

Environmental Management Systems and ISO 14000

Environmental management systems (EMSs) such as ISO 14000 are seen as mechanisms for achieving improvements in environmental performance and for supporting the trade prospects of “clean” firms. The potential advantages of EMSs are clear, but the adoption of ISO 14000 is very recent, and practical issues are emerging, among them the need for an emphasis on performance improvement and for simplification of certification; the potential for regulatory streamlining; and the trade consequences. This chapter outlines the key elements of an EMS and discusses these issues.

The Benefits of an EMS

An environmental management system (EMS) is a structured program of continuous environmental improvement that follows procedures drawn from established business management practices (see Box 1). The concept is straightforward, and the principles can be easily applied, given the necessary support. There has been increasing interest in the potential value of EMS approaches, of which the recently released ISO 14000 series is the most widely known.

The first steps in the control of industrial pollution have been the creation of the necessary regulatory framework and the specification and design of control equipment to reduce emissions. These efforts have been broadly successful in improving the performance of many polluters, but in other cases, investments in pollution equipment are wasted because the equipment is not operated properly. Attention, in the World Bank and elsewhere, is turning to support of regulatory and end-of-pipe approaches through incentives, production efficiencies, and management improvements—a range of measures often grouped under the broad banner of cleaner production and ecoefficiency.

The potential benefits of ecoefficiency are unequivocal: good operational practices, supported by committed management, can achieve considerable improvements in environmental performance at low cost and can get the maximum benefits from investments in hardware. Without management and worker support, the best equip-

ment can be useless. The challenge is to achieve long-lasting improvements in performance, and EMS is seen as one of the key tools in achieving this.

An important related issue, in a context of increasingly free trade, is the concern that environmental performance may become an important commercial factor, either as a positive attribute or as a potential trade barrier. The implementation of an EMS, and particularly of the ISO 14000 system, is seen as a way to demonstrate an acceptable level of environmental commitment.

A good EMS allows an enterprise to understand and track its environmental performance. It provides a framework for implementing improvements that may be desirable for financial or other corporate reasons or that may be required to meet regulatory requirements. Ideally, it is built on an existing quality management system.

ISO 14000 and Other Standards

If an EMS were adopted purely as an internal management tool, the details of the system and its structure would not be important. However, the EMS is becoming more and more a matter of interest to people outside the management of the enterprise—to workers, regulators, local residents, commercial partners, bankers and insurers, and the general public. In this context, the EMS is no longer an internal system and becomes a mechanism for communicating the enterprise's performance to outside parties, and some level

Box 1. What Is an EMS?

An EMS can be described as a program of continuous environmental improvement that follows a defined sequence of steps drawn from established project management practice and routinely applied in business management. In simple terms these steps are as follows:

- Review the environmental consequences of the operations.
- Define a set of policies and objectives for environmental performance.
- Establish an action plan to achieve the objectives.
- Monitor performance against these objectives.
- Report the results appropriately.
- Review the system and the outcomes and strive for continuous improvement.

Not every system will present these steps in exactly the same way, but the basic principles are clear and easily understandable.

The ISO 14000 series is a series of standards for different aspects of environmental management. A number of these standards relating to environmental management systems have been adopted formally by the members of the ISO, while others are in different stages of preparation.

The standards that have been adopted are (as of early 1997):

ISO 14001-1996 Environmental management systems: specification with guidance for use

ISO 14004-1996 Environmental management systems: general guidelines on principles, systems, and supporting techniques

ISO 14010-1996 Guidelines for environmental auditing: general principles of environmental auditing

ISO 14011-1996 Guidelines for environmental auditing: audit procedures; auditing of environmental management systems.

ISO 14012-1996 Guidelines for environmental auditing: qualification criteria for environmental auditors

Standards currently available as draft international standards:

ISO 14021 Environmental labels and declarations: self-declaration environmental claims; guidelines and definition and usage of terms.

