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Environmental Management Systems – ISO 14001

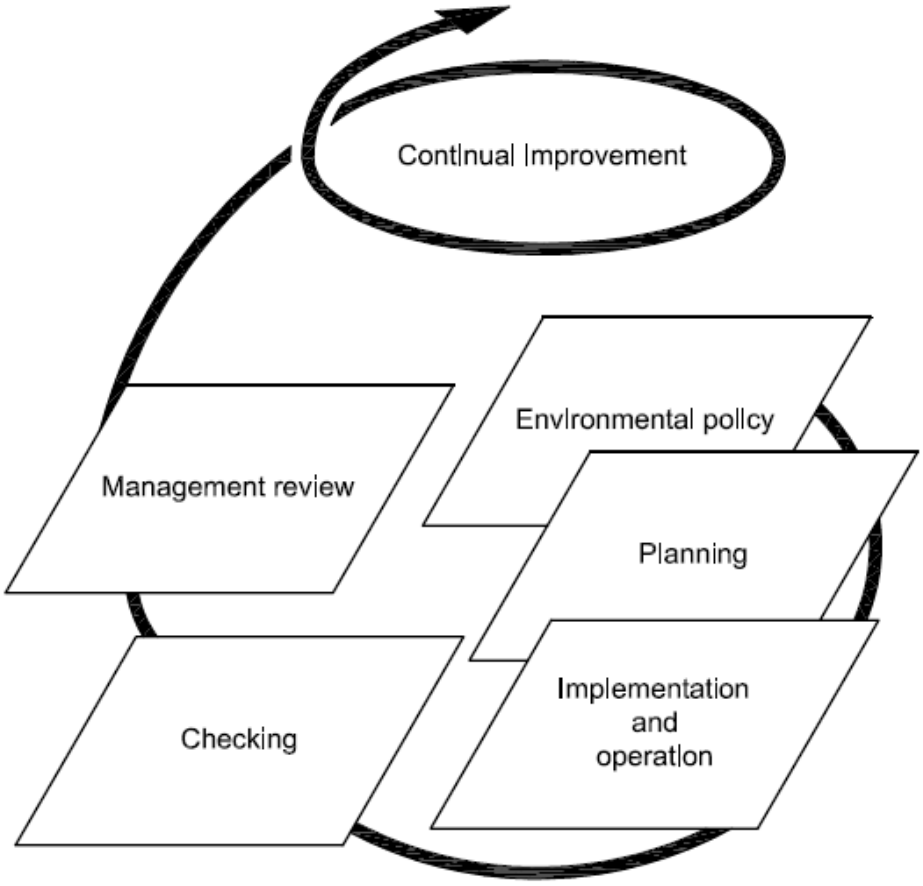
In June 1992, the British Standards Institute published BS 7750, the first Environmental Management Systems standard. This standard set the stage for the world to take a look at their environmental practices. And indeed the world took notice. At the time that this standard was published, "an International EMS standard was being developed through an ISO technical committee TC207" (Morrow 51). In 1996, the International Organization for Standardization published standard 14001 on Environmental Management Systems. After an initially slow start, this standard took the international environmental community by storm and continues to one of the most important standards to date. This paper will examine the history of the standard, the structure of the standard, its relation to other standards, the value of the standard, and the use in governmental regulations.

After the debut of BS 7750 in the European market, it became clear that the world as a whole needed to address the management of the environment. The International Organization for Standardization decided to take on this monumental task. The ISO is a worldwide federation of standards bodies and is the world's largest developer of standards. The ISO began in 1947 to "facilitate the international coordination and unification of industrial standards" (ISO 3). From the 25 original countries, it now consists of 157 countries with one member per country. The work of preparing

international standards is normally carried out through ISO technical committees. The committees are made up of experts from different industries. In the last 60 years, more than 15,000 standards have been published.

ISO 14001 was first published in September 1996 and amended in November 2004. It was created and amended by Technical Committee ISO/TC207, *Environmental Management,* Subcommittee SC1 *Environmental Management Systems* (ISO 1996 IV). This standard lays the framework for an organizations environmental plan with a Plan-Do-Check-Act methodology.

