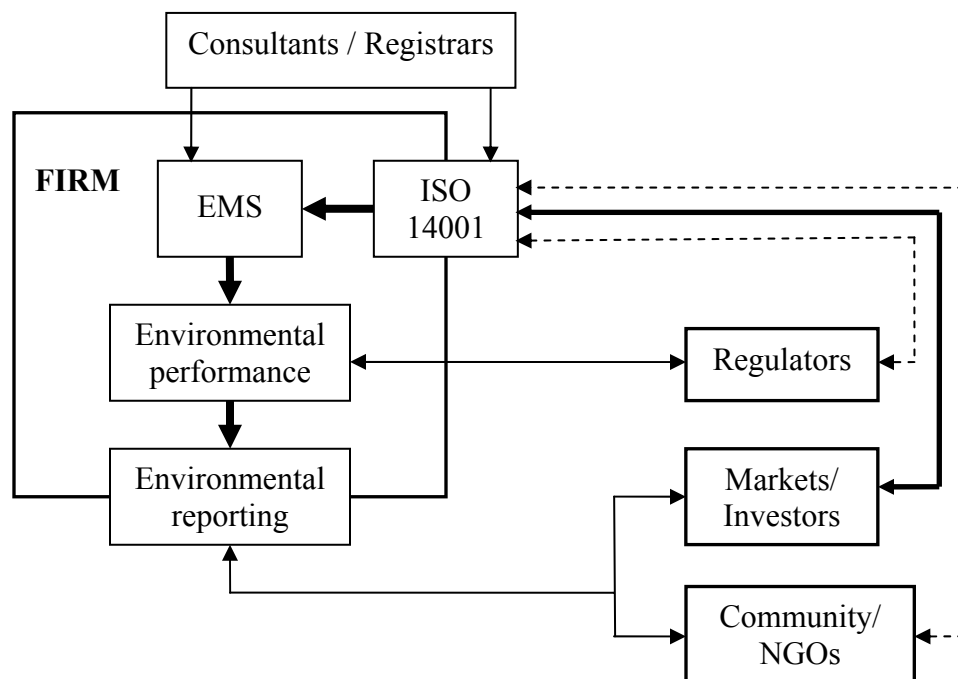


Figure 6.1 ISO 14001 in the context of industrialized nations

¹ See <http://www.epa.gov/tri/> for more information.

ISO 14001 can be effective in industrialized countries precisely because a set of pressures and incentives for firms to improve environmental performance exists together with pressures to adopt the standard. ISO 14001 and EMSs may in fact help firms to respond to such pressures in a more systematic and effective manner. Simply acquiring an ISO 14001 certificate, however, does not necessarily lead to a reduction in external pressures. Therefore, the firm must demonstrate that it has used its EMS to bring about measurable improvements in actual environmental performance.

In contrast to industrialized countries, stakeholders in developing countries such as India often have little information on a firm's environmental performance (Figure 6.2). Regulations are often weakly enforced and regulators poorly informed, and hardly any disclosure programs exist to inform other stakeholder groups. In such a scenario, environmental awareness, both within and outside firms, is generally low. Further, in comparison to industrialized countries, developing countries are often more concerned with economic issues than the environment and consequently most firms face relatively weak external pressures to improve environmental performance. There is therefore little synergy between ISO 14001 and incentives for environmental improvement. This theme is reflected in the research findings, discussed in greater detail below. Among other things, it highlights the need for greater participation from developing countries in the drafting of international environmental standards.