ISO 14040 Environmental management: life cycle assessment; principles and framework

ISO 14050 Environmental management: vocabulary

More than half a dozen others in this series have been drafted and are under discussion.

of standardization and common understanding is required.

The best-known common framework for EMS is the ISO 14000 series. This series is based on the overall approach and broad success of the quality management standards prepared and issued as the ISO 9000 series. ISO 14000 consists of a series of standards covering ecolabeling and life cycle assessment (LCA), as well as EMS (see Box 1). The documents formally adopted (by the end of 1996) as international standards are those covering EMS: ISO 14001 and ISO 14004.¹

There are two other major EMS standards: the British BS 7750, which was one of the first broadly accepted systems and has been adopted by a number of other countries, and EMAS, the European Eco-Management and Audit Scheme. A process of harmonization has been under way to ensure reciprocal acceptability of these systems with ISO 14001. BS 7750 and EMAS are, however, broader in their requirements than ISO 14000. In particular, EMAS includes requirements for continued improvement of performance and for communication with the public, which are not part of ISO 14001.

Within the ISO system, ISO 14001 sets out the basic structure for an EMS, while ISO 14004 provides guidance. The crucial feature of the ISO 14001 standard is that it identifies the elements of a system which can be independently audited and certified. The issue of certification underlies much of the discussion about environmental management systems. The presentation in these standards is clear and concise and provides a framework that can be used as the starting point for a simple system for a small company or a highly detailed one for a multinational enterprise.

Compliance with ISO 14001 does not by itself automatically ensure that an enterprise will actually achieve improved environmental performance. The standard requires that there be an environmental policy that "includes a commitment to continual improvement and pollution prevention" and "a commitment to comply with relevant environmental legislation and regulations." It also requires that the enterprise establish procedures for taking corrective and preventive action in cases of nonconformance. It may seem to be splitting hairs to say that these requirements for a policy and procedures would

not result in improved performance, but the issue becomes one of following the spirit and not just the letter of the standard. The desirable approach would be for management to make a commitment to specific environment performance improvements within a defined period and then use ISO 14000 as the mechanism for demonstrating that it is complying with that commitment. As a manager for a multinational firm observed, "Having a certificate doesn't mean that you have a clean company. The bad guys who pollute today will still do it, and they'll have a certificate."

It should be noted that ISO 14000 standards are voluntary. "Adoption" by a country normally means that the national standards organization has said that the ISO version is the EMS standard that is recognized. It does not imply any formal requirement that companies adopt such a standard.

Issues to be Resolved

EMS is clearly a good concept and is supported in principle by the World Bank and by environmental agencies and organizations everywhere. At the same time, there are costs associated with implementation—particularly in enterprise time and effort, more than direct out-of-pocket costs—and a number of issues need to be addressed in making decisions about the type and level of system to be adopted.

Commitment to Performance Improvements

The direct benefits to an enterprise of implementing an EMS usually come from savings through cleaner production and waste minimization approaches. (An order of magnitude estimate is that about 50% of the pollution generated in a typical "uncontrolled" plant can be prevented, with minimal investment, by adopting simple and cheap process improvements.) Even in industrial countries, increased discharge fees and waste disposal charges provide incentives for cost-effective pollution reduction—which, incidentally, demonstrates the importance of an appropriate framework of regulations and incentives to drive the performance improvements. The major impact of the introduction of an EMS can be the identification of waste minimization and cleaner production possibilities.

Management and worker commitment to improving performance is essential. The process of introducing the EMS can be a catalyst for generating support for environmental performance improvements, including the simple changes that make up "good housekeeping," and also for making the best use of existing pollution control equipment. Just as important, the development of good management systems is one of the best hopes for sustaining the improvements that can be achieved when attention is focused on environmental performance.