- Plan – Establish the objectives and processes necessary to deliver results in accordance with the organizations environmental policy
- Do – Implement the processes
- Check – Monitor and measure processes against environmental policy, objectives, targets, legal and other requirements, and report the results
- Act – Take actions to continually improve performance of the environmental management systems



The diagram above shows the EMS model and the approach that the plan should take. A company has to first come up with their environmental policy, implement it, perform checks to ensure that it is effective, review the results, and strive for continual improvement. This is not a one time practice, but a continuous process. The process is outlined within the four main components and two annexes of the standard.

This standard is structured into four main sections and two annexes. The first is the Scope of EMS. The scope includes the requirements for an Environmental Management System and guidance for its use. It “specifies requirements for an environmental management system to enable an organization to develop and implement a

policy and objectives which take into account legal requirements and other requirements to which the organization subscribes, and information about significant environmental aspects. It applies to those environmental aspects that the organization identifies as those which it can control and those which it can influence. It does not itself state specified environmental performance criteria (ISO 2004 1). The standard is meant for any organization that wants to achieve the following:

- establish, implement, maintain and improve an environmental management system
- assure itself of conformity with its stated environmental policy
- demonstrate conformity with this International standard by
    - making a self-determination and self declaration, or
    - seeking confirmation of its conformance by parties having an interest in the organization, such as customers, or
    - seeking confirmation of its self-declaration by a party external to the organization, or
    - seeking certification / registration of its environmental management system by an external organization

All of this information is supposed to be included within the organization of an EMS.

The second section of the standard is Normative References, which none are cited.

The third section of the standard contains terms and definitions. The definitions cover such terms as who an *auditor* is, what constitutes *continual improvement*, and how

an *environmental objective* is outlined. There are twenty (20) definitions covered in this section.

The fourth section covers the environmental management system requirements. This section has six subsections which, as shown in the previous Diagram above, goes through the following stages:

- 4.1 General Requirements: the general overview of the process
- 4.2 Environmental Policy: requires an organization to define its environmental policy and seek out the groups commitment to it
- 4.3 Planning: identifies the major steps in the process and how to go about achieving them
- 4.4 Implementation and Operation: outlines the processes for instituting EMS, including resources, training, communication, documentation, operational control, and emergency preparedness and response
- 4.5 Checking: identifies how an organization monitors their EMS and corrects any problems
- 4.6 Management Review: top level management must review the processes periodically and make any necessary changes

The final two sections of the standard are for information only. They are Annex A and Annex B. Annex A is the Guidance on the use of this International Standard. This is a supplement to Section 4 of the standard. It goes into greater depth about requirements, implementation, and legal aspects. It is a checklist for the document.

Annex B is also for information only. This Annex explores the relationship between ISO 14001: 2004 and ISO 9001: 2000. These two standards are “among ISO’s

most widely known standards ever" (ISO 7). ISO 9001 is a reference for quality management whereas ISO 14001 is a reference for environmental management. While the two share common elements, they are not dependent on one another to operate. An example of these common elements are shown here:

Table B.1 — Correspondence between ISO 14001:2004 and ISO 9001:2000

ISO 14001:2004		ISO 9001:2000	
Environmental management system requirements (title only)	4	4	Quality management system (title only)
General requirements	4.1	4.1	General requirements
Environmental policy	4.2	5.1	Management commitment
		5.3	Quality policy
		8.5.1	Continual improvement
Planning (title only)	4.3	5.4	Planning (title only)
Environmental aspects	4.3.1	5.2	Customer focus
		7.2.1	Determination of requirements related to the product
		7.2.2	Review of requirements related to the product
Legal and other requirements	4.3.2	5.2	Customer focus
		7.2.1	Determination of requirements related to the product
Objectives, targets and programme(s)	4.3.3	5.4.1	Quality objectives
		5.4.2	Quality management system planning
		8.5.1	Continual improvement

While ISO 14001 is not dependent on other standards, it can be used in conjunction with ISO 9001 as shown above as well as ISO 14004, which is the Environmental Management Systems - General guidelines on principles, systems and support techniques. ISO 14001 contains requirements for registration and certification while ISO 14004 provides guidance on implementing an EMS and how it coordinates with other management systems. See figure below for example:

Table A.1 — Examples of activities, products and services and their associated environmental aspects and impacts

Activity/Product/ Service	Aspects	Actual and potential impacts
Activity: Road construction		
Mechanical compaction	Emission of particulate matter to air (dust)	Pollution of air
Construction during heavy rain[a]	Discharge of soil and gravel to land and water	Additional depletion of non-renewable natural resources (replacement of gravel-small stones)
		Degradation of localized land
		Erosion of soil
		Pollution of water
		Degradation of wetland habitat

ISO 14001 is a standard that does not require other standards for compliance but can be helpful to an organization if used in conjunction with other standards.

The value of ISO 14001 has been tremendous to the organizations that are now implementing Environmental Management Systems. When first introduced, companies were weary but realized "that they cannot afford to be as far behind in environmental standards as we were in ISO 9000" (Lucas and Roberts 34). By early 1997, American industries were beginning to back ISO 14001 because they also realized that the standards could improve environmental world trade. However, it was the non-US firms that were more aggressively adopting ISO 14001. According to Sandy Hook, "many environmental managers in the US seem to be waiting for the EPA to make an official statement about legal benefits of ISO 14001 registration" (Hasek 39). By early 1998 only 60 US firms had obtained registration compared to 1600 firms worldwide. While the Environmental Protection Agency showed early interest, they did not officially take a position until March 1998. In a federal register notice, entitled *Position Statement on Environmental Management Systems and ISO 14001*, the group "set forth EPAs commitment to EMS and expresses the agency's desire to work with stakeholders to develop and implement them" (Bergeson 10).

By 2001, "At least 36,765 ISO 14000 environmental management certificates had been awarded in 112 countries" (Anonymous 21). That increase was due to the value that companies began to see in being certified. They noted that their clients were appreciative of the concern for environmental standards and that it was not only good to have a plan but also great public relations. There was also pressure between industries to use EMSs. "Corporate giants like GM, Toyota, Ford and others are using their significant market

influence to spurn companies who offer their services to the giants, but neglect to implement EMSs" (Bergeson 30).

While most people began to see the value in using these systems, there were some downsides. If a company did decide to develop an Environmental Management System, they needed to investigate the legal ramifications of first just developing the system, and secondly of making sure the system was not poorly implemented. While the EMS was not regulated by government, it still needed to be properly set up and properly implemented. "To the extent the development of EMS both implies a standard of care and the fact that potential harm could arise by failing to maintain a standard of care, the very existence of an EMS could be used in a tort action by an aggrieved party seeking damages arising form a foreseeable event that aggrieved party claims caused harm" (Bergeson 31). The very existence of the EMS says that an organization realizes that there is an environmental concern and that they are taking steps to alleviate that concern. In a country known for litigation, the US would be the most skeptical of the end users. Even with this concern, more and more organizations are developing Environmental Management Systems.

In my opinion, I think that implementing EMS is good policy. As a consumer, I would like to know that the companies that I am spending my money with are concerned about the environment and their role in protecting it. I think that having a checklist and continually going back through it is a great idea. An organization cannot simply have a plan and never ask the question of whether or not it is working. I also think that it is important to have the EMS certified independently through the National Accreditation Program. Although some companies are still self-certifying, having an outside audit can

help to see where there are failures in the plan from someone not involved in creating it. Since this plan has to be a top down plan prepared by upper management, an outside person would not worry about organizational politics and help to certify the best EMS possible. However, since preparing and Environmental Management System is voluntary, companies and organizations can choose whether to certify from NAP or self-certify.

As with all standards developed by the International Organization for Standards, ISO 14001, Environmental Management Systems are completely voluntary. There is no government regulation in place for this standard. The Environmental Protection Agency has made it clear that it has “no intention of mandating the use of EMS in rules and or permits” (Wei 35). In the latest EPA Position Statement on Environmental Management Systems published in December of 2005, the EPA declares that “EMSs do not replace the need for regulatory and enforcement programs, but they can complement them” (EPA 1). Although there are not governmental regulations, EMSs have been used as parts of settlement agreements. The EPA requested the implementation of EMS as a supplemental environmental project in exchange for reducing the cash penalty in a settlement with a number of colleges and universities (Wei 35). While not mandatory, the incentives offered by the plan are some times too great to ignore.