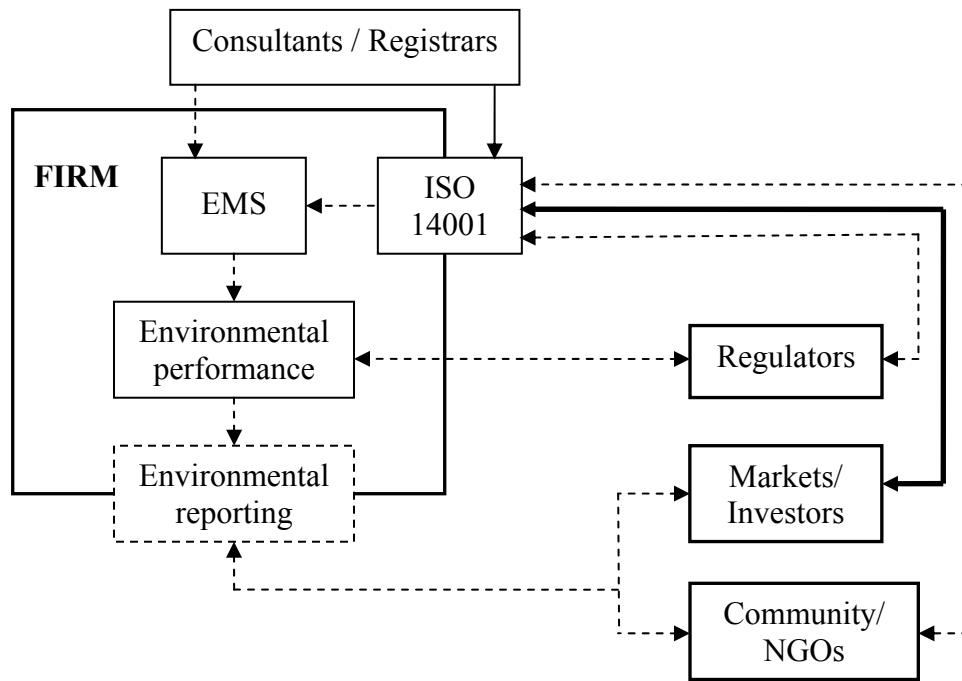


Figure 6.2 ISO 14001 in developing countries

ISO 14001 in India: Patterns and Trends

The ISO 14001 standard has been adopted by a large number of organizations in India, but its environmental benefits may not be uniform across these organizations. Even though all firms interviewed reported benefits from ISO 14001, other stakeholders cautioned that the absence of pressures for performance improvement has led to a great deal of variation in the way the standard is implemented and used by Indian organizations, and consequently there is also variation in the resulting environmental improvements. Further, there appears to be an increasing trend towards seeking certification just for its market value, which has led to a cheapening of the standard.

Market-Driven Certification

In India, the major driver of ISO 14001 appears to be the market, with an increasing number of overseas as well as domestic customers requiring their suppliers to seek certification (Figure 6.2). Other motivations for ISO 14001 include regulatory pressures in some states, and the desire on the part of firms to project a positive image. For a firm, the value of ISO 14001 may lie simply in increased access to markets through the certificate alone. In order to lead to environmental improvements and provide value to other stakeholders, however, incentives for certification must be linked with incentives to implement an effective EMS and set goals for environmental improvements. In the presence of regulatory and societal incentives to improve environmental performance, market pressures for ISO 14001 can lead to significant and widespread improvements; in the absence of such incentives, however, improvements may depend more on each firm's values, culture and history.

Cheapening of Certification

In India, market demands for ISO 14001 certificates have also acted to weaken the implementation and certification of EMSs (Figure 6.2). In the absence of external pressure to improve performance, some firms are only interested in cheap ISO 14001 certification as a ticket to markets that demand certification. Because the EMS certification industry is highly competitive, certifiers and consultants also have incentives to attract customers by providing "easier" certification at a reduced price. In such a situation an ISO 14001 certificate alone conveys very little information about a firm's responsiveness to environmental issues, and may in fact be no more than a certificate on the wall. Oversight of the certification process is also weak, with the Indian accreditation

body seen as lacking teeth and international accreditation bodies unable to devote sufficient time and resources to their Indian operations.

Lack of transparency in the certification process is also a factor in the cheapening of ISO 14001. As of now, it is virtually impossible to obtain information on firms' EMS goals, indicators and progress. This makes it difficult to assess whether adopting ISO 14001 has actually led to performance improvements. Further, registrars are generally not accountable to anyone for their certification-related decisions.