A concern often expressed about the ISO 14001 system is the lack of a clear commitment to improvements in actual environmental performance. The whole EMS approach is designed to improve performance, but critics of the rush to implement ISO 14001 argue that the standard can be misused. It is not yet clear how valid this point is, and its resolution will depend on how the overall approach is used in trade and regulatory areas. However, there is a legitimate concern that some may view ISO 14000 as an end rather than a means.

Given the current stage of development of auditing and certification systems, it may be possible in some places to obtain (or claim) certification with a minimum level of real environmental improvement. From the World Bank's point of view, it is essential that enterprises demonstrate serious good-faith efforts to achieve the performance goals underlying an environmental management system, if certification is to have any real meaning. An acceptable system must comply with the spirit of the EMS, not just the minimum formal requirements.

Certification

ISO 14001 sets out a system that can be audited and certified. In many cases, it is the issue of certification that is critical or controversial and is at the heart of the discussion about the trade implications. Certification means that a qualified body (an "accredited certifier") has inspected the EMS system that has been put in place and has made a formal declaration that the system is consistent with the requirements of ISO 14001.

The standard allows for "self-certification," a declaration by an enterprise that it conforms to ISO 14001. There is considerable skepticism as to

whether this approach would be widely accepted, especially when certification has legal or commercial consequences. At the same time, obtaining certification can entail significant costs, and there are issues relating to the international acceptance of national certification that may make it particularly difficult for companies in some countries to achieve credible certification at a reasonable cost. For firms concerned about having certification that carries real credibility, the costs of bringing in international auditors are typically quite high, partly because the number of internationally recognized firms of certifiers is limited at present.²

The issue of accreditation of certifiers is becoming increasingly important as the demand increases. Countries that have adopted ISO 14001 as a national standard can accredit qualified companies as certifiers, and this will satisfy national legal or contractual requirements. However, the fundamental purpose of ISO is to achieve consistency internationally. If certificates from certain countries or agencies are not fully accepted or are regarded as "second class," the goal will not have been achieved. It is probable that the international marketplace will eventually put a real commercial value on high-quality certificates, but this level of sophistication and discrimination has not yet been achieved. It is essential to the ultimate success of the whole system that there be a mechanism to ensure that certification in any one country has credibility and acceptability elsewhere.

The ISO has outlined procedures for accreditation and certification (Guides 61 and 62), and a formal body, QSAR, has been established to operationalize the process. At the same time, a number of established national accreditation bodies heavily involved in ISO have set up the informal International Accreditation Forum (IAF) to examine mechanisms for achieving international reciprocity through multilateral agreements (MLAs). However, these systems are in the early stages, and many enterprises continue to use the established international certifiers, even at additional cost, because of lack of confidence in the acceptability of local certifiers.

Given the variability in the design of individual EMS and the substantial costs of the ISO 14000 certification process, there is a growing tendency for large companies that are implement-

ing EMS approaches to pause before taking this last step. After implementing an EMS and confirming that the enterprise is broadly in conformance with ISO 14001, it is becoming routine to carry out a "gap analysis" to determine exactly what further actions would be required to achieve certification and to examine the benefits and costs of bringing in third-party certifiers.

Reducing the Cost of Regulation

A question commonly raised is the extent to which an EMS can reduce the costs of regulation, in terms of both the overall government enforcement effort and the costs of compliance of the individual enterprise. The use of ISO 14001 certification to replace some statutory reporting requirements is a topic of considerable discussion in a number of countries, particularly those where regulatory requirements are extensive enough to be a real burden on industry. It is now clear that an EMS is not a substitute for a regulatory framework, but the monitoring and reporting systems of a well-managed enterprise might substitute for some of the statutory inspections, audits, and reports normally required under government regulations. The issue is when and how the government can trust the capabilities and commitment of an enterprise to self-monitor its environmental performance and whether some formal EMS and certification system, such as ISO 14000, would provide the mechanism to convince regulators that scarce government resources would be better used elsewhere in pursuing less cooperative organizations.