In April of 2000, Presidential Executive Order 13148 – The Greening of Government through Leadership in Environmental Management was published. This order required certain parts of EMS to be implemented for federal agencies. Agencies were required to conduct environmental audits every three years and were expected to reduce toxic waste release and implement pollution prevention procedures. Even as this

order has come into effect, an organization can still choose not to institute an Environmental Management System.

More state and local governments are also getting in on EMSs. In Oregon, legislature was introduced to issue green permits to organizations that have implemented EMSs. “The Oregon program is a voluntary incentive-based program to reward facilities that go beyond compliance and achieve superior environmental performance. The Green permits contain language that encourages regulatory flexibility, such as consolidated reporting and other reporting modifications, extended permit intervals, expedited permit approval and some enforcement discretion” (Wei 36). Organizations can receive special benefits for having EMSs in place and properly executing them.

Local governments have gotten into the act as well. Cities agencies are realizing the cost benefits of proper Environmental Management Systems implementation.

Not only are they realizing cost savings, but also insurance premiums are being reduced, man hours are being reduced, as well as the avoidance of legal liabilities. The chart below

shows some of the savings that several cities are starting to recognize, not just financial, but in waste reduction as well:

PUBLIC ENTITY			
City of San Diego Refuse Disposal Division	Tri-Metropolitan Transportation District, Portland, Oregon	Massachusetts Department of Protection	Jefferson County, Alabama
SAVINGS			
$868,000	**$300,000**	**18,000 pounds waste in 3 months**	**Millions of dollars saved**
DESCRIPTION			
in heavy equipment and diesel rates by shutting off equipment during breaks and lunch periods	identified as operational savings - $66,000 of this for energy conservation	due to recycling program at DEP's W.E.S. Laboratory	due to potential bond rating improvement

(Peer Center). The benefits of implementing an EMS seem to outweigh the risks for these local governments.

In summary, ISO 14001 – Environmental Management Standards are completely voluntary. As a nation, we are coming to realize that we are depleting our resources at an exponential rate and need to take measures to prevent this from occurring. We expect the companies and services that we use to take this matter seriously and ensure that they are working to protect all of us. An organization is under no pressure from the government to use this standard. However pressure from an organization's clients may dictate the adherence to the guidelines presented in ISO 14001.

References

Anonymous. “ISO 9000, ISO 14000 certificates reach record levels in 2001.” Quality Progress (October 2002): 21-22.

Bergeson, Lynn. “New EPA Policy Promotes EMS.” Pollution Engineering (July 2004): 10-11.

Bergeson, Lynn. “New EPA Policy Promotes EMS.” Pollution Engineering (May 2005): 30-31.

EPA. “United States Environmental Protection Agency Position Statement on Environmental Management Systems.” (December 13, 2005).

Hasek, Glenn. “ISO’s green standards takes root.” Industry Week Vol. 247 (February 16, 1998): 39-41.

ISO. “ISO 14001 Environmental management systems – Specification with guidance for use.” (September 1, 1996).

ISO. “ISO 14001 Environmental management systems – Requirements with guidance for use.” (November 15, 2004).

ISO. “Overview of the ISO system.” Online Posting. <http:www.iso.org/iso/en/aboutiso/introduction/index.html>

Lucas, Allison and Michael Roberts. “Environmental management standard set for 1995 debut.” Chemical Week Vol. 155, Issue 18 (November 9, 1994): 33-34.

Morrow, Mark. “Race for the first U.S. EMS Registration.” Chemical Week Vol 154, Issue 22 (June 8, 1994): 51.

Peer Center. “EMS: A Better Bottom Line for Local Government.” Online Posting. <http://www.peercenter.net/ewebeditpro/items/O73F3460.pdf>

Wei, Norman. “EMS and the Regulatory Framework.” Pollution Engineering (February 2005): 34-37