Systematization of Efforts and Organizational Change

If a firm is motivated to implement ISO 14001 well, the standard does offer several important potential benefits, including a way to structure and prioritize its environmental improvement efforts. Firms that implement an EMS in accordance with ISO 14001 are required to undertake a thorough review of all their environmental issues, and this may reveal opportunities for easy improvements. In some cases, they may even be able to improve resource use efficiency, thus improving environmental performance and cutting costs at the same time. Such low hanging fruit are likely to be quickly collected, however, and may not remain a significant driver of EMS goals for long.

Along with providing a systematic approach, ISO 14001 can lead to changes within firms that make environmental improvements easier to achieve. Firms with ISO 14001 are required to provide regular training and other environmental information to their employees, thus leading to an increase in awareness. Further, environmental responsibilities tend to be distributed more widely as a result of certification to ISO 14001. Firms are also required to articulate their environmental policy, which provides a guide for employees to modify their behavior accordingly. Such organizational changes

can set up their own dynamics within a firm and possibly lead to internal incentives for environmental improvements. However, the extent to which such incentives will lead to actual performance improvements is uncertain, given that external stimuli to improve performance are generally weak or non-existent.

Increased Communication with Experts and Stakeholders

Firms that implement ISO 14001 come into contact with a number of other organizations including consultants and other firms. These organizations are important sources of knowledge for a firm. Increased interaction among firms and between firms and consultants may be one of the more important but under-recognized benefits of ISO 14001. Such interaction is likely to lead to faster dissemination of better technologies and management practices, and ultimately to improved performance.

Firms with ISO 14001 are also required to implement a system for receiving, recording and responding to communications from external stakeholders. Even if firms do not respond to these concerns they may at least become aware of the issues, which is an important first step. A major weakness of the standard, however, is that firms are free to choose whether or not to provide any information on their activities to stakeholders.

ISO 14001 and Indian Regulators

The data generated by a properly implemented EMS provides regulators with an excellent tool to understand a firm's environmental issues. This requires that firms be willing to discuss their management plan, targets and monitoring data with regulators. The Indian Central Pollution Control Board had started looking at an approach as ISO 14001 PLUS, which combines ISO 14001 with disclosure and regulatory leniency. Such a tool could prove useful to communities and environmental groups as well as regulators

if it encourages wider public disclosure of performance-related information. What is clear, however, is that voluntary approaches such as ISO 14001 provide no substitute for regulation. On the contrary, well-enforced regulations are necessary to maintain a minimum level of incentives for environmental performance improvement. ISO 14001 could then be used to allow some flexibility to firms and to help them meet regulatory requirements more easily and cost-effectively, and reduce the regulator's burden at the same time.

Some state regulatory agencies in India have begun requiring firms to seek ISO 14001 certification. Simply requiring that firms be certified, however, is likely to be counterproductive, as has already happened after ISO 14001 became (or was perceived to become) an export requirement. Such a requirement will only increase the incentive firms have to seek cheap and easy certification, if pressures to improve environmental performance are absent.

Recommendations for Action

The recommendations in this section are directed at arresting the decline in EMS quality in India and creating incentives for firms to improve performance. These recommendations are arranged according to the particular stakeholder group being addressed, and then in order of priority.

Government and Regulators

1. Organizations such as the Quality Council of India should implement procedures to ensure better oversight of the certification process. Many registrars are accredited by overseas organizations that are unable to maintain an adequate level of oversight. The Indian government needs to address this issue urgently.
2. Instead of requiring firms to become ISO 14001 certified, regulators should merely encourage it by providing suitable incentives such as reduced penalties, easier permitting and reduced reporting burdens, contingent on reliable performance data being available.
3. Regulators should require firms to publicly report their environmental performance, and should make available to the public any information that they already possess. This could include mandatory minimum reporting requirements for all firms, as well as voluntary options for leading firms that could be combined with some form of regulatory relief.
4. The Quality Council of India can help to provide information to firms on the benefits of ISO 14001, including potential costs savings, easier compliance and a more cost-effective approach to meet environmental goals.