This approach is attractive, but there are a number of hurdles to clear before it can be put into place on a widespread basis. Reaching agreement on such matters is proving to be a more difficult and complex task than might at first be assumed. Some of the difficulties are legal (lack of flexibility in regulations or the need to ensure that voluntary reports are not unreasonably used to prosecute enterprises that are making good-faith efforts to improve), but often they relate to the necessary level of confidence on both sides that the other parties are genuine in their efforts. Pilot programs being tested in a number of U.S. states will provide essential feedback on these issues. The World Bank is currently supporting a pathfinding exercise in Mexico, looking at imple-

mentation of EMS and how it might dovetail with a streamlining of the licensing system. There are clear benefits all around in making such partnerships work, but it will be some time before clear, workable models are available.

Disclosure of Information and External Relations

There is considerable evidence that an informed public has a strong influence on the environmental performance of industrial enterprises, through a variety of mechanisms that include market forces, social pressures, and support for improved regulatory controls. ISO 14000 does not include specific requirements for the disclosure or publication of environmental performance measures or audit results, but other EMS models do have some such requirements. The World Bank strongly supports disclosure of actual performance information because this allows the relevant public to monitor progress (or the lack of it) and to take informed positions on issues related to plant performance. It also allows much higher confidence in company statements about compliance and improvements.

There is a growing interest on the part of commercial banks and insurance companies in environmental risk (in a purely business sense). Such organizations are considering whether EMS certification (typically EMAS, in Europe) demonstrates that a firm has real control over its environmental risk and potential liability. It is possible that certification may lead to commercial benefits, such as lower insurance rates, in certain high-risk sectors.

Public release of the main environmental information from an EMS can also be used as a central component of a community relations program, although this goes beyond the basic concept of an EMS.

Trade Implications

Statements have been made to the effect that before long, ISO 14000 certification will be an essential passport for developing countries wishing to trade with the industrial nations. Such statements, in this extreme form, are speculative and almost certainly incorrect. It is, however, unclear to what extent ISO 14001 might become a barrier

to trade, in direct contradiction to the basic objectives of the ISO, or, alternatively, might provide a competitive edge for certified firms. The trade implications are of concern to many countries, and the World Trade Organization is beginning to consider some of the issues under its mandate on technical barriers to trade. In this context, a distinction needs to be made between product standards, such as the ecolabeling and LCA standards under ISO 14000, and production process standards such as ISO 14001; the impacts are likely to be different.

In many cases in developing countries, the environmental pressures come through the supplier chain—the ongoing relationship between a major company (often a multinational) and its smaller national suppliers. The sensitivity of multinationals to pressures regarding their performance on environmental and other issues is causing them to look for better performance from the suppliers. This relationship is typically a cooperative one in which large companies work with smaller ones to achieve better performance in such areas as quality and price. The multinationals may ask their suppliers to achieve and demonstrate environmental performance improvements, but there is no evidence that unreasonable targets or time scales are being applied. Where ISO 14001 certification is an ultimate aim, certification is seen as a long-term objective rather than a short-term requirement.

Even if ISO 14001 is not likely to be a contractual constraint in the foreseeable future, environmental performance is increasingly becoming a factor in commercial transactions, and companies looking to establish a presence in the international marketplace are considering whether a “green badge” would be an advantage to them. In practice, it is often marketing rather than environmental concerns that drive the ISO certification process.

Application to Small and Medium-Size Enterprises

Most of the development and application of EMS has taken place in large companies. The use of such systems in small and medium-size enterprises (SMEs) has been limited—although it is in this segment of industry that some of the largest benefits might be anticipated, because of the dif-

ficuity of regulating large numbers of small firms and the potential efficiency improvements that are believed to exist. In practice, however, the characteristics of the typical SME make the adoption of EMS difficult: most SMEs do not have a formal management structure, they lack technically trained personnel, and they are subject to severe short-term pressures on cash flow.