Non-Governmental Organizations (NGOs)

1. NGOs and other public interest organizations should continue to explore the field of ISO 14001 and EMSs in order to ensure that loopholes do not go unnoticed and problems are promptly brought to the notice of firms or other concerned organizations. Some NGOs in India have been doing this by seeking training in

ISO 14001-related areas; others have attempted to assess the usefulness of these tools by gathering information from industry.

2. NGOs can also initiate dialogue with leading firms to encourage environmental reporting and begin to explore the shape that such reporting might take. Reporting will help to improve the firm's image and add value to its ISO 14001 certificate.

Industry Associations and Trade Bodies

1. Industry associations and trade bodies can help to provide information to firms on the benefits of ISO 14001 and EMSs.
2. They should maintain a list of registrars and consultants active in the area of EMS implementation and certification. They could also collect feedback from experienced firms to implement a rating system that can help firms choose an organization that best fits their needs.
3. Industry associations should also begin to collect information on which organizations are certified to ISO 14001 in their individual sectors. These efforts could be coordinated to arrive at a national list of registered organizations.

Directions for Future Research

Further research is needed to clarify how ISO 14001 and EMSs operate in the Indian context, including their effects on the interaction between industry and other stakeholders (Figure 6.2). How do Indian firms use their EMS to set environmental goals? How do EMSs and ISO 14001 change the environmental performance as well as organizational behavior and culture of Indian firms? What are the effects of the different drivers for certification on EMS characteristics? Finally, what value do consultants and registrars add to ISO 14001 in India?

Future research should examine the effects that an EMS has on a firm's environmental goals and performance. Most research in this area has followed quantitative procedures to determine if any significant association exists between EMS adoption and environmental performance. Such an approach could be used for Indian firms to examine whether ISO 14001 has significant and widespread effects on the environmental performance of Indian firms. Such research could include a comparison of certified with non-certified firms to determine the extent of improvement that comes about as a result of ISO 14001.

It may also be helpful to use more qualitative or ethnographic methods along with quantitative studies to try and understand how an EMS affects the day to day activities, decisions and culture of a firm. In addition to studying a broad sample of industries, some of the research on ISO 14001 should focus on a small number of firms to understand the changes that occur over time as a result of ISO 14001 and the circumstances that encourage or inhibit such change. A combination of methodologies will be needed to gain different kinds of insight into ISO 14001 and its effects on Indian businesses.

Presently, market pressures appear to be the main driving force behind ISO 14001 in India. If market driven-EMSs are less effective at improving environmental performance, given the absence of other incentives, policy interventions may be needed. Understanding how a firm's reasons for adoption of ISO 14001 influence its management plan and goals is important for this reason. Some research on this topic has been done in China, but the results did not suggest a significant effect (Fryxell et al 2004). Preliminary evidence from India seems to suggest that such a relationship exists but further research is needed to understand it better.

Consultants and registrars can add considerable value to an EMS, but the extent to which this is taking place in India is uncertain. Future studies could try and examine Indian registrar's certification practices in greater detail, along with their effects on EMS characteristics and environmental performance. Studies linking accreditation and certification practices to EMS characteristics have been conducted in the US and Europe. Research could also examine the ways in which consultants can help industry in implementing EMSs and improving environmental performance, and what factors if any appear to be obstructing this process. It is also necessary to understand what firms look for in selecting registrars and consultants, so that future policies on EMSs can take these expectations into account.

As an environmental standard, ISO 14001 has often been criticized for not containing any performance requirements and for not encouraging greater transparency. These shortcomings notwithstanding, the standard can indeed offer important benefits to firms. In the context of India and perhaps other developing countries, however, these benefits are often not realized because of the absence of societal pressures on firms to improve performance. It is important to recognize that ISO 14001 as a tool can improve environmental performance only to the extent that firms have incentives to make such improvements.

ISO 14001 does not provide such incentives on its own, beyond some possible cost savings. It is also unlikely that including performance and reporting requirements within ISO 14001 could create such incentives, because if experiences with EMAS in Europe are any indication, EMSs cannot improve environmental performance on their own if societal pressures are absent (Steger 2000). This suggests that enforcing

regulations and requiring firms to be accountable for their environmental performance should remain important policy goals for developing nations. They should not be abandoned or even weakened in the hope that market-driven instruments will be sufficient to attain environmental goals. ISO 14001 and other voluntary instruments have an important place in the policy toolkit of developing nations, but they should not become the only option available.

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Appendices: Interview Protocols

A. Consent Form

Research Consent

I would like to seek your participation in a research project on the ISO 14001 Environmental Management Systems (EMS) standard and its implementation in Indian industries. The aim of this research is to evaluate the usefulness of this standard for India, for businesses as well as for other stakeholders including regulators and the general public.

The data gathered in this questionnaire will be used in a thesis for a master's degree. As such, it will be reviewed by me as well as by faculty at my university. However, no one other than me will know the names of interviewees. All efforts will be made to ensure strict anonymity and the research write-up will contain no real names or other identifying characteristics. The results of this project may also be published in academic journals or presented at conferences but once again, no identifying information will be revealed. If you wish to withdraw at any time from this project, please inform me and I will erase all the information that you have provided. If you provide me with information that you would like to have kept out of the final write-up, please inform me of that as well. With your permission, I would like to record our conversation for purposes of more detailed analysis. This record will be heard by no-one except me. However, if you would like me to stop recording at any point in our conversation, please do not hesitate to tell me.

The MTU Institutional Review Board (MTU-IRB) has reviewed my request to conduct this project. If you have any concerns about your rights in this study, please contact Ms. Joanne Polzien of the MTU-IRB at +1-906-487 2902, or email jpolzien@mtu.edu.

If you agree to participate in this study, please provide the following information:

Your name:

Designation:

Company's name:

Place:

Date:

I would like to share the results of my research with you. Please let me know if you would be interested in receiving a copy of the thesis in electronic (PDF) format. If you have any questions about this project, please do not hesitate to contact me via e-mail or telephone. I greatly appreciate your willingness to take part in this project. Without your cooperation, this research would not have been possible.

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B. Industry

If possible, please provide documents that will help to clarify your answers, such as extracts from the management plan. If these are not available electronically, you may fax them to +1-906-487 2468 or post them to the following address:

Samir Aslam Qadir
Department of Social Sciences, 209 AOB
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931, USA

A. Preliminary Questions about the Company

1. Does your company have a mission statement? Please fax a copy if possible, or if it is available online, give the website address.

2. What products and/or services are provided by your company?

3. What is the size of the company?

- a. Number of employees:
 - b. Annual sales (Rs.):
-

4. Does the company sell its products or services outside India?

If yes, please indicate the proportion of annual sales that comes from overseas markets.

- i. Less than 5%..... []
 - ii. 5% - 10%..... []
 - iii. 10% - 20%..... []
 - iv. Greater than 20%..... []
-

5. In which year was the company established?

6. In which year was the company certified to ISO 14001?

7. Is the company's ISO 14001 certification for a single site or for multiple sites?

8. Has the company been certified to ISO 9001? If yes, please state the year of certification.

9. Did the company have an EMS prior to its decision to seek ISO 14001 certification?

10. Please describe your job in the company, including the duration and extent of your involvement with the EMS and ISO 14001.

B. Reasons for ISO 14001 Certification

11. What were the reasons for your company's decision to seek ISO 14001 certification?
Please describe the most important reasons.

12. Does your company require any of its suppliers to be ISO 14001 certified?

- a. If yes, what is the reason for this?
 - b. Does the company assist its suppliers in any way in setting up an EMS or getting certified to ISO 14001?
-

C. Environmental Policy, Planning, Objectives and Targets

13. Please provide a copy of the company's environmental policy. Please fax a copy if possible, or if it is available online, give the website address.