Anecdotal evidence indicates that an EMS cannot be used to drive improved performance in a poorly organized SME. Targeted training in management and quality control can improve overall performance, including its environmental aspects, and can provide a basis for more specific EMS development. Many firms can reap significant benefits from introducing quality management concepts, even where they are not aiming at formal certification. Any steps in this direction should be encouraged.

Practicalities in Establishing an EMS

An EMS, as normally envisaged, builds on existing production and quality management systems. Where such systems are weak or ineffective, as is often the case in enterprises that have poor environmental performance, a better management framework has to be established before focusing on the details of the EMS. The costs of establishing an EMS will therefore obviously depend on the starting point in terms of both management systems and environmental performance. The inefficiency savings can, in some cases, pay for the costs of establishing the EMS, particularly if most of the planning and organizational work is carried out in-house. However, a poor performer will very likely have to invest in production upgrading or pollution control in order to meet environmental requirements, and these costs can be significant.

A full EMS can be complex and can require an appreciable commitment of operational resources. However, the final system can be reached reasonably through a series of discrete steps, starting from a basic, simple procedure and becoming more comprehensive and sophisticated as capabilities and resources allow. In this way, even a small enterprise can begin to put in place the basic elements of an ISO 14001 system and can develop them at an appropriate pace. Once the basic EMS is in place, it is possible to carry

out a gap analysis and to make a balanced judgment on the costs and benefits of seeking certification.

A related issue is the coverage of the EMS. Certification is normally for specific sites or facilities. A large enterprise may have a number of different sites and production facilities and may choose to seek certification only for a subset of the sites.

Role of Governments

Although ISO 14000 is a set of voluntary standards that individual companies may or may not choose to adopt, governments can clearly have a role in providing information, establishing the necessary framework and infrastructure, and, in some cases, helping companies to develop the basic capabilities to adopt ISO 14000. There are two particular areas in which government action would be useful: (a) providing information on the sectors and markets where ISO 14001 certification is a significant issue and assisting sector organizations to develop appropriate responses, and (b) helping to establish a certification framework, based on strengthening national standards organizations and encouraging competitive private sector provision of auditing and certification services. At present, the World Bank is having discussions with a number of countries about how assistance could be provided with these issues.

Governments should see EMS approaches as part of a broad environmental strategy that includes regulatory systems, appropriate financial incentives, and encouragement of improved industrial performance. Such encouragement can really only be effective where there is cooperation at the government level between the relevant departments, including industry and trade, as well as environment. There is a growing interest in integrating environmental management issues into productivity or competitiveness centers designed to promote SME performance, but little information exists on experience to date.

Will It Perform?

The spectacular blossoming of interest in ISO 14000 should lead to increased understanding of the benefits of better environmental management

and greater awareness of environmental performance as a factor in succeeding in increasingly competitive markets. At the same time, this standard is not a magic wand that will achieve environmental improvements where regulation and enforcement are ineffective or that can open markets where competition is strong. The standard provides a framework on which to build better performance, greater efficiency, and a competitive image. With serious commitment and effort from the organization, implementing a system such as ISO 14001 can yield solid benefits.

Additional Resources

For details on ISO standards, contact national standards organizations or the International Organization for Standardization:

ISO Central Secretariat
1, rue de Varambe
Case postale 56
CH-1211 Geneva 20
Switzerland
Tel: +41 22 749 0111, fax: +41 22 734 1079

A training kit in EMS, prepared by a group of international organizations, is available from the UNEP (address on p. 143):

UNEP/ICC/FIDIC. 1995. "Environmental Management System Training Resource Kit." Version 1.0.

Notes

1. ISO standards are available through the national standards organizations in most countries. For example, the ISO 14000 series is available through the American National Standards Institute (ANSI) at costs ranging between US\$27 and US\$78 for the formal standards and, typically, US\$30 each for the drafts.

2. It is not possible to be precise, but costs typically start in the tens of thousands of dollars for any but the smallest sites.