14. Please describe the process used for selecting "significant environmental aspects" to be included in the management plan.

15. Does your company set objectives and targets based on unregulated environmental aspects? If yes, please give examples of such objectives.

16. Approximately how many objectives or targets are set each year under the environmental management plan, and how many environmental aspects are covered by these objectives?

D. Assigning Responsibilities and Involving People

17. How strongly would you agree with the following statement?

"Getting certified to ISO 14001 has resulted in much greater senior management commitment for improving environmental aspects."

☐ Strongly agree; ☐ Agree; ☐ Neutral; ☐ Disagree; ☐ Strongly disagree

Please explain the reasons for your answer.

18. Does management assess employee awareness of the company's environmental aspects? If yes, how? In your opinion, has this awareness increased following ISO 14001?

19. Is a single department responsible for managing the EMS, or is this responsibility distributed across departments?

In case more than one department is involved, please explain how responsibility is

allocated to these departments. Are individual departments accountable to management for meeting their own environmental objectives and targets?

20. Are people from outside the company involved in its EMS in any way (e.g. setting goals, reviewing progress, etc)?

- a. If yes, who is involved, and how?
 - b. What are the reasons for involving these people?
-

E. Evaluating ISO 14001

21. Please describe the benefits your company has obtained as a result of ISO 14001 certification.

22. How strongly would you agree with the following statement?

“After ISO 14001 certification, there has been significant improvement in my company’s environmental performance.”

☐ Strongly agree; ☐ Agree; ☐ Neutral; ☐ Disagree; ☐ Strongly disagree

Please explain the reasons for your answer. What factors have helped or hindered the improvement of environmental performance at your company?

23. How strongly would you agree with the following statement?

“Employees at this company faced little difficulty in understanding the concepts and requirements listed in ISO 14001 and relating them to our operations.”

☐ Strongly agree; ☐ Agree; ☐ Neutral; ☐ Disagree; ☐ Strongly disagree

Please explain the reasons for your answer. What difficulties did you face, if any, and how were they overcome?

24. What is the attitude, in your opinion, of shop floor workers, technical staff and managers regarding EMS and ISO 14001? Do they think it is a helpful tool or a burden on the company’s resources? Why?

25. How strongly would you agree with the following statement?

“Since the company was certified to ISO 14001, the requirements of the standard have gradually become easier to understand and integrate into the day-to-day operations of the company.”

☐ Strongly agree; ☐ Agree; ☐ Neutral; ☐ Disagree; ☐ Strongly disagree

Please explain the reasons for your answer.

26. Do you think ISO 14001 is a useful tool for India? Why or why not?

27. If you could change one thing about ISO 14001, what would that be and in what way would you change it? Why do you think it is important?

28. If you have any comments regarding this survey, or any thoughts or concerns that you wish to share, please list them here.

As information becomes available through my interviews, I may want to explore certain points in greater depth. For this, I would like to contact participants once more for a follow-up interview. Would you be willing to participate in this second phase of interviews? I understand that your time is valuable, and you are in no way obliged to agree. If you wish, you may defer your decision until such time as I can contact you with more specific details.

Thank you for your time!

C. Regulators

Questions

1. Please describe your involvement in environmental regulation. Where have you worked, in what capacity and for how long?

2. How did you come to know about ISO 14001?

3. Have you been involved with any companies that are ISO 14001 certified?

4. If you answered yes to Q.3, have you noticed improvements in environmental performance, or any other aspect of industry's operations, that could be attributed to ISO 14001? Please give some examples, if possible.

5. In your opinion, can ISO 14001 certification assist environmental regulators in their work? Why or why not?

6. Do you (or your organisation) encourage industry to get certified to ISO 14001? If yes, how?

Do industries with ISO 14001 certification get any benefits in their dealing with environmental regulators e.g. reduced reporting or permitting requirements?

7. Why do you think industries seek ISO 14001 certification?

8. Do you think ISO 14001 certification offers any benefits to India as a whole? If yes, please describe these benefits and give some examples if possible.

9. Can you think of any changes to ISO 14001 that might make it a more useful tool, either to industry, or to regulators or other stakeholders?

10. After ISO 14001, what do you think the next step should be for industrial environmental management? What role can the government or regulators play here?

As information becomes available through my interviews, I may want to explore certain points in greater depth. For this, I would like to contact participants once more for a follow-up interview. Would you be willing to participate in this second phase of interviews? I understand that your time is valuable, and you are in no way obliged to agree.

Thank you for your time!

D. Registrars

A. Preliminary Questions

-
1. Which accreditation body has accredited your organisation for granting ISO 14001 certifications?

 2. When did your organisation begin certifying Indian businesses to ISO 14001?

 3. Approximately how many ISO 14001 certificates have been granted by your organisation?

 4. Does your organisation have any specific areas of expertise in auditing and certifying businesses to ISO 14001 (e.g. in specific business sectors)?

 5. Does your organisation offer consulting services to help companies establish an EMS?

 6. How long have you personally been involved in ISO 14001 certification and auditing, in your present job as well as earlier ones?

 7. Please describe your own expertise and experience in ISO 14001 certification, including number of audits conducted and number of ISO 14001 certificates granted (if applicable).

B. Third-Party Certification Process

-
8. In your experience, what are the most common reasons for companies to seek ISO 14001 certification?

 9. What action do you take upon detecting a non-conformance during an EMS audit?

 10. Have any companies been denied certification by your organisation, or had their certification suspended, due to non-conformance?

C. Implementation of EMS by Companies and Audit Findings

-
11. What are some of the common problems (if any) that you have noticed in the EMS while auditing companies for ISO 14001?

 12. In your experience, have any companies set objectives for environmental aspects that are not covered by regulations? If yes, please give a few examples of such targets. Approximately what percentage of companies have set such targets?

 13. In your opinion, what is the attitude of company management regarding ISO

14001? Do they regard it as helpful, or as an unnecessary burden?

14. What factors, in your experience, affect management attitudes regarding ISO 14001?

D. Your Evaluation of ISO 14001

15. In your experience, does implementation of ISO 14001 generally lead to improvements in environmental performance?

16. Does ISO 14001 offer any benefits for Indian companies other than improvements in environmental performance?

17. In your experience, does certification to ISO 14001 lead to greater recognition of environmental issues among employees and management?

18. To sum up, do you think ISO 14001 is a useful tool for India? What role can it play in reducing the adverse environmental effects of industrial development?

19. If you could change one thing about ISO 14001, what would that be and how would you change it? Why do you think it is important?

As information becomes available through my interviews, I may want to explore certain points in greater depth. For this, I would like to contact participants once more for a follow-up interview. Would you be willing to participate in this second phase of interviews? I understand that your time is valuable, and you are in no way obliged to agree.

Thank you for your time!

E. Consultants

A. Preliminary Questions

-
1. Please describe the services offered by your organisation regarding ISO 14001 and EMS.

 2. Please describe your own expertise and experience in ISO 14001 consulting, starting with your entry into this field up to the present.

 3. How long have you personally been involved in ISO 14001 consulting and auditing, in your present job as well as earlier ones?

 4. Does your organisation have any specific areas of expertise in auditing companies for ISO 14001 (e.g. in specific business sectors)?

B. Implementation of EMS by Companies and Audit Findings

-
5. In your experience, what are the most common reasons for companies to seek ISO 14001 certification?

 6. What are some of the common problems (if any) that you have noticed in the EMS while auditing companies for ISO 14001?

 7. Do you think that the problems you mentioned in your previous answer are related in any way to factors outside the scope of the EMS, such as those listed below?
 - i. The industrial sector to which a company belongs
 - ii. Foreign vs. Indian ownership
 - iii. Private vs. public ownership
 - iv. Size of the company
 - v. Geographical location of the company
 - vi. Location of the company's clientele – within India or abroad
 - vii. Other factors (Specify)

 8. In your experience, have any companies set objectives for environmental aspects that are not covered by regulations? If yes, please give a few examples. Approximately what percentage of companies set such targets, out of the ones you work with?

 9. In your opinion, what is the attitude of company management regarding ISO 14001? Do they regard it as helpful, or as an unnecessary burden?

 10. What factors, in your experience, affect management attitudes regarding ISO 14001?

11. How do companies meet the requirement of “continual improvement” set under ISO 14001? Do they have to demonstrate improvements in environmental performance?

D. Your Evaluation of ISO 14001

12. In your experience, does implementation of ISO 14001 generally lead to improvements in environmental performance?

13. Does ISO 14001 offer any benefits for Indian companies other than improvements in environmental performance?

14. In your experience, does certification to ISO 14001 lead to greater recognition of environmental issues among employees and management?

15. To sum up, do you think ISO 14001 is a useful tool for India? What role can it play in reducing the adverse environmental effects of industrial development?

16. If you could change one thing about ISO 14001, what would that be and how would you change it? Why do you think it is important?

Thank you for your time!

F. Accreditation Body

Questions

-
1. Please describe the role of the Quality Council of India and the NABCB with regards to ISO 14001 and environmental management systems (EMS).

 2. Please describe your personal involvement and work regarding ISO 14001.

 3. What do you think are the benefits of ISO 14001 certification for India, and what are the challenges facing the standard?

 4. Please describe the process that is followed by QCIN to accredit certifying bodies for EMS (ISO 14001).

 5. What are the qualifications and other requirements that a certifying body must fulfill in order to be accredited by QCIN?

 6. Once a certifying agency is accredited, how does QCIN verify that it is following proper procedures and guidelines?

 7. Does the QCIN specify any guidelines to be followed by certification bodies during auditing (such as minimum audit duration, minimum proportion of the units to be audited in a facility, guidelines for impact assessment and scope of EMS)?

 8. In your opinion, what are the challenges facing the EMS certification industry in India, if any? Please describe these challenges.

 9. Do you think QCIN (and/or other accreditation bodies) can address the challenges you identified in the previous question? If so, how? If not, how do you think these problems should be tackled?

 10. Does QCIN (or NABCB) try to harmonize its accreditation practices with other accreditation bodies? If yes, how is this being done and with respect to which accreditation bodies?
-

As information becomes available through my interviews, I may want to explore certain points in greater depth. For this, I would like to contact participants once more for a follow-up interview. Would you be willing to participate in this second phase of interviews? I understand that your time is valuable, and you are in no way obliged to agree.

Thank you for your time!

G. Non-Governmental Organizations

Questions

-
1. Please describe your involvement with environmental issues in general, starting with your first experience in this field.

 2. Please describe your involvement with environmental management systems and ISO 14001 specifically. How long and in what ways have you been involved?

 3. According to ISO nearly 900 companies in India been certified to ISO 14001 by December 2003, as compared to only 40 companies in December 1998. Why do you think that so many companies in India are seeking ISO 14001 certification?

 4. In your opinion, what benefits does ISO 14001 offer to industry, as well as other stakeholders in India? Can you give any specific examples?

 5. Do you think ISO 14001 can encourage industry to become more transparent? If yes, how? Please give some examples if possible.

 6. Do you think ISO 14001 can function as an eco-label or as an indicator of good environmental performance? Why or why not?

 7. In your opinion, can ISO 14001 be effective in changing industrial behavior in India? Please explain the reasons behind your answer.

 8. Can you think of any changes to ISO 14001 that could make it more useful, either to industry or to other stakeholders in India?

 9. After ISO 14001, what do you think the next step should be for environmental management in Indian industries?

As information becomes available through my interviews, I may want to explore certain points in greater depth. For this, I would like to contact participants once more for a follow-up interview. Would you be willing to participate in this second phase of interviews? I understand that your time is valuable, and you are in no way obliged to agree.

Thank you for your